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Contribution to the taxonomy of European Poronota I. *Oribatella* and *Anachipteria*

(Acari, Oribatida)

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In the slide collection of Oribatida from Carl Willmann and from L. Kneissl, stored in the Zoologische Staatssammlung in Munich, some species have been found which need to be revised. One of this slides refer to “*Oribatella meridionalis*” (det. Willmann); the revision of it resulted in synonymization with *Oribatella superbula* (Berlese, 1904). A related new species from Germany, *Oribatella similesuperbula*, spec. nov. is described. Further on a slide with the lable “*Tectoribates latitectus*” (det. Willmann) turned out to be a new species, described as *Anachipteria dubia*, spec. nov., which is compared with *A. howardi* Berlese, 1908, the senior synonym of *A. latitectus* Berlese, 1908.

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Introduction

Within revisional studies on central european Oribatida some new species have been found; in some further species the older descriptions need some additions to be comparable with modern ones. This contribution deals mainly with material from the Willmann collection in the Zoologische Staatssammlung in Munich. A slide with “*Oribatella meridionalis* Berlese, 1908” has been reexamined in the light of a revisional publication of Berlese’s *Oribatella* species (Bernini 1975), the nomen novum *O. willmanni* Subias & Gil-Martin, 1995, for this slide material, and a closely related german species with similar characters, *Oribatella similesuperbula*, spec. nov.

A second part of this contribution deals with “*Tectoribates latitectus* (Berlese, 1908)” in the sense of Willmann (1931), belonging to *Anachipteria* in modern taxonomy. All european collections of this american species and the related *A. howardi* need to be reexamined. Willmann’s material does not belong to Berlese’s species and is described as *Anachipteria dubia*, spec. nov., below.

Oribatella superbula (Berlese, 1904)

According to the revision by Bernini (1975) the italian species *Oribatella meridionalis* Berlese, 1908, is a junior synonym of *O. superbula* (Berlese, 1904). Willmann (1931) illustrated an “*O. meridionalis*” in his keys in the group of species with 3 claws. But the reexamination of his slide brought the result that the two mounted specimens from italian origin have 2 claws, indeed, as described for *superbula*. In fig. 1a the dorsal aspect of one of the mounted specimens is presented, the claws of legs are sketched, only. As far as visible the ventral characters agree with *O. superbula* after Bernini (1975). It seems that Willmann did not collect “*O. meridionalis*” in Germany, himself, but he gave the diagnosis after Sellnick

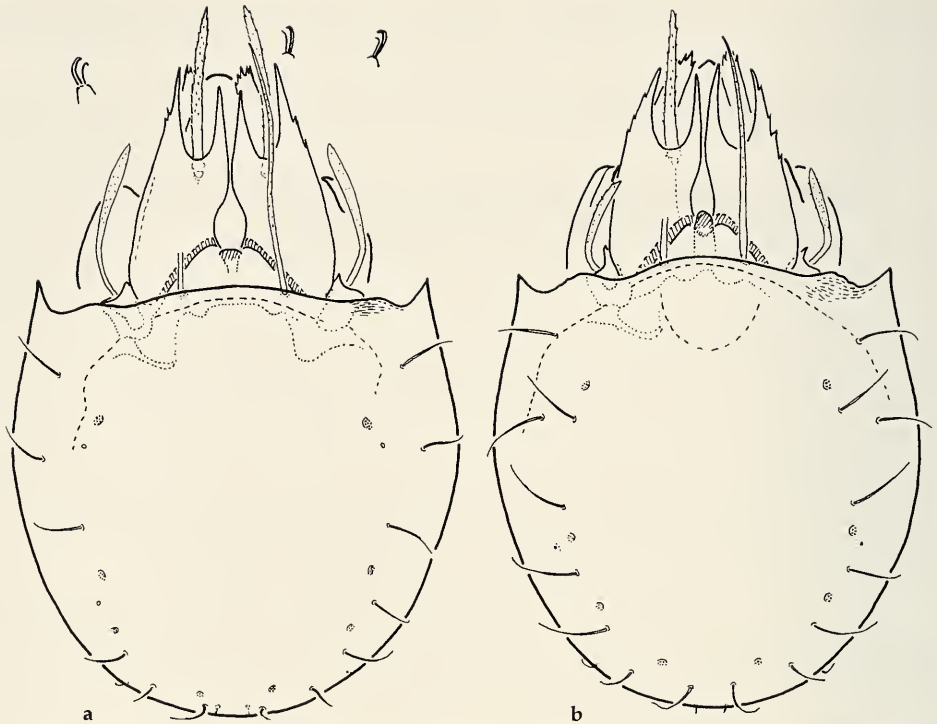


Fig. 1a. *Oribatella superbula* (Berlese), dorsal aspect with indication of the claws (slide of Willmann collection, Munich). b. *Oribatella similesuperbula*, spec. nov., dorsal aspect.

(1928), who notes no origin of his material. Cited by Bernini (1975), in Southern France a 2-clawed “*O. meridionalis*” has been found by Lions (1972). All these specimens refer to *O. superbula*.

In Spain one specimen of *Oribatella* has been found and cited by Subias & Gil-Martin (1995) that resembles *O. superbula* in the sense of Bernini (1975), but it differs by legs with 3 claws each. Subias & Gil-Martin assumed that the specimen must be identical with Willmann’s “3-clawed *O. meridionalis*”, and therefore it was renamed as “*O. willmanni* Subias & Gil-Martin, 1995” without further details. But, as reported above, Willmann’s specimens of “*O. meridionalis*” have 2 claws and origin from Italy, and they belong to *O. superbula*. The spanish *Oribatella* is a species inquirenda; the nomen novum for Willmann’s *O. meridionalis* is based on the erroneous assumption that Willmann’s specimens would have 3 claws at the legs, also. In the following, the description of a new species from Germany with 3 claws at the legs is presented which is related to *O. superbula*.

Oribatella similesuperbula, spec. nov.

Figs 1b, 2a-c

Diagnosis. Small body size, length about 320–380 μm . Prodorsum with interlamellar tubercle; cuspis of lamella with long internal and external spicular teeth. Sensillus long and only scarcely fusiform thickened. Rostral border with 2 small lateral teeth, in the middle undulating. Epimeral setation formula normal (3-1-3-3); 4c very strong and moderately prolonged, 3c moderately strong and prolonged; other setae thin. Legs with 3 claws.

Description

General characters. Total body length (without lamellae and tutoria) of females 340–380 μm , males 320–340 μm . Colour reddish-brown, cuticle smooth.

Prodorsum. Frontal border of rostrum with no real incision, between small lateral teeth the border

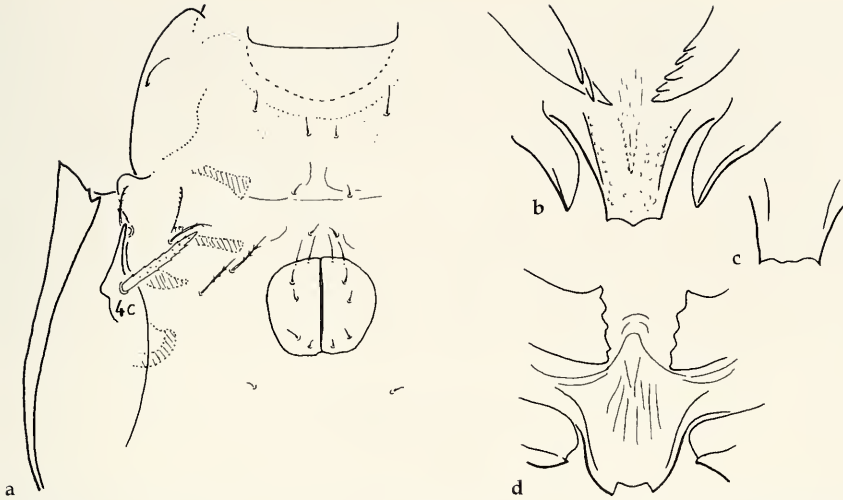


Fig. 2a. *Oribatella similesuperbula*, spec. nov., epimeral region. b. rostrum with genal teeth and tutorial tips in dorso-frontal aspect. c. rostrum of another specimen. d. *Oribatella superbula* (Berlese), rostrum with genal teeth and tutorial tips in dorso-frontal aspect (after Bernini 1975).

has two or three incurvations (Figs 2b,c); dorsal part of rostrum with carina. Normal shape of lamellar cuspis: inner cuspis teeth mostly shorter than outer teeth, the latter at the lateral side with 0-3 little teeth; with small interlamellar ("translamellar") tubercle between the cuspides; lamellar and interlamellar setae long and strong. Sensillus thick setiform (Fig. 1b). Tutorium long and broad, with distal teeth, as usually (Fig. 2b). Genal teeth not very broad (smaller than in *O. superbula*). Rostral setae long, with setulae. Pedotectum I very large.

Notogaster. Cuticle smooth with fine puncture, with striation at the anterior part of the pteromorphs. 10 pairs of granulated notogastral setae of moderate length, anterior setae up to 35 μm , 2 pairs at the posterior border very small; 4 pairs of small areae porosae; pteromorphs of normal form, as typical in the genus (Fig. 1b).

Ventral region. Epimeral region (Fig. 2a) with the usual setation 3-1-3-3. Some setae short and thin (1a, 1b, 2a, 3a); others longer and thin (1c, 3b, 4a, 4b); 3c longer and moderately thick, 4c thick and prolonged, about 40 μm , reaching to the apodeme between epimers II and III. Aggenital setae of normal small size, as 6 pairs of genital setae, 3 pairs of adanal setae and 2 pairs of anal setae.

Legs. All legs with 3 claws (heterotridactyl). Genu I with ventral tooth, genu IV without tooth.

Origin of the specimens. (1) Some specimens have been found by the author in moss and decaying wood of a trunk. Forest near Milseburg, Rhön Mountains, Germany; sample 813, date 4.6.1994. The type and a syntype is deposited in Zoologische Staatssammlung, Munich. Further specimens are in the collection of the author. (2) Three slides in the Kneissl collection, stored in Zoologische Staatssammlung in Munich, belong to this species, most probably. The specimens in the slides "*Oribatella berlesesi*" K1194, K1195 and K1196 are damaged, but the visible details refer to the new species. Origin is Oberalting, Bavaria, leg. Kneissl 7.8.1910 from decaying wood ("Mulm").

Discussion: *O. similesuperbula*, spec. nov. is closest related to *O. superbula*. Common characters are: anterior border of rostrum small, without pad; strong epimeral setae 3c and 4c; middle body size. Main differences are: legs with three claws (*superbula* with 2 claws); seta 4c of epimers (Fig. 2a) less prolonged than in *superbula*, in which the seta 4c reaches the apodeme between epimers I and II; genal teeth smaller; frontal border of rostrum undulated (Figs 2b, c; with incision in *superbula*: fig. 2d); body length somewhat larger with 320-380 μm (in *superbula* 290-350 μm).

At today's knowledge the 3-clawed spanish species *Oribatella willmanni* Subias & Gil-Martin, 1995 must not be identical with *O. similesuperbula*, spec. nov. and it requires careful reexamination (cf. discussion in the section on *O. superbula*). But, in the case of specific identity the name *O. willmanni* would be senior synonym of *O. similesuperbula*, spec. nov.

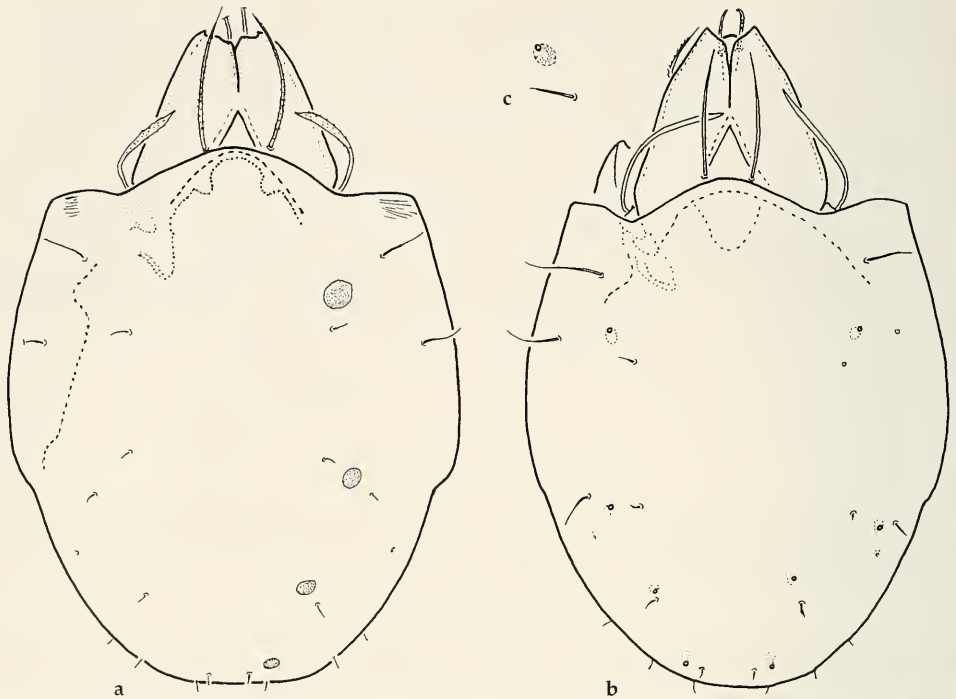


Fig. 3a. *Anachipteria howardi* (Berlese), dorsal aspect of a syntype, Berlese collection (after Norton & Kethley 1989). b. *Anachipteria dubia* spec. nov., dorsal aspect. c. Sacculus Sa with notogastral seta.

Anachipteria howardi (Berlese, 1908) and *A. latitecta* (Berlese, 1908)

The taxonomical literature on *Anachipteria* presents a confusing picture. There are different opinions on the definition of the families Achipteridae and Oribatellidae. The *Anachipteria* species have been put into the family Oribatellidae by some authors (cf. Perez-Iñigo 1993; see discussion in Bernini 1973), partly as *Tectoribates* species, because *Anachipteria*, in contrast to other achipterid genera, lacks the knifelike anterior projection at the pteromorph. On the other hand, the morphology of the lamellar complex and the turtura are more or less the same than those in typical achipterid genera, as *Achipteria*, *Parachipteria* and *Pseudachipteria*, which have the typical knifelike anterior projection at the pteromorph. The systematic position seems to be solved definitely by Seniczak (1977): the larvae and nymphs of *Anachipteria* show the typically folded notogaster and other characters of *Achipteria* juveniles, contrasting the juveniles of *Oribatella*. *Anachipteria* is a member of Achipteridae.

In two very short descriptions, without figures, in the same paper Berlese (1908) established *Sphaerozetes howardi* and *Sphaerozetes latitectus*, both originating from Columbia, North America. The differences should be in the sensillus shapes. Later on Berlese changed the label of a "*latitectus*" slide by adding "*howardi*" with pencil. It seems that Berlese regarded both species as synonymous, as indicated in his unpublished catalogue (see Norton & Kethley 1989). The reexamination of Berlese's slides led Norton & Kethley (1989) to the same assumption of synonymy of both species with the priority of *howardi*, described firstly (cf. Marshall et al. 1987; cf. Mahunka & Mahunka-Papp 1995). It belongs to *Anachipteria* in modern literature.

European records of both species, *A. howardi* and "*A. latitecta*", need to be reexamined. Grandjean (1932) discusses the species in connection with his description of *Anachipteria deficiens* Grandjean, 1932. Willmann (1931) describes and figures "*Tectoribates latitectus*" very cursorily, a specimen collected in north-western Germany, near Friesoythe. Seniczak (1977) figures the adult of "*A. latitecta*" together with juveniles, but it seems to be *A. deficiens*, more probably. The redescription of "*A. howardi*" from Hungary by Mahunka (1996) is comparably good standard, but the sensillus shape is somewhat

smaller; it indicates the possibility that the species occurs in North America and in Europe, also. A reexamination of the Berlese slides by Norton & Kethley (1989; as by the author) resulted in the drawing fig. 3a of "*Sphaerozetes latitectus*" (Berlese's slide 73/16; conspecific with syntype slide 73/15 with the pencil mark "tipico = *Howardi*"). An originally designated type specimen of *S. howardi* has not been found. Supposed, that the sensillus shape has some variability, the redescrptions of Norton & Kethley (1989), fig. 3a, and Mahunka (1996) refer to the same species, *A. howardi*. *A. latitectus* (Berlese, 1908) is regarded as junior synonym.

Diagnosis of *Anachipteria howardi* (Berlese, 1908): Pteromorphs dorsally with a moderate sinus at the bothridia; Areae porosae of notogaster large, the largest is *Aa*; anterior notogastral setae c_2 moderately large (about 30 μm), posterior setae small; cuspis of lamellae somewhat truncated with a nearly transverse frontal border, at the outer side of the cuspis a small but distinct tooth; sensillus fusiform, mostly asymmetrical, with distinct tip, granulated; body length about 385-440 μm .

Anachipteria dubia, spec. nov.

Fig. 3b,c

This species exists up to now as two specimens, only. The type specimen is mounted in a microscopical slide in the Willmann collection in the Zoologische Staatssammlung in Munich and is labled as "*Tectoribates latitectus*". It is the specimen which has been illustrated by Willmann (1931: p. 181). Willmann indicates it as the single german species of the genus *Tectoribates*; he refers that the lamellae look like that of "*Notaspis*" (now *Achipteria* and related). Because of sacculi on the notogaster the species is different from *Anachipteria howardi*, which is the senior synonym of *Sphaerozetes latitectus* Berlese, 1908, as discussed in the last section.

The type locality after Willmann (1931) and the slide lable is: Moss of a bog; Rolfsort, Wolfstange bei Friesoythe (Oldenburg); type specimen in M134 – 13.8.27; the locality is in north-western Lower Saxonia, Germany (a second slide is M135). The slides are deposited in Zoologische Staatssammlung in Munich.

The mounted status of the species does not allow differentiated description, especially of the ventral morphology and the lateral aspect.

Diagnosis: Pteromorphs dorsally with a moderate sinus at the bothridia, without a knifelike anterior projection at the pteromorph; notogaster with 4 pairs of sacculi instead of areae porosae; anterior notogastral setae c_2 moderately large (about 30 μm), posterior setae small; cuspis of lamellae at the frontal border obliquely cut, with the corner at the outer side of the cuspis, as typical for most species of the genus; sensillus very small fusiform with distinct tip; body length about 470 μm . As far as visible the ventral morphology shows no specific characters. Legs with 3 claws.

Discussion: *A. dubia*, spec. nov. is the first species within *Anachipteria* with sacculi instead of areae porosae on the notogaster. The special form of the pteromorphs and all other characters, as far as visible in the slide, fit into the genus. But, the sacculi seem to me an insufficient argument to split off a new genus. The very similar achipteriid genera *Achipteria* and *Parachipteria* differ only by notogastral sacculi in the first and notogastral areae porosae in the latter genus, a poor argument for separating genera. For instance, I know a *Peloptulus* species with sacculi on the notogaster (the common species have areae porosae). As known by oribatologists, both homologous structures (see Norton et al. 1997) occur in many poronotic families, from case to case. It has no or minor worth for phylogenetic argumentation, but it seems to me being a typological character, only. The species name *A. dubia* spec. nov. refers to the doubtful systematic position within *Anachipteria*, regarding the genus definition, up to now.

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