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A New Genus and Species of the Family Diplogyniidae (Acarina)

By ELLIS A. HICKS

INTRODUCTION

Of the seventeen genera listed by Baker and Wharton (1952) under the family Diplogyniidae, only three had been described before the publication of Trägårdh's paper in 1951.

The first is *Diplogynium* Canestrini, 1888 (= *Anoplocelaeno* Berlese, 1910), of which the type is *Diplogynium acuminatum* Canestrini, 1888. A study of the description by Canestrini (1888) reveals a lack of information essential for present-day purposes of comparison and classification, especially as it pertains to shape and arrangement of ventral plates and the numbers and distribution of the hairs on these plates. His illustration of *D. acuminatum* suggests a characteristic placement of the third pair of sternal hairs; however, this detail is rather obscurely depicted. In this regard, Trägårdh states: ". . . it is, however, obvious that the description and figures, given by Canestrini, although very good for the time when they were published, are quite insufficient now for identification purposes."

The second genus, *Antennocelaeno* Berlese, 1904, was described by Berlese as a subgenus of *Celaenopsis*. His description is as follows: "Characteres generis *Celaenopsis* sed ambulacra magna unguibus nullis. Insecticoli. Typus *C. Braunsi* (Wasm.). *Antennophorus Braunsi* Wasmann, termitophilus." Wasmann (1902) described *A. braunsi* as a guest in colonies of the "Schornsteintermite", *Termes tubicola* Wasm., near Bothaville in the Orange Free State. The most specific part of the description is "Ihr hellbrauner Rückenschild ist vollkommen kreisförmig, glatt und glänzend, unbehaart, auch ohne Marginalborsten, schwach und gleichmässig gewölbt." The shape of the dorsal plate and absence of hairs are in definite contrast with the comparable characters of the specimens to be considered in this paper.

The third genus is *Passalacarus* described by Pearse and Wharton in 1936 and redescribed by Trägårdh (1951). The characters of this genus are so distinct that they merit no further comment in this paper.

As mentioned previously, fourteen of the seventeen genera were described by Trägårdh. In addition, he divided the diplogyniids into five subfamilies, within one of which, the Diplogyniinae, he described eight new genera and eight new species. He separated the Diplogyniinae from other subfamilies on the basis of the following well-

defined characters: (1) anal and ventral plates fused, (2) margin of body lacking minute spinulae, (3) dorsum lacking a dense covering of minute hairs, and (4) no hook-shaped bristles on the dorsal plate.

By the use of his key to genera of the Diplogyniinae, one can separate the specimens to be considered in this paper from all genera listed except *Schizodiplogynium* which is characterized as having "one of the lateral hairs near the anterior edge of the lateral (sic) shield." This statement applies as accurately to the specimens under consideration as it does to *Schizodiplogynium*; however, on the latter this hair is plainly located closer to the median than to the lateral margin of the lateral plate in contrast to the specimens to be described on which the hair is unmistakably closer to the lateral than to the median margin. Furthermore, *Schizodiplogynium* has on the posterior margin of the sternal plate a deep incision, which appears to be quite unusual when comparison is made with other genera and the undescribed forms. Trägårdh described the lateral plates of *Schizodiplogynium* as "triangular, with straight sides, forming together almost a quadrangle whose anterior angle encroaches upon the sternal shield." This is in decided contrast to the conspicuous, broad lobes of the lateral plates possessed by the undescribed forms.

DESCRIPTION

Neolobogynium, gen. n.

The specimens upon which this description is based are the result of several collecting efforts as listed below.

Sample 50-9-(A-S). Taken by the writer at Ames, Iowa, April 27, 1950, from *Hololepta fossularis* (Say) (Coleoptera, Histeridae). 22 females, 18 males.

Sample 50-77 and 50-77-(A-K). Taken by Richard Wagner at Ames, Iowa, April 22, 1950. No information available on possible insect relationship. 9 females, 6 males.

Sample 50-80. Taken by W. Caldwell at Ames, Iowa, April 27, 1950. No information available on possible insect relationship. 2 females, 2 males.

Sample 50-114. Taken by the writer at Pammel State Park, Madison County, Iowa, July 4, 1950, from *Hololepta fossularis* (Say). 1 male.

Sample 50-207-(A-B). Taken at Ames, Iowa, spring 1949, from *Hololepta fossularis* (Say). 3 females, 1 male.

Three additional specimens (one male and two females) in the private collection of W. E. LaBerge, Iowa State College, were taken from *Hister* sp. at Burton, Kansas, May 1, 1952.

The name, *Neolobogynium*, was selected in reference to the prominent and well-defined anterior lobes of the lateral plates.

Diagnosis. Dorsum with four pairs of long hairs. Hairs II of sternal plate much closer to anterior than posterior margin. Hairs

III widely separated. Sternal plate broadly concave at posterior margin. Metasternal plates partially covered by lateral plates. Median two-thirds of the anterior part of each lateral plate prolonged into a well-defined lobe. Anterior pair of hairs of lateral plates fairly close to the anterior margin of plates (posterior to margin by about one-fourth the length of the lateral margin of the plate), and widely separated from each other. Posterior pair of hairs close to lateral margins of plates. Each lateral plate shaped like a modern harp. A stout spine projecting postero-laterally from the lateral arch of each vaginal sclerite.

Type species. Neolobogynium lateriseta, sp. n.

Neolobogynium lateriseta, sp. n.

Male.

Length. 802 microns.

Width. 592 microns.

Shape. Oval, rounded posteriorly, bluntly acuminate anteriorly slight shoulders present.

Dorsum. (Fig. 1). Two pairs of long hairs in the lateral region of the proterosoma with the posterior pair at the extreme posterior area of the proterosoma. Two pairs of long, pilosely-tipped, lateral hairs in the region of the hysterosoma. Other hairs very small and sparsely situated.

Venter. (Fig. 2). *Sternal plate.* Width of anterior part of sternal plate equal to or slightly greater than that of female. Concavity for genital aperture at anterior margin slightly less than half the width of the plate to one-third the width of the plate. Intercoxal portion has six pairs of short hairs of which the first pair is submarginal; the second pair is situated approximately two-thirds the distance from the median line to the lateral edge; the fourth pair is in the posterior part of the angle between coxae two and three; and the third, fifth and sixth pairs form two longitudinal rows approximating an hyperbola. These six pairs of hairs are located so as to constitute five transverse rows with the fourth and fifth pairs in the fourth row. Three pairs of pores present, the first pair submarginal and latero-posterior to the first pair of hairs, the second pair latero-anterior to the third pair of hairs, and the third pair in the angle between coxae two and three.

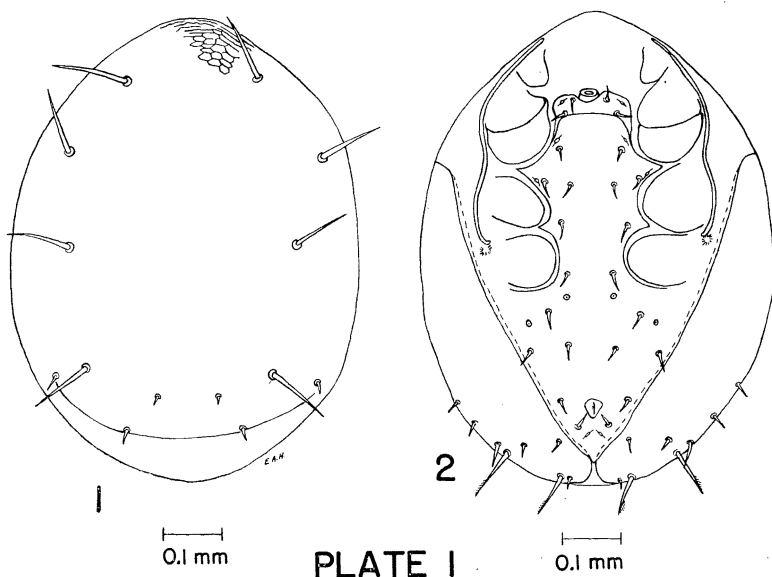
Ventro-anal plate. Lateral edges of ventro-anal plate underlap median edges of marginal plates, resulting in two narrow, oblique planes converging posteriorly but ending anterior to the margin. A total of six pairs of short hairs distributed in five transverse rows as follows: first pair medio-posterior to fourth coxae, second pair postero-lateral to the first pair, third and fourth pairs constitute the third row, followed by the fifth pair comprising the fourth row, and the sixth pair located postero-lateral to the anus. Two pairs

of large, circular, well-defined pores in anterior portion of plate, and one pair of conspicuous, slit-like pores posterior to anus.

Marginal plates. Beginning at the posterior tip of the marginal plates, each has a series of hairs which may be characterized as very small, large, very large with pilose tips, medium-sized and small. Of the latter there are several which continue anteriorly on the margin.

Gnathosoma. Epistome. (Fig. 3). Broadly ovate.

Mandibles. (Fig. 4). Upper jaw with eight teeth, number eight the largest, number two next in size, and numbers one and three



Neolobogynium lateriseta, gen. n., sp. n.

Figure 1. Dorsum of male.
Figure 2. Venter of male.

to seven distinctly smaller and subequal. Lower jaw with six subequal teeth followed by the large basal tooth. The hump-backed appearance of the lower jaw is caused by the presence of a thin, elongate lamina which fits closely along the median and ventral surfaces of the jaw. In most specimens this plate or husk-like structure is barely noticeable; whereas, in a few it is swung away from the jaw and is easily seen.

Hypostome. (Fig. 5). Maxillary lobes slender and finely attenuated. Maxillary plates continued anteriorly almost as far as the tips of the maxillary lobes and terminating in two long, slender, flexible, lanceolate appendages. Four pairs of hypostomal hairs present. I, II and III inserted to form an oblique line. II is largest, III is smallest,

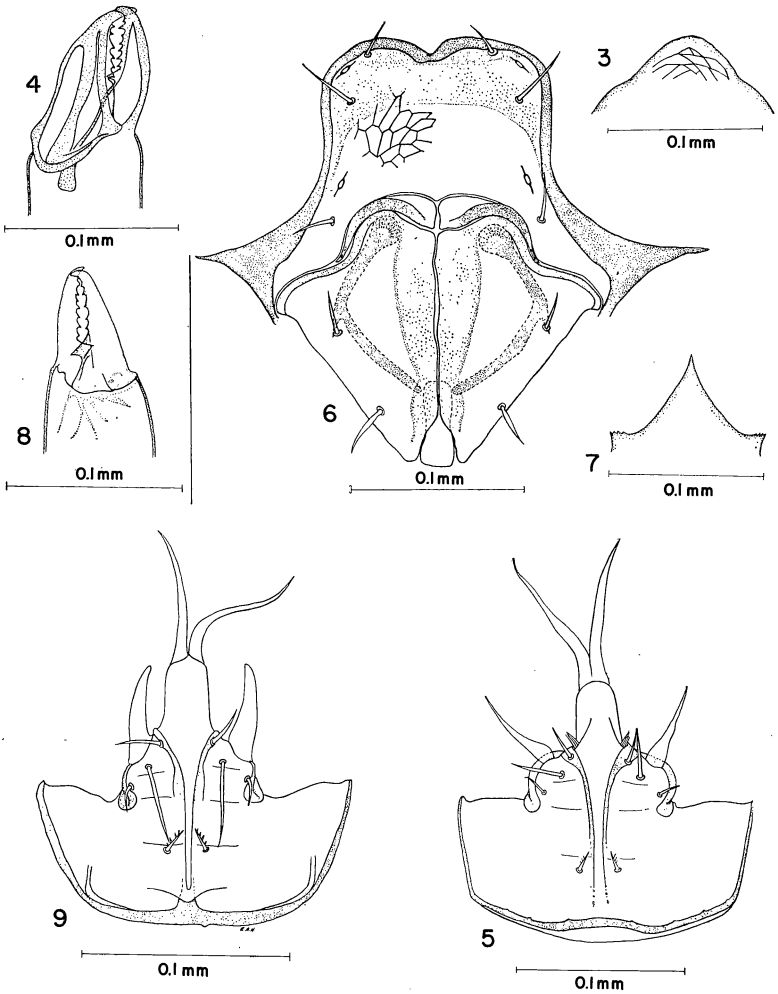


PLATE II

Neolobogynium lateriseta, gen. n., sp. n.

- Figure 3. Epistome of male.
- Figure 4. Mandibles of male.
- Figure 5. Hypostome of male.
- Figure 6. Venter of female.
- Figure 7. Epistome of female.
- Figure 8. Mandibles of female.
- Figure 9. Hypostome of female.

and IV is setaceous and about the same length as III but more massive.

Two allotypes will be deposited in the U. S. National Museum. The remaining allotypes will be retained in the writer's collection.

Female.

Length. 834 microns.

Width. 615 microns.

Shape. Similar to that of male.

Dorsum. Similar to that of male.

Venter. (Fig. 6). *Sternal plate.* Anterior blade large, about two-thirds as long as wide. Anterior angles of blade broadly rounded, and anterior margin with single, well-defined concave notch medially. Hairs I submarginal, each located from two-fifths to three-fifths the distance from median line to lateral margin. Hairs II located in anterior one-third of blade and from two-thirds to four-fifths the distance from median line to lateral margin. Hairs III widely separated, each in the postero-lateral angle of the plate and about equidistant from the anterior and posterior margins of the angle. Posterior margin of sternal plate broadly concave. Distinct slit-like or circular pore latero-ventral to hairs I. A second pair of pores anterior to hairs III.

Metasternal plates. Not fused medially, partially covered by anterior lobes of lateral plates. Median ends spatulate, curving uniformly latero-posteriorly with two small pores in the lateral end of each plate.

Lateral plates. Median two-thirds of anterior border broadly lobate. Claviform vaginal sclerites arched laterally, each with a short, stout spine projecting postero-laterally from the bend of the sclerite. Each of the anterior pair of hairs located close to the stout spine of a vaginal sclerite. The posterior pair of hairs is distinctly closer to bases of the plates than is the anterior pair.

Epigynial plate. Almost all of the slightly expanded posterior portion exposed. Remainder covered by the contiguous median areas of the lateral plates. No hairs present.

Ventro-anal plate. Similar to that of male.

Marginal plates. Similar to those of male.

Gnathosoma. Epistome. (Fig. 7). Anterior apex sharply and strongly mucronate. Sides broadly concave, then describing a strong, acute angle on each side with small serrations on the anterior face of each angle. The shape of the epistome is distinctly different from that of the male.

Mandibles. (Fig. 8). Lower jaw with five subequal teeth, numbers one, four and five about the same size and numbers two and three larger and of mutually similar size. The sixth tooth is a large, sharp, basal tooth. Upper jaw with nine teeth. Numbers one and three are very small, two is large, and numbers four to eight of sim-

ilar small size. Number nine is basal, slightly smaller than the basal tooth of the lower jaw.

Hypostome. (Fig. 9). Maxillary lobes thickened, cornuate and with bluntly-pointed apices. Anterior continuation of maxillary plates with lanceolate appendages similar to those of male. Four pairs of hypostomal hairs present. I about the same size as in the male. II long and slender with length equal to distance between points of insertion of II and IV. III and IV smaller than I but of mutually similar size. IV setaceous.

The holotype and one female paratype will be deposited in the U. S. National Museum. The remaining paratypes will be retained in the writer's collection.

DISCUSSION

The specimens comprising this population show, in comparison with the holotype and the two designated allotypes, certain differences which should be mentioned. Dimensions of the males range from 834-713 microns in length and from 647-506 microns in width. With the length of each specimen represented by the constant, 10, the ratios of widths to respective lengths range from 7.8-7.0.

Dimensions of females range from 834-724 microns in length and from 627-532 microns in width. Ratios of widths to respective lengths range from 7.6-7.1.

In several specimens the shoulders are more pronounced than in the holotype. This characteristic, in conjunction with the position of the anterior portion of the peritremes, produces a camerostomal effect.

Sternal hairs I were described as submarginal; however, in several specimens these hairs appear to be attached to the margin of the plate. This variation may be caused by slight dislocation of the sternal plate during the mounting or drying process.

It is difficult to fix a description of the location of sternal hairs II. An inclusive description should probably state that these hairs are located from two-thirds or three-fifths to three-fourths or four-fifths the distance from median line to lateral margin. The pores latero-ventral to sternal hairs I appear to be circular as well as slit-like.

Literature Cited

- Baker, Edward W., and G. W. Wharton. 1952. An introduction to acarology. Macmillan, New York, xiii+465 pp., 377 figs.
- Berlese, Antonio. 1904. Acari nuovi. Redia, (year 1903)1(2):258-280.
- Canestrini, Giovanni. 1888. Intorno ad alcuni acari ed opilioni dell' America. Atti della Società Veneto-Trentina di Scienze Naturali, (year 1887)11(1):100-111, 2 tav., 11 figs.
- Trägårdh, Ivar. 1951. Studies on the Celaenopsidae, Diplogyniidae and Schizogyniidae (Acarina). Arkiv för Zoologi, (2)1(4-5):361-451, 156 figs.
- Wasmann, E. 1902. Zur Kenntnis der myrmecophilen *Antennophorus* und anderer auf Ameisen und Termiten reitender Acarinen. Zoologischer Anzeiger, 25:66-76.

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