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A review of Berlese's species belonging to the Uropodina with illustrations. Part I: Species and subspecies beginning with letters a and b. (MESOSTIGMATA: PARASITIFORMES: ACARI)

Abstract:

Fourteen of the 137 Berlese Uropoda species have been re-studied and catalogued on the basis of literature and examination of the type-specimens and related material at the Acaroteca in Florence. New illustrations as well as already published ones are included. There are two main sections: COMMMENTS and CATALOGUE. The CATALOGUE section is made up of four divisions: SPECIFIC NAME, SYNONYMY, CITATIONS and LOCALITY: HABITAT.

key words: Berlese, uropodids, from U. aemulans through U. bruckii

Résumé:

Quatorze parmi les 137 espèces du genre Uropoda de Berlese ont été ré-étudiées et cataloguées sur la base de la littérature ainsi que de l'examen des types et d'autres spécimens à l'Acarothèque de Florence. Des illustrations inédites ou déjà publiées sont incluses. Le travail est divisé en deux sections: COMMENTAIRES et CATALOGUE. La section CATALOGUE est subdivisée en 4 parties: NOM DE L'ESPECE, SYNONYMIE, CITATIONS, LOCALITE:HABITAT.

Mots-clés: Berlese, uropodids, de U. aemulans à U. bruckii

INTRODUCTION

The present paper is the first of a series in an attempt to catalogue all the information through 1995 on the species of the genus Uropoda Latreille, 1806 originally described by Antonio Berlese. Berlese described about 137 species under the Uropoda. Thirteen species with the initial letters a through b are included here. The species are arranged alphabetically by trivial name in their original orthography. The manuscript is divided into two sections, the COMMENTS section and the CATALOGUE section. Those species heretofore lacking information have been studied and illustrated where possible.

The members of the Uropodina form a large, cosmopolitan group of free-living mites. They are closely-related and easily characterised by the "trend towards the development of a highly specialised body form associated with adaptation for the protection of the gnathosoma and ambulatory appendages" (Evans, 1985: 66).

Antonio Berlese (1863-1927) named his first uropodid, Polyaspis patavinus, in 1881 and the last, Uropoda amplior and Uropoda regalis, in 1923. Three species, lamellosa, 1884, obovata, 1884, and paradoxa, 1884, were described with G. Canestrini, his teacher; one, Discopoma termithophia, 1901, with Leonardi and one, Metagynella paradoxa, 1919, with Trouessart. In 1884 in Acari Italiani, Fasc. XI (4), Berlese published a plate labelled "GEN. UROPODA CHARACTERES" illustrating features making up the genus (see cover).

During the early part of his career as an acarologist, i.e., from 1881 through 1892, the 24 species of uropodids described by Berlese, were accompanied by detailed, beautifully, if not always correctly, executed figures. From 1901 through 1905, of the 48 described, 21 were without figures. From 1910 through 1914, of the 21 described, 11 were without figures and from 1916 through 1923 of the 40 described, only one had a figure. Subsequent acarologists have filled many of the gaps not only with figures of already drawn species and with descriptions and redescriptions but also by placing the species into proper taxonomic niches. There still remain to be illustrated some 28 species of the 137 named. Berlese usually recorded the locality and habitat where the specimens were found as well as the name of the collector.

Five species are listed as now missing from the collection at the Acaroteca in Florence. They are: Uropodina collaris, 1882, Uropoda cribraria, 1888, Discopoma miranda, 1905, Trachyuropoda (Trachyuropoda) titanica, 1905, and Trachyuropoda bituberosa, 1920, (Castagnoli & Pegazzano, 1985).

There are 10 species marked in pectore, i.e., mounted specimens bearing only names. These could possibly be uropodine mites and await study. They are Discopoma bouvieri, Discopoma colligata, Trachyuropoda (Dinychura) elegans, Urodinychus latefimbriatus,,

Discopoma splendida Kr. var maior, Trachyuropoda (Urojanetia) cristiceps Can. var scabrata, Uropoda (Calouropoda) sculpta, Discopoma vagans, Uropoda violacea, Olouropoda volitans, (Castagnoli & Pegazzano, 1985).

COMMENTS

This section covers information concerning each species which could not be incorporated as part of the CATALOGUE. It lists the photographs published of the species and gives the slide numbers from the Berlese collection from which the photographs were taken. It lists, as well, the drawings made by the author. The photographs and author's drawings have been entered as PLATES. Included here are descriptions of species which have hitherto been undescribed and redescriptions of inadequately described species and, when necessary, partial or complete translations of Berlese's original Latin descriptions, which, in many instances, were not always very clear. Any discrepancies found in the literature are discussed as well.

1. Uropoda aemulans: Slide 37/32: Pl. I: 1. female-ventrum,
1904: 158 2. male-scabellum & vertex, 3. male-ventrum,
4. male-ventrum (detail)

Berlese's description of the female, Tab. 15, #11, translates as follows:..."Bay-colored body...rather long and ovate in shape, pointed posteriorly. Dorsum completely covered with simple, robust, rather large setae, mainly equidistant towards the margin...Short chitinous (internal) folds* at base of coxae IV, ornated externally with two feathery setae. Oval-shaped male genital opening situated between coxae III. Peritremes as in U. pergibba; about 800 µ long. Habitat: I've seen several specimens (as well as deutonymphs) found in guano from Tjiompea."

* Plate I, #1 shows the structure referred to by Berlese as the "internal chitinous folds".

The epigynium of the female is almond-shaped, truncated posteriorly, extending from the anterior margin of coxa I to the middle of coxae IV, Pl. I, #1.

In the male, Pl. 1, #2 & 4, a suture-like line traverses the center of the ventroanal plate. On it are a pair of chitinous, disc-shaped structures, each with one or two feathered setae (?). These could possibly serve as attachments for internal muscles, which upon contraction, could permit the ventral region to buckle or bend.

2. Urodiscella alophora: Slide 3 Myrm/27: Pl. I. male-ventrum;
1903: 250 & 341 Pl. II. male-camerostome shows gnathosomal setae and scabellum; shows loops forming rim of perigenital depression

Berlese reported twice on this species. The first report on page 250 in Acari Nuovi translates:..."Male is bay-colored with broad genital plate...circumgenital shield completely crenulate on the edge...endopodal shield small, almost perforated [?] with very, very small points. Peritreme with one fold; about 930 µ long & 730 µ wide.
Habitat: with ants Lasius mixtus, collector, Wasmann."

The second report on page 341 of Acari Mirmecofili is accompanied with the figure of the male, #21, Tav. VII. In addition to the above details he writes..."Male dorsum very shiny, rather hairy. Sternum strongly 'pitted' laterally, ventrum shiny. Peritreme forming a broad and simple arc. Metapodia 'truncated'. Long and perfectly elliptical sternal shield, with margins minutely and elegantly crenulated, equidistance anteriorly and posteriorly from the genital shield, with shiny derma. Genital operculum round, rather large, between coxae III & IV. Female and nymphs not known; about 930 µ long & 700 µ wide.
Habitat: Luxemburg, in ants nests."

Under Observazioni he notes: "I received this beautiful species, the largest example of this genus, from Wasmann; found in Luxemburg in the nests of Lasius mixtus Nyl."

3. Uropoda alpina: Slide 20/7: Pl. I: 1. female-ventrum, 2. intercostal region;
1904: 272 Pl. II: 1. male-ventrum, 2.peritreme

Berlese's brief description had no accompanying figures and there has been no work published on the species since it was first described in 1904. Berlese's translated description follows:...
"Reddish-brown in color; slightly convex, oval dorsal shield. Dorsum and margins with simple, rather long and sparcely spaced setae. Peritreme as in U. obovata. Metapodia as in U. obscura. Genital plate of female is almond-shaped, rounded anteriorly, extending almost to the posterior edge of coxae IV, truncated posteriorly. Genital opening of male is at level of coxae III; about 510 µ. long. & 370 µ. wide.
Habitat: in mosses of higher mountains of N. Italy (Belluno)"

The photographs complement well Berlese's description. The following observations should be added to the original description: the large female genital shield occupies the entire intercostal region, extending from the anterior edge of coxae I to the posterior edge of coxae IV, Pl. II, #2. The circular-shaped male genital plate, Pl. II, #1, is between upper half of coxae III and lower part of coxae II. There are distinct metapodal lines in both the male and female; the stigmata of the hooked-shaped peritreme are between coxae II and III, Pl. II, #2.

4. Phaulocylliba amplior: Slide: 224/40: two gravid females;
1923: 246 Pl. I: 1. showing larval setae and legs with claws, 2. idem., showing setae and corniculi of gnathosoma; Pl. II: 1. idem., more setae, 2. idem, legs of nymph (?), 3. idem, showing larval setae & legs with claws; Pl. III: 1. genital plate, peri., Pl. IV: 1. ventrum, 2. detail of ventrum, illus. Gorirossi- Bourdeau, from type

Berlese gave no illustration of this species from Sumatra and his brief description without an illustration was much lamented by Vitzthum in 1925: 52 when he admirably described the species in great detail. Berlese included the following observations in his description:..."Female: bay-colored, disc-shaped, truncated anteriorly, like Ph. romanae. Epigynium small, twice as long as wide, suboval, yet anteriorly as wide as in the middle of posterior part...In middle of ventrum, between posterior margin of epigynium and anal opening, is a darker, barrel-shaped line appearing like an incision. The ventrum is embossed with pseudo-holes, single or double, about 10 in number between the dark line and the metapodal lines and the epyginium. Peritreme long, not complicated, arching broadly outward, folded towards the edge of the anterior part of the body...

Dorsal shield spherical, marked by an arched line, anteriorly rather distant from the vertex, then gradually, laterally, running into the margin of the dorsal shield, this line distinguishing the anterior marginal shield as moon-shaped... Posterior to the dorsal shields are short, dark setae in the bare derma of the dorsum. About 1230 µ long and 118 µ wide [the measurement given for the width is obviously incorrect, perhaps it should read 1180 µ]. Habitat: Sumatra"

Vitzthum, 1925: 52-56, describes the dorsal and ventral surfaces of the female and made illustrations, see 1925: VITZTHUM, Figs. 30-32. He says that he found no males and he made the following remark concerning the female:..."There were no egg bearing females in the material at my disposal". He gave the measurements of the female as 1105 µ long and 1180 µ wide.

Nicol, 1952: 100-102, in her unpublished doctoral thesis, described U. amplior from preparations in the Vitzthum collection. She did not give any information concerning the slide material other than saying that they were from Sumatra. The deutonymph, the male and female are included in her descriptions, with illustrations, see 1952: Nicol, Figs. 66-69. She gave the following measurements for the deutonymph, the female and the male: deutonymph: 1065 x 1050 µ, female: 1280 x 1265 µ, male: 1085 x 1070 µ.

On the slide, 224/40, marked typico in the Berlese collection are two gravid females filled with various stages of development of immature forms. Visible are setae indicating a developing larva/ae (?), which closely resembles the figure of the larva as shown by Hir. & Z-N., 1965, #85, see Pl. I, #1. Visible is a well developed gnathosoma showing corniculi and gnathosomal setae, Pl. I, #2. Plate II, #1 shows a different type of larval (?) setae; #2 shows a nymph (?); #3 shows another series of setae and legs. Plate III shows details of the female, genital plate and the peritreme. This would seem to indicate an instance of viviparity. Pl. IV shows two illustrations, from type, by Gorirossi-Bourdeau, #1 is of the female ventrum and #2 shows a detail of the "barrel-shaped line appearing as an incision" as described by Berlese. It is probably along this scalloped frieze where buckling could occur, permitting greater flexabilility of the ventral surface.

Evans 1992: 329, Principles of Acarology, reports that the majority of mites are oviparous, i.e. they lay eggs in which embryos have as yet developed little, if at all...Ovoviviparity, in the sense of eggs being laid containing embryos in an advanced state of development with eclosion occurring soon after they are laid, is not uncommon...in many species of nest-inhabiting and ectoparasitic Dermanyssoidea and in many parasitic Astigmata. In some species of mites, the female produces living young instead of eggs. The majority of the forms practicing viviparity in the Mesostigmata are parasitic in habit, such as females of endoparasitic Rhinonyssidae, which give birth to larvae, and ectoparasitic Spinturnicidae, which produce protonymphs."

Vitzthum in his 1925 work did not specify the number of females of amplior he had examined, but he did remark that he had seen NO females with eggs. The evidence suggested here of viviparity in amplior could explain his observations. There would seem to be little recorded evidence of 'viviparity' in the Uropodidae, P. amplior may be an exception.

5. Dinychus appendiculatus: 1. slide 85/30: Pl. I, male, note
   1910: 245 "appendix" of middle dorsal shield, peritremes, leg grooves, corniculi

Berlese gave two sources for the specimens of this species, one was collected from moss from the Gulf of Aranci in Sardegna and the other was collected from 'deep soil' in Florence. The specimen on slide 85/30 from which the photograph was taken came from moss from Sardegna and is designated as the type. He gives the measurements for the male and female as about 600 µ. long and 400 µ. wide.

Berlese describes the dorsal plate as having..."a middle, dorsal shield which terminates posteriorly in a short, well-chitinized, subspatula-shaped, slightly prominent appendix." Plate I of the male shows this "appendix" as well as the peritremes, the leg grooves and a faint outline of the corniculi.

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6. Metadinychus argasiformis: Pl. 1. 1. female-ventrum, slide
1916: 135 168/8; 2. male-intercostal region, slide 167/16;
Pl. II. male-ventrum, slide 168/8, Gorirossi-Bourdeau, from type

While the female of the species has been well documented, there is little information on the male aside from the illustration done by Zirngiebl-Nicol from the type, see 1969, Hir. & Z-N., 92 VM.

The following description of the male is taken from a study of the type on slide 168/8: The perigenital depression of the male extends from the anterior edge of coxae I to the base of coxae IV. It is characterized by a pattern of shallow, scalloped-shaped ridges, occurring in oblique lines across its surface. The genital plate is located between coxae IV. There are four pairs of genital setae: #1 are located just anterior to the base of coxae II; #2 are at the anterior edge of coxae III; #3 are are located at the anterior edge of coxae IV and anterior to the genital plate and #4 are just anterior to the posterior edge of the genital plate, at the level of the posterior edge of coxae IV. The anterior edge of the sternal plate could not be studied; clearly visible are a pair of sternal setae, one on each side of the anterior edge of the perigenital depression.

Posterior to the genital plate are two horizontal lines which appear to extend, laterally, beyond the metapodal lines. The first pair of ventral setae are located on the most posterior of the two lines. There appeared to be 5 pairs of ventral setae.

Midway between the posterior border of the ventral surface and the edge of the broad arch of the metapodal lines, is a tightly-serrated, transverse line (suture ?) which bissects the ventral surface and on which are located the most posterior pair of ventral setae. It is probably along this line that buckling and bending of the ventral surface occurs.

The anal plate is located midway between this transverse line and the posterior border of the ventral surface. There are three pairs of anal setae.

7. Poliaspis australis: Slides 101/22-25: complete deterioration
1910: 379 of mounting media, no study possible

Berlese's brief description translates as follows:..."Peduncula-ted nymph. Brick-colored, similar to that of P. patavini. In middle of dorsal shield there are 2 longitudinal rows of leaf-shaped

The perigenital depression extends from the base of the camerostome to just anterior to the lst pair of ventral setae; the posterior border of the perigenital depression has 4 inverted 'loops' with one seta in each of the lateral 'loops', Pl. 2, #1, 2; Pl. 3. There are a pair of setae just posterior to coxae IV lying next to the rim of the perigenital depression. The anterior border of the perigenital depression was not clearly visible.

The ventral plate portion of the s-e-v plate is very 'box'-like, with a straight posterior border, forming, laterally, rather rigid sleeves for leg-grooves IV. The s-e-v plate is very polished and shiny in appearance. There are three pairs of ventral plate setae. The ventro-anal plate has two pairs of setae, a post-anal seta and a pair of ventro-lateral setae, Pl. II, #1, 2; Pl. III. The scabellum and vertex and their relationship to the camerostome is shown in Pl. II, #3.

A description of the female of beccarii is not possible because of the deterioration of the specimen. It was only possible to see the horseshoe-shaped genital plate, Pl. 1, #2. It extends from the anterior edge of coxae III to the posterior edge of coxae IV. It is quite similar in form to that shown by Berlese in his illustration of U. leonardiana, Pl. IV, #29.

To better understand the morphology of beccarii, which according to Berlese is practically identical to that of leonardiana except for the peritreme and the size, I am including a partial translation of the two descriptions of the female of leonardiana as given by Berlese, the first in 1903, Zool. Anz.: 20, and the second in 1904, Redia I: 345. His figures of leonardiana, published in Redia are shown on Pl. IV, #28 & 29. The specimens were given to Berlese by G. Leonardi collected from the 'hairs' of the ant Messor structor near Portici as well as found in the field in Tridentino (Civezzano).

The two descriptions contain the following common details:..."Bay-colored, oval in shape with a dorsum rather densely covered with small knife-shaped setae...cuticle very shiny and polished in appearance...genital plate broadly horseshoe-shaped, truncated posteriorly, rounded anteriorly, located about in the middle of the ventrum, extending from middle of coxae II to level of middle of coxae IV...sternal shield with sides rather arched, truncated anteriorly in a quasi-straight line, posteriorly, separated from posterior edge of the genital plate, truncated in a rather 'angled way' with three scallops on either side...metapodia entire, very smooth, occupying the whole ventrum, extending to anal plate*... anal plate broadly arched...internal surfaces of femurs with tubercle and chitinous scale."

*It should be noted that the sternal-metapodal section of the ventral surface as described by Berlese, corresponds to the sterno-endopodal-ventral (s-e-v) plate and that the anterior and

posterior borders of the sternal plate with their scallops correspond to the anterior and posterior borders of the perigenital depression as described by Gorirossi-Bourdeau, 1993: 368.

From his Fig. 29, one can see that the rather straight margin of the anterior border of the perigenital depression has five loops with two pairs of setae, occupying the two lateral loops while the posterior border has 6 loops. The margin of the posterior border is slightly 'V'- shaped (Berlese referred to this as being angled in shape) with three inverted loops on each side of the point of the 'V'. There is a seta in each of the lateral loops. There are 5 pairs of setae on the perigenital depression surrounding the horseshoe-shaped genital plate. He shows, also, approximately 11 pairs of setae on the ventral plate area (his metapoda) of the s-e-v plate. He shows one pair of anal setae and a pair of ventro-anal setae. The scabellum and the vertex are well shown as well as the relationship of the ventro-anal plate to leg grooves IV and the ventral plate.

In the 1904 publication Berlese gave more exact measurements for leonardiana and included two figures. The main difference between the two descriptions is that in the Zool. Anz. description he said the peritreme was thrice-folded and in the Redia description he said it was two-folded. The figure for the species in the Redia article, Tav. VIII, #29, shows a two-folded peritreme, Pl. V, #29. 2. In the Zool. Anz. description he lists the measurements of the female (no males or nymphs were found) as 450µ x 350µ (even 480µ x 380µ) and in the Redia article he lists the measurements as 510µ x 410µ.

In 1969 Hirschmann & Zirngiebl-Nicol published drawings of leonardiana. They are presented here and from them one can easily see that along with the peritreme differences, the males of the two species are decidedly different, Pl. V, figures from Taf. 21, #147. Since leonardiana does not form part of the present study, I have not examined the specimens at the Acaroteca.

9. Poliaspidella berenicea: Plate I: sketches from Berlese's
1910: 379 workbook, dorsum & ventrum
Slide 108/10: female:
Pl. II: 1 & 2: dorsum; Pl. III: 1. dorsum-showing leg grooves, 2. showing vertex;
3. showing setal bases humeral proj.,
Pl. IV: 1. ventrum-tarsal groove for leg IV,
2. intercostal reg., 3. gnath.; Pl. V.
dorsum-sketch, Gorirossi-Boudeau, from type

In 1910: 379 Berlese established the genus POLIASPIDELLA for the species Poliaspidella berenicea. The generic term has had various spellings by Berlese and others. The original spelling is POLIASPIDELLA. In his work book, p. 431, it is spelled POLYASPIDIELLA, on the slide containing the specimen he wrote POLASPIDELLA. In 1917: 10, he used the spelling POLYASPIDIELLA. It is found as POLYASPIDIELLA in Castagnoli & Pagazzano, p. 35.

Berlese never published a figure of this species, a single female from Tjompea, Java, but did include a sketch of it in his work-book: 431, included here, Pl. 1. His description for the species translates as follows:..."Body shaped as an elongated pentagon... angled at the shoulders, the anterior end is cone-shaped while the posterior end is rounded and not laciniated. The dorsum is flat, depressed in the center, with an oval median shield, the sides of the dorsum are parallel. The shield is depressed and in the center of the small depression there is a round protuberance. It is completely covered with very long, soft setae. The sides are sculptured with leaf-shaped setae. The legs are laciniated, the genital shield of the female is triangular in shape and the ventral shield is covered with setae similar to those of the dorsum; about 450 µ. long. & 250 µ. wide."

Since a study of the specimen disclosed that the description as given by Berlese and his sketch do not completely correspond to the actual specimen, a partial redescription follows:

Dorsum: Pl. II, #1, 2; Pl. IV. The dorsum is made up of a pentagonally-shaped median shield, fused anteriorly with the entire marginal shields and what appears to be lateral shields. These fused elements continue anteriorly as a prodorsal extension to form the vertex which has two setae at its tip. The marginal shields have a series of minute setae running their entire length, at least 65 on each shield. There is a separate, triangular pygidial shield which is slightly indented on its posterior edge, Pl.II. On the median dorsal shield at the level of each of the tarsal grooves for legs II, III & IV are three pairs of cup-shaped depressions which appear to have raised edges. (Could these be large setal bases?). While no 'very long' dorsal or ventral setae were to be seen, neither in the photographs or by visual study, the remounting of the specimen could have destroyed them. There are three pairs of small setal bases visible between the anterior edge of the median shield and the upper two pairs of cup-shaped depressions, there are others discernible on the median shield. The margins of the lateral shield have large, globular-shaped setae.

Ventrum: Pl. IV, #2; The ventral surface has no metapodal lines and no large leg grooves as such. There are four groove-like structures to accommodate the tarsi of legs I, II, III & IV. The outline of these tarsal grooves is clearly visible from a dorsal view, Pl. III, #1. The grooves of legs IV are the largest and on the ventral surface have a sharp, lateral edge which curves anteriorly, IV, #1. The triangular genital plate is located between coxae II & III, Pl. III, #1, 3.; Pl. IV, #2. A narrow, sculptured strip begins near the bases of coxae I and extends to and surrounds the bases of coxae II and III (a partial metapodal line?), Pl. IV, #2. Posterior to tarsal-grooves IV, there are long, strong, sharp pointed setae which project laterally from the ventral surface, Pl. IV, #1. The peritreme extends to the edge of

the body and the prominent 'humeral' projections of the peritremes are clearly visible from both the ventral and dorsal surfaces between coxae II & III, Pls. III, #3; Pl. IV, #2.

Camerostome: There is no camerostome as such. The coxae of legs I are separated by the base of the tritosternum between them.

Gnathosoma: The only gnathosomal parts seen were the short, stout and strongly developed corniculi, Pl. IV.

Literature: Tragardh, 1941: 354 in discussing P. berenicea from the type has this to say concerning the relationship of the species to the Uropodina: "Coxae I are separated by the tritosternum, a fact which excludes any relationship to the Uropodina. But on the other hand the epigynial shield is not flanked by any metasternal shields, for which reason the genus cannot be included amongst the Trachytina."

Discussion: The species was placed in the genus Uroobovella by Hirschmann & Zirngiebl-Nicol in 1962. Hirschmann and Karg both placed it in the faveolate-group of Uroobovella in 1989. It should be stated that all of the above authors based their information on the sketch from the Berlese workbook.

10. Uropoda berlesiana: Slide 9/20: male
1887: Fasc. 38, #4
Pl. I: dorsum, 2. detail of dorsum
Pl. II: dorsal view of vertex, 2. ventral view of vertex (scabellum), 3. peritreme
Pl. III: dorsum, illus. by G-B., from type

The author first studied this species in 1952 and found the specimen intact. Unfortunately, as with several other specimens at the Acaroteca, an investigator in the meantime had dismounted the slide and dissected the specimen, unbeknown to the curators.

A partial translation of Berlese's description includes the following details for the male..."Dorsum with three rows of somewhat elevated, chitinous ridges. The anterior and middle ridges enclose in the middle of the dorsum a subrhomboidal area...whole body covered with short, curved, feathered setae about 1-10 mill. long. The round genital opening is between the third pair of coxae. The femurs of legs II have a protuberance bearing a large feathered seta. The structure of the body, the setae, the arrangement of the dorsal ridges, the size and other characters are quite distinct from U. laminosa. I have not seen a female. I have 2 males. HABITAT: rare, in moss of the Botanical Garden of Padova."

Berlese said that he wanted to dedicate "this most beautiful species to my father who found it and who collected many other acarina for me".

While Berlese described three rows of transverse, elevated ridges for the dorsum, there are actually only two. The most posterior of the ridges occupies the lower third of the dorsum and dips posteriorly in the center. Anterior to this is another which also curves posteriorly. In the upper third of the dorsum, there are two symmetrical, oblique, inward curved ridges which meet, laterally, the arms of the lower ridge, Pl. I, #1. A detail of the dorsum shows that the ridges are made up of a series of tiny, sclerotized, rounded projections, Pl. I, #2. There are many pores scattered over the surface of the dorsum.

The most striking feature of U. berlesiana is the prolongation of the dorsum into a broad, spatula-like vertex, Pl. II, 1 & 2. The lateral borders of the vertex are lined with flat, transparent projections, Pl. II, #1. Setae of the vertex were missing from the dissected specimen but Berlese drew two pairs, see his Tav. 38, #4. A view of the ventral surface of the vertex, shows, in part, the formation of the scabellum Pl. II. #2. The peritreme is loop-shaped and does not appear to reach to the edge of the body, Pl. II, #3.

In 1969 Hirschmann & Zirngiebl-Nicol published sketches of dissected parts of the specimen. It should be noted that their Fig. 168, marked VM, of Taf. 21, is actually a ventral view of the vertex.

11. Trachyuropoda (?) bituberosa: 1. See explanation for the
1920: 191 (M) species in the Catalogue section.

12. Discopoma bordagei: Slide 167/20: female, had to be re-
1916: 191 mounted.
Pl. I: 1-ventrum, before remounting, 2-idem., aft. remounting, 3-camerostome, showing trito. with lacinae
Pl. II: 1-detail of gen. plate, 2-detail of dorsum (part)
Pl. III: ventrum-sketch, Gorirossi-Bourdeau, from type

There has been no study of this species up to the present time and Berlese had not published a figure. His description may be translated as follows:..."Female...oval, soot-colored, dorsum middle shield with small, pseudo-holes and all over rather sparse, somewhat, middle-sized, pseudo-holes; ornamented longitudinally with double rows of short, styliform setae. In middle of posterior part of dorsal shield is a hump, broadly tuberlike, rather elevated and rather turned to the back. Marginal, dorsal shield entire, continuous all over, rather smooth, no setae, except at margins. There are dense, short, simple dorsal setae, directed backwards. Anterior to the shoulder, the edge is hairy...Genital plate is very posterior, anterior edge between coxae 3 & 4 and extending beyond coxae 4. It is bell-shaped and truncated posteriorly. Surface is pseudo-perforated. The metapodal lines run transversely toward the

margins. The peritremes start...between the 2rd and 3nd pairs of legs, curve obliquely inward and turn forward, from there they are deflected briefly inward and are not attached to the margin of the body; about 660 µ. long & 480 µ. wide.
Habitat: in mosses, Bois de Meudon, Paris. I dedicate with most reverence this very beautiful species to Bordage, an excellent entomologist, who collected it."

To the above description should be added that the tritosternum has a large base supporting three slender lacinae, Pl. I, # 3; the intercoxal region is richly sculptured, Pl. I, # 2, 3; the edge of the dorsal marginal shield has a band of closely packed striations/scallops which are regularly interrupted by rather long, posteriorly-directed setae, Pl. II, #2, Pl. III. The grooves for legs IV are shallow within the large arcs of the medapodal lines, Pl. I, #1, 2; Pl. II, #1. Prior to remounting the specimen for study, a photograph was taken. It is included for comparison with the specimen after it was cleaned and remounted, Pl. I, #1-2.

13. Uropoda brasiliensis: Slide 10/20: Pl. I.: female-ventrum,
1903: 249 2-peritreme, 3-chel.

Berlese left no figures of this species, but there are several published works which include figures: Hirschmann & Zirngiebl-Nicol, 1965 & 1969, Karg, 1989. In 1964 Hirschmann & Zirngiebl-Nicol placed it in the genus Uroactinia.

Berlese's brief description of the species translates as follows: ..."Female with dorsal shield entire, glabrous and shiny; genital plate rounded anteriorly; female about 950 µ. long & 700 µ. wide. Habitat: Silvestri gave me the female and nymph. They were collected in Santa Caterina, Brazil. A species very much related is U. anchor Trouessarti, but it has entirely 'unarmed' mandibles".

Karg in 1989: 190 gives the following description of brasiliensis with accompaning illustrations:..."Female idiosoma is 950 to 100 µm long. Dorsal shield covered with short, needle-shaped setae (10 to 15 µm long). Genital opening oval, below which is an area of scale-like or teeth-like structures (Fig. 149 b). Anterior, lateral edge of tectum [scabellum ?] with simplified small teeth (Fig. 149c). Corniculi with 3 teeth (Fig. 150c). Extending from edge of chelicerae is umbrella-like excrescence with long fringes (Fig. 150b). Male, idiosoma 880 µm long. Deutonymph, 710 µm long. Dorsal setae, 8 to 10 µm long; marginal setae, 14 µm long (Fig. 149a), see 1989: Karg.

Photographs taken from the type show the genital plate, the peritreme and the chelicerae, Pl. I, #1-3.

The key given by Hirschmann & Zirngiebl-Nicol, 1965, Folge 8: 5, indicates that figure 40 of their plate 2 refers to the dorsum of brasiliensis, however, upon examination of the figure it becomes evident that an incorrect number has been assigned to the figure. A copy of the figure is included here under 1965, Hir. & Z-N.

A few remarks should be noted concerning the use of the generic term UROACTINIA. The genus was first created by Irene Nicol in her unpublished doctoral thesis (1955: 300) in order to incorporate characteristics peculiar to the species Uropoda anchor Trouessart 1902 (Sellnick, 1958: 274). Sellnick in 1958 listed the genus as 'Uroactinia Zirngiebl, 1955', however, her thesis was written prior to her marriage. Then in 1964, Folge 6, Teil 7, in Gangstystematik der Parasitiformes, UROPODIDEN, das Gangsystem der Famille Uropodide (Berlese 1892) Hirschmann und Zirngiebl-Nicol nov. comb., on page 3 it is referred to as 'Gattung Uroactinia HIRSCHMANN und ZIRNGIEBL-NICOL nov. gen.'. In 1964, Folge 12, Teil 72: 121 under Geschichte, Revision und Typus der Gattung Uroactinia, it is referred to as '(NICOL 1955 in SELLNICK 1958) Hirschmann und Zirngiebl-Nicol 1964'. Wisniewski 1993: 410 lists it as 'Uroactinia Hirschmann et Zirngiebl-Nicol, 1964'. Farrier & Hennessey 1993: 187 list it as 'Uroactinia Zirngiebl in Sellnick, 1958'.

Perhaps it should be more correctly referred to as 'Uroactinia Zirngiebl [nee Nicol], 1958'.

14. Uropoda bruckii: Slide 8/24: Pl. I: 1-female (ventrum), 2. detail of gen. pl., cam., trito.
1916: 140 Slide 8/27: Pl. I: 1-female (s-e-v region), 2. dorsum
Slide 8/25: Pl. II: 1-male (scabellum)
Slide 8/26: Pl. II: 1-male (s-e-v region)

The following description translates that given by Berlese:... "Dorsal shield entire. Bay-colored, oval, equally rounded anteriorly and posteriorly. Dorsum shiny entirely covered with thick, short, sharp setae...Ventral shield is interrupted by a transversal line before the anus. Metapodal lines diverge obliquely toward margins; epistome is trapezoidal with 3 or 4 projections; peritreme with posterior branch rising straight, obliquely, and somewhat folded towards the front. Male genital plate at same level as coxae III. Male is about 920 µ. long and 700 µ. wide. The female has an almond-shaped genital plate which extends from the anterior tip of coxae I to the anterior tip of coxae IV, its base is truncated. The female is about 1000 µ. long and 780 µ. wide. Habitat: Collected at "La Plata", in nests of Acromyrmex lundii. Sent to me by Bruck, after whom it is named. The sample included adults, nymphs and larvae."

Berlese gave no figure for the species. From the photographs of the ventral surface of the female specimen on slide 8/27, Pl. I, #1, one can see the shape of the genital plate, the arrangement of the genital setae surrounding the genital plate, the metapodal lines and a portion of the ventral plate. The ventral plate setae have pores associated with them. Plate I, #2 shows the distribution of setae and the pores associated with them on the dorsum of the female.

Plate II, slide 8/25, is a photograph of the male showing the scabellum.

Plate II, slide 8/26, is a photograph showing the ventral surface of the male. The male genital opening is oval, situated between coxae III. It shows the s-e-v plate, the arrangement of the genital setae, the metapodal lines and a portion of the ventral plate to the transverse line described by Berlese which separates the ventral plate from the anal plate (?). To be noted are the pores associated with the setae of the ventral plate.

In 1962 Hirschmann & Zirngiebl-Nicol, F/5 59, 70, 75; Taf. 29, Fig. 2, published a figure of a larva of the female as well as a partial view of the female drawn from the type preparation at the Acaroteca. They placed the species in the marginata-group in the genus Uroobovella. Hirschmann in 1989: 175 in a review of the 1962 work states that "It is questionable whether the larva which was sketched belongs to the female of U. bruckii. Also it is questionable whether the adult belongs to the genus Uroobovella."

REMARKS

Before ending this section, a word should be mentioned concerning many illustrations used in the works of Hirschmann and Zirngiebl-Nicol. In order to illustrate Hirschmann's ideas on the Gangsystematik der Parasitiformes a certain piecemeal approach was used, that is to say that if he were concerned with the placement of species according to the elements of the hypostome, then illustrations of hypostomes of species were published with little regard to the entire organism, or, in other instances, structures of the same species were published but over different intervals of time.

There are several instances which show that the source of his information for some species was derived from the unpublished doctoral thesis of Irene Nicol. This is clearly the case with the species Phaulocylliba amplior of the present series. Figures representing different structures of the species appeared in 1961, in 1965 and another part in 1969. The only changes from the original Nicol studies were the numbering of the setae.

Along with reproducing the 1961, 1965 and 1969 illustrations by Hirschmann and Zirngiebl-Nicol, Nicol's original drawings of P. amplior are also reproduced in their entirety. I have felt this necessary not only because certain structures studied and illustrated by Nicol in her original work were never published but also because those parts published did not always include the entire illustration of the species as originally drawn by Nicol. By including her entire study here, it permits one to have a better appreciation of the morphology of P. amplior.

I take full responsibility for any omissions and errors to be found in the manuscript.

ACKNOWLEDGEMENTS

I am deeply indebted to Dr. Maurice Farrier not only for reviewing and correcting the manuscript several times, but also for his invaluable criticism and input. I am very grateful to Drs. Fausta Pegazzano, Marisa Castagnoli and Maria Livia Liquori (Istituto Sperimentale par la Zoologia Agraria-Sezione Acarologia) for their help and warm welcome during my visits to Florence. To Dr. Roberto Nannelli, from the same Istituto, I am particularly grateful not only for guaranteeing the necessary material for study but also for remounting slides that could not have been studied otherwise as well as for the use of his microscope and photographic material. I wish to thank Mr. Mario Michelassi from the same Istituto for photographing several of Berlese's published plates for inclusion in the present study. These are Fasc. XI, N. 4 (Gen. Uropoda Characteres), Fasc. 50, N. 9 (Uropoda carinata'), Fasc. XLV, N. 2 (Uropoda campomolendina), Tab. 15, #17, (Cillibano complicata) and Tab. 15, #18, 'Deraiophorus canestrinii'.

I wish to thank Dr. Georges Wauthy, head of the section "Insects and Arachnomorphs" at the Institut royal des Sciences naturelles de Belgique for his guidance in the preparation of the manuscript, Dr. J. van Goethem, the editor, for accepting the manuscript for publication and Mrs. Michele van Assche for her help in preparing the illustrations.

CATALOGUE

CATALOGUE

The CATALOGUE section is arranged under four main headings: SPECIFIC NAME and NOTES, SYNONYMY, CITATIONS, LOCALITY:HABITAT and NOTES. Under SPECIFIC NAME and NOTES is the name of the species as originally used by Berlese. Under SYNONYMY, the evolution of combinations with generic names is shown as used through time. Under CITATIONS, the names of authors are listed in chronological order who have published information concerning that species. Included, as well, is information with regard to keys to species, genera, etc., plus an indication of the presence or absence of figures in the various publications. Under LOCALITY:HABITAT and NOTES, the collector's name is included if it is listed.

The illustrations reproduced by the various authors are arranged according to year published.

Castagnoli & Pegazzano's slide information as given in the 1985 "Catalogue of the Berlese Acaroteca" is reproduced. Any additions or corrections to be made to the Castagnoli & Pegazzano material as well as the present state of the slides in question, i.e., if the specimens could be studied as such or if remounting was necessary is given under the heading UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN. Included with the information on the list of photographs presented, are the drawings made by the author.

With regards to the slides themselves, Berlese used primarily two media for mounting: Canadian balsam and a type of modified Hoyer's which he fabricated himself (gomma Berlese). He had also created his own depression slides for study of temporary mounts but which he sometimes used for permament mounts (Phaulodinychus amplior). Most of the preparations have stood up amazinging well, while with others, the mounting media has so deteriorated that no study is possible.

The following notes and explanations should be kept in mind when using the CATALOGUE:

1. Under 'citations', unless otherwise indicated, all refer to a Berlese publication.

2. [BWB:00] refers to a page in the unpublished Berlese Work Book on the genera of the Mesostigmata found at the Acaroteca in Florence. A microfilm of this workbook can be seen at the Acarology Museum at The Ohio State University, Columbus, Ohio, U.S.A, 564 pp.

3. To economize space thoughout this work I have taken liberties to shorten wherever possible the authors' names, generic terms, localities, etc. without any intention to offend.

4. G-B: refers to Gorirossi-Bourdeau's drawing(s) or photographs. All photographs were taken using a Leitz, Diaplan, metric 101086 microscope equipped with a Wild MP 551 camera and a Wild Photoautomat MMP 545. The film used was Ilford, Pan F, 35 mm.

5. 'A DESC.' means that there is a description of the species in the publication; 'DESC.', alone, means that the species is mentioned along with other species belonging to the same genus, family or group, but the species is NOT described.

6. F/:00 refers to a FOLGE of the Hirschmann-Verlag publication 'ACAROLOGIE'.

7. The use of the '!' mark refers to an irregularity concerning the reference, such as a misspelling, wrong date, etc. The mark immediately follows the irregularity in question.

8. Discrepancies can and do occur with regards to pagination or volume of a Berlese publication depending on the use of an off-print or from a bound journal. I have tried to rectify such differences.

9. Mn. I refers to Berlese's MANIPULUS I. publication 'ACARI NUOVI, 1903'.

10. Mirm. refers to Berlese's 'ACARI MIRMECOPHILI' publication of 1903.

11. (M): refers to a specimen missing in the Acaroteca.

12. Under the section labelled SYNONYMY, I tried not to repeat the name of the species unless I felt it helped in the sequence.

13. Under the section labelled LOCALITY:HABITAT, a locality listed as uncertain in a publication is not mentioned.

14. CAT. refers to a catalogue or checklist; KEY refers to a tool used for purpose of identification or classification of a group or a species.

15. In reproducing published illustrations, I have taken certain liberties such as increasing or decreasing the size of the original in order to better put into evidence the essentials of the morphology of the species in question. Illustrations which did not add significantly to the understanding of the morphology of a species were not included in this paper.

16. The use of brackets, [ ], indicates my interpretation.

UROPODA AEMULANS Berlese, 1905

FAMILY: UROPODIDAE Kramer 1882

SPECIFIC NAME and notes	SYNONYMY	CITATIONS	LOCALITY:HABITAT and notes
aemulans Berl., 1904	1905: Uropoda aemulans	1905: Redia 2:158,a desc.,Tab.15,#11	-----Java:guano
	1913: Uropoda aemulans	1913: Acarotheca Italica:104	
	1916: Uropoda (Calouropoda) aemulans	1916: Redia 12:142,no fig.,no desc.	
		1936: Lombardini,G.:50,a cat.	
	1962: Uroobovella aemulans(H&Z-N:62)	1962: Hir.& Z-N.,F/5:62,75	
		1964: Hir.& Z-N.,F/6:20,Taf.2,#77	
		1969: Hir.& Z-N.,F/12:92	
	1971: Calouropoda aemulans(H:2)	1971: Hirschmann,W.,F/16:2,24,a cat.	
	idem: Uroobovella aemulans(H:24)		
		1977: idem.,F/23:8,10,a desc.,Taf.1,#2	
	1979: Uroobovella aemulans(H:35)	1979: idem.,F/26:35,82	
		1989: idem.,F/36:85,95,141,142,a key,163	
		1993: Wis.& Hir.,F/40:177	
		idem: Wisniewski,J.,F/40:278	

Castagnoli & Pegazzano, 1985: 5
aemulans Berl.
Uropoda (Calouropoda)

Redia II, agosto 1905: 156 (Uropoda aemulans).
Redia XII, agosto 1916: 142 (Uropoda (Calouropoda) aemulans).

sub Uropoda: 37/25, t, m, guano de caverna, Tjompea (Giava), 11.III.1904, Kraeplin!.
37/30 n, 2a,idem; 108/34, m, f, Tjompea (Giava).
sub Uropoda (Uropoda): 37/32, guano di caverna, Tjompea (Giava), 11.III.1904, Kraepelin!.

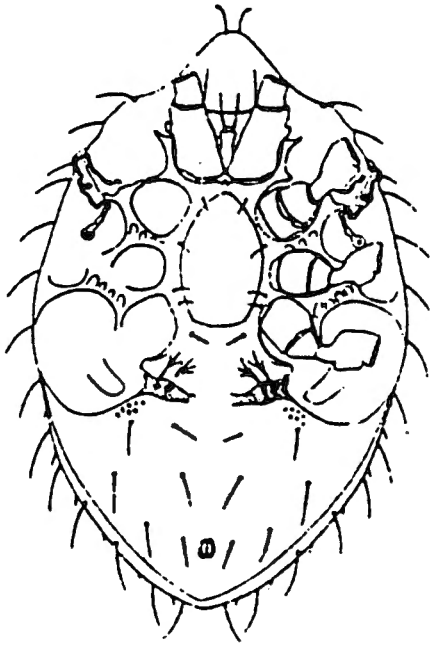
[f = female; m = male; n = nymph; t = type or cotype; ! = collector]

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

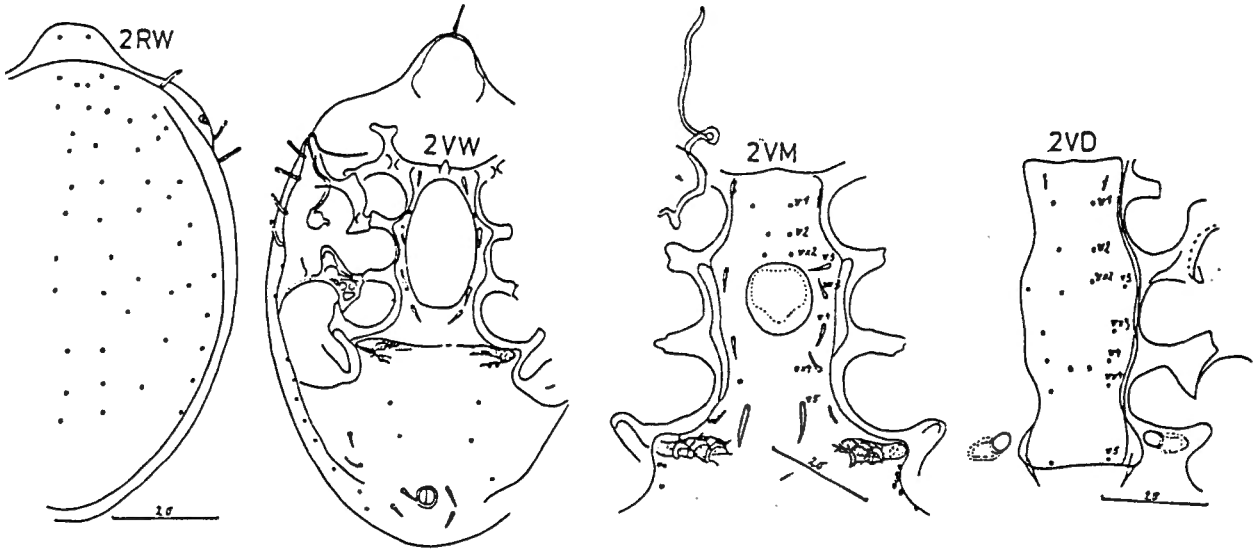
slides:
37/25: male is dissected
37/32: contains 3 specimens: male, female & possibly another female
108/34: preparation has deteriorated, all black

photographs: slide 37/32:
Pl. I: 1. female-showing genital plate and detail of structure at base of coxae IV referred to by Berlese as "interal chitinous folds"; 2. male-scabellum and vertex; 3. male-ventrum; 4. male-ventrum, detail showing transverse line interrupting ventroanal plate and the two disc-shaped structures

UROPODA AEMULANS Berlese, 1905



1905: BERLESE, Tab. 15, #11-female (ventrum).



1977: HIRSCHMANN, F/23, Taf. 1, #2, RW-female (dorsum), VW-female-(ventrum), VM-male (ventrum), VD-deutonymph (ventrum)

UROPODA AEMULANS Berlese, 1905

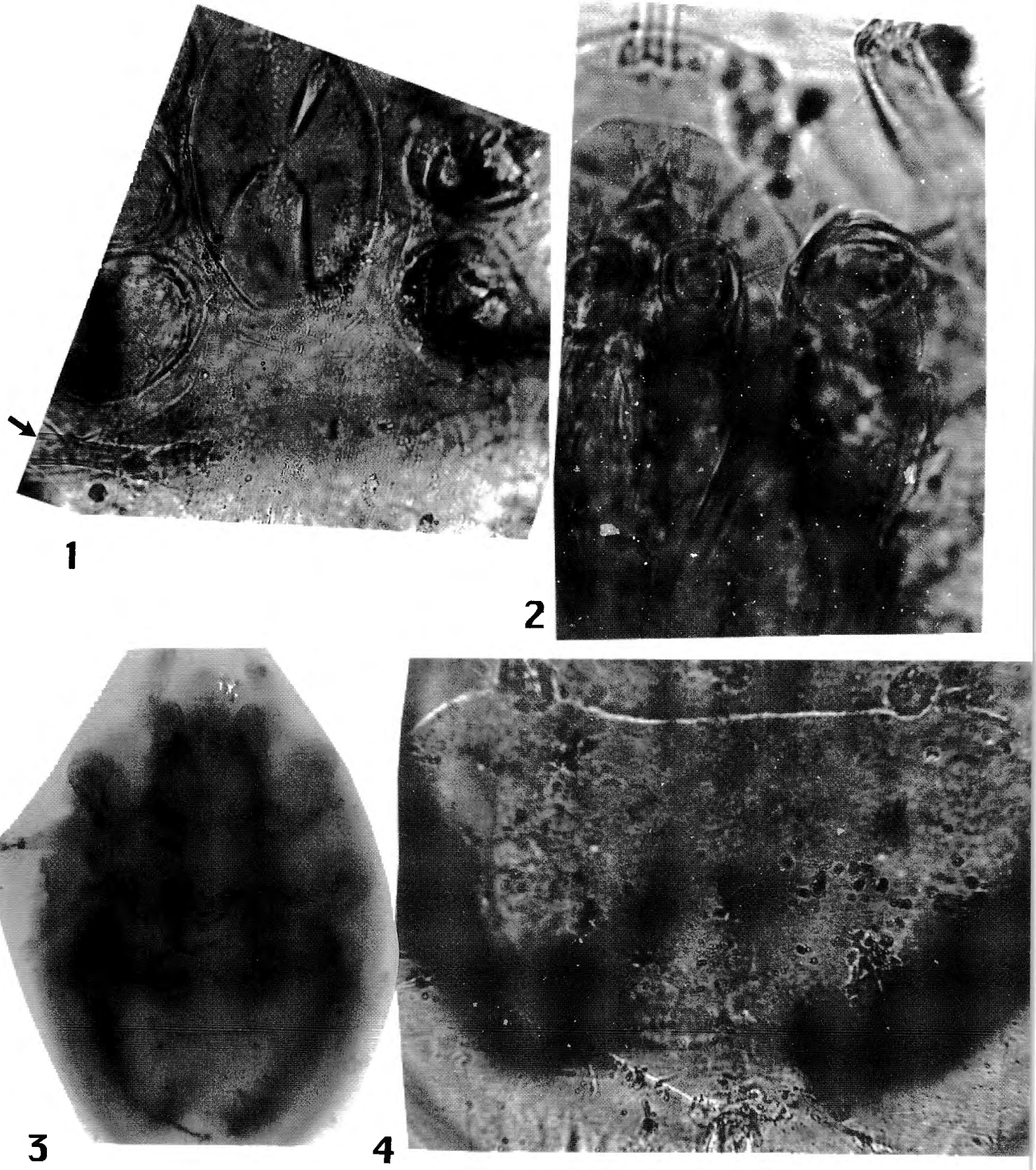


Plate I.

Slide 37/32: 1. female-showing genital plate and detail of structure at base of coxa IV referred to by Berlese as "internal chitinous folds"; 2. male-scabellum and vertex; 3. male-ventrum; 4. male-ventrum, detail showing transverse line interrupting ventroanal plate and the two disc-shaped structures at the sides.

URODISCELLA ALOPHORA Berlese, 1904

alophora, Berl., 1903

1903: Urodiscella alophora

1971: Oplitis alophora(H:14)
idem: Urodiscella alophora(H:23)

1973: Oplitis alophora(Z-N:40)

1987: U.(Urodiscella)alophora(L:16)

1989: Oplitis alophora(K:161)

1903: Redia I:250,no fig.,a desc.--------with Lasius mixtus (Mn.I) *(Cl.Wasmann)*
1904: Redia I:303,339(a key),----------Lux.:with Lasius 341(desc.),458,459, mixtux Nyl.(Cl.Wasmann) Tav.VIII,#23(Mirm.)
1925: Vitzthum,H.G.:148
1929: idem:VII:38,a key
1952: Grein,E.:17,66.thesis,----------Ger.(Erl.):nest of with Lasius fuliginosus(formicobiont)
1964: Hir.& Z-N.,F/6:22,Taf.5,#245
1965: Hir.& Z-N.,F/8:31-33,a key, Taf.11,#217
1967: Hir.& Z-N.,F/10:23
1968: Hir.& Z-N.,F/11:21,desc.
idem: PecinaP.,:433,Pl.VII(3);Pl.X(2)----Cz.(Kodall-hill near Srbsko):beech for., nest of Las.niger under a stone(Cl.Pecina)
1969: Hir.& Z-N.,F/12:121,desc., 132,143,TaF.21,#176;22,#176
1971: Hirschmann,W.,F/16:14,23,a cat.
1972: Hutu,M.,F/18:103----------CE
1973: Zirngiebl-Nicol,I.,F/19:40,a desc.
idem: Hir.& Z-N.,F/19:130,a key----------Mittleuropa
1974: Hir.& Hutu,F/20:26,28,30
1976: Hunter & Farrier:48
1977: Kadite & Petrova:636, Fig.498,#7(tri.aft.Hir.& Z-N,1969)
1978: Pecina,P.,:360,a key;376
1979: Hirschmann,W.,F/26:54
1981: Wis.& Hrsch.,F/28:80-1,Taf.XXX, #28,peritreme(m)
1982: Bloszyk,J.A.,thesis,----------Fig.99(map showing 238,a desc.,Fig.100(A-G, dist.in Pol.):Roz- aft.H&Z-N.,1965,69),90,a key toczanski Park
**1984: Wisniewski,J.,F/31:123,a desc.,----Pol.:with Lasius P/Fig.124(deuto) sp.,oak litter
idem: Hirschmann,W.,F/31:156
1986: Bloszyk & Olszanowski:193----------Pol.:ant hills
1987: Lehtinen,P.:16,17----------Finland:with Dendrolasius fuliginosus,L.mixtus
1989: Karg,W.:161,a key(adult);162,------ant's nests,rotting wood Abb.130(f,j);163,a key(deuto); 164,Abb.131(d),164
1991: Hirschmann,W.,F/38:2,88,89(a key) 92,104
1991: Hirschmann,W.,F/38:2,88,89(a key), 92,104
1992: Bloszyk,J.,:324,336,341----------Pol.,Roztocze Upland

URODISCELLA ALOPHORA Berlese, 1904

1993: Gwiazdowicz,D.,:75----------Pol.,:under spruce bark
1993: Wis.&Hir.,F/40:62
1993: Wisniewski,J.,F/40:249,254,257,263

*Dec. 21, 1994: The International Herald Tribune listed among its items of EVENTS OF 50 YEARS AGO : "1944: Dutch Ants Stolen: MAASTRICHT, Holland - The meanest thing the Germans did in Holland is known as the 'rape of the ants'. The Dutchmen resented the confiscation of their gold and silverware, but understood those as war measures. But even quisling Hollanders resented the theft of the greatest collection of ants in the world. Father Erick Wasmann, a Tyrolese Jesuit who came to Holland in 1877, made the collection. His book, "Instinct: Intelligence in the Animal Kingdom," is largly devoted to praise of the intellectual capacity of the ant."

**Wisniewski, 1984: 123: ref.for Berl.,1904:341 should read "Taf.8,23 and not Taf.8,13"
123: does not refer to a second dwg. by Pecina: Pl.VIII(3)

Castagnoli & Pegazzano, 1985: 10
alophora Berl.
Urodiscella

Redia I, nov. 1903: 250
Redia I, 1904: 341

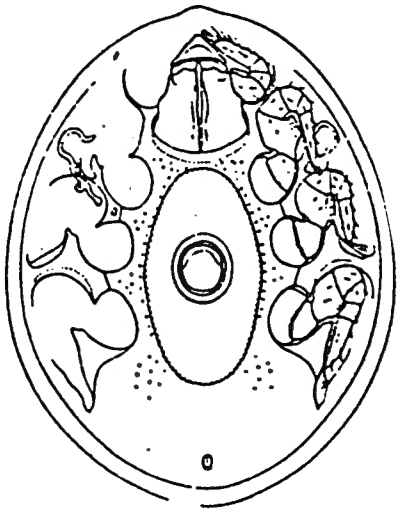
sub Uropoda: 3 Myrm./27, Lasius mixtus, Luxemburg.

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

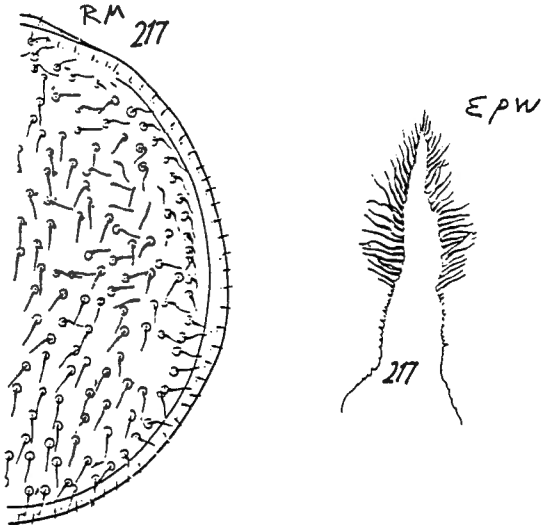
slide: 3 Myrm./27: specimen is a male, which is here designated as the type for the species.

photographs: slide 3 Myrm./27:
Pl. I. male-ventrum
Pl. II. male-detail of gnathosoma, showing gnathosomal setae + scabellum; also detail of loops forming rim of perigenital depression, note numerous sternal setae hugging perigenital rim.

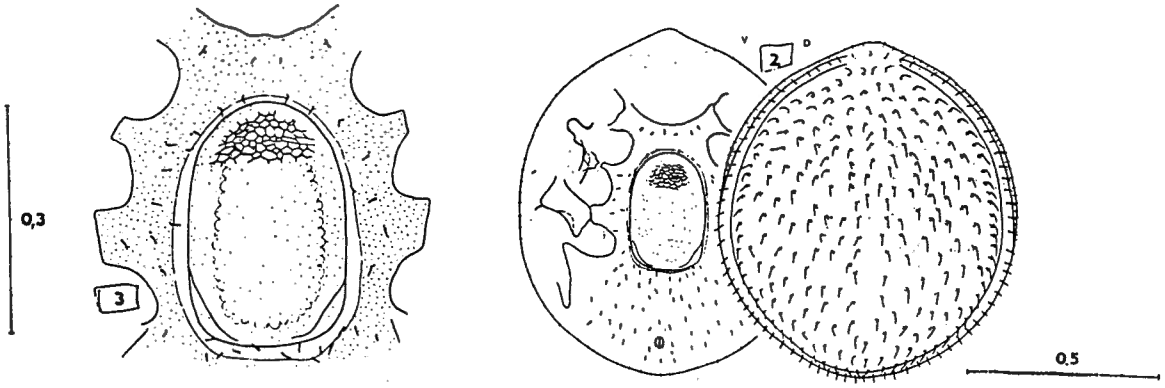
URODISCELLA ALOPHORA Berlese, 1904



1904: BERLESE, Tav. VIII, #23-male (ventrum).

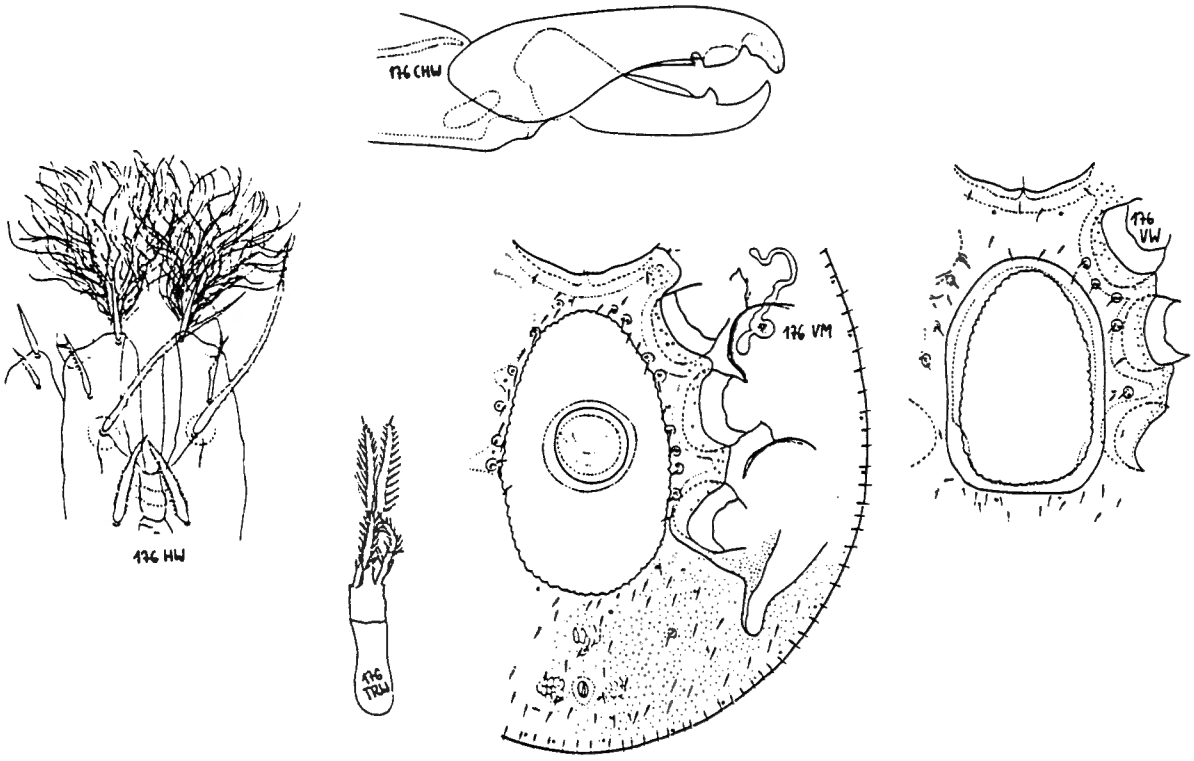


1965: HIRSCHMANN & ZIRNGIEBLE-NICOL, F/8 TAF. 11, #217:
RM-male (dorsum), EPW-female (epistome).

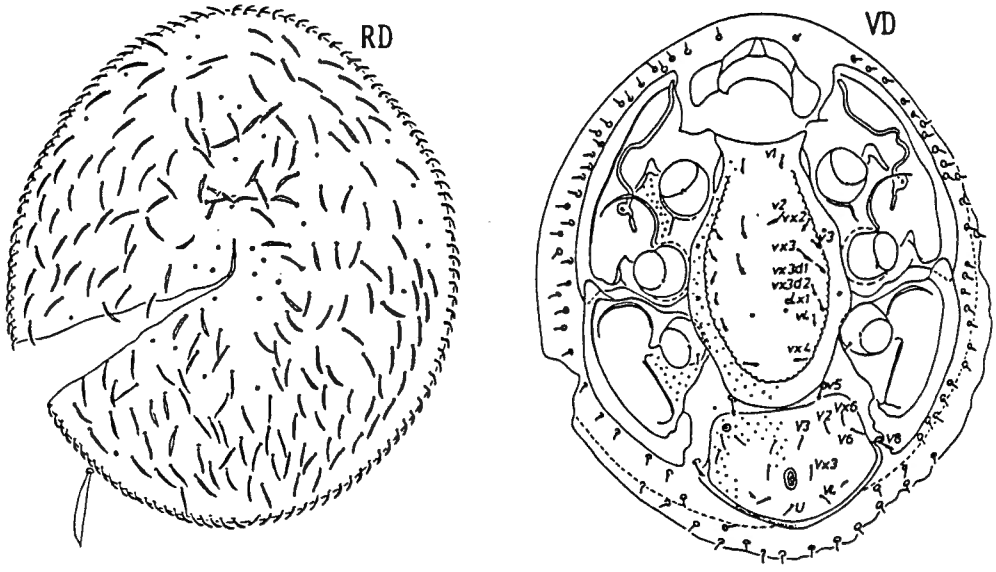


1968: PECINA, Plate VII, #3-female (sterno-genital region);
Plate X, #2-female (ventrum & dorsum).

URODISCELLA ALOPHORA Berlese, 1904



1969: HIRSCHMANN & ZIRNGIEBL-NICOL, F/12, Taf. 21, #176: HW-female (hypostome), CHW-female (chela), TRW-female (tritosternum); Taf. 22, #176: VM-male (ventrum), VW-female (sterno-genital region.)



1984: Wisniewski, F/31, P/Fig. 124: RD-deutonymph (dorsum), VD-deutonymph (ventrum).

URODISCELLA ALOPHORA Berlese, 1904

Plate I

Slide 3 Myrm/27: male-ventrum

URODISCELLA ALOPHORA **Berlese, 1904**

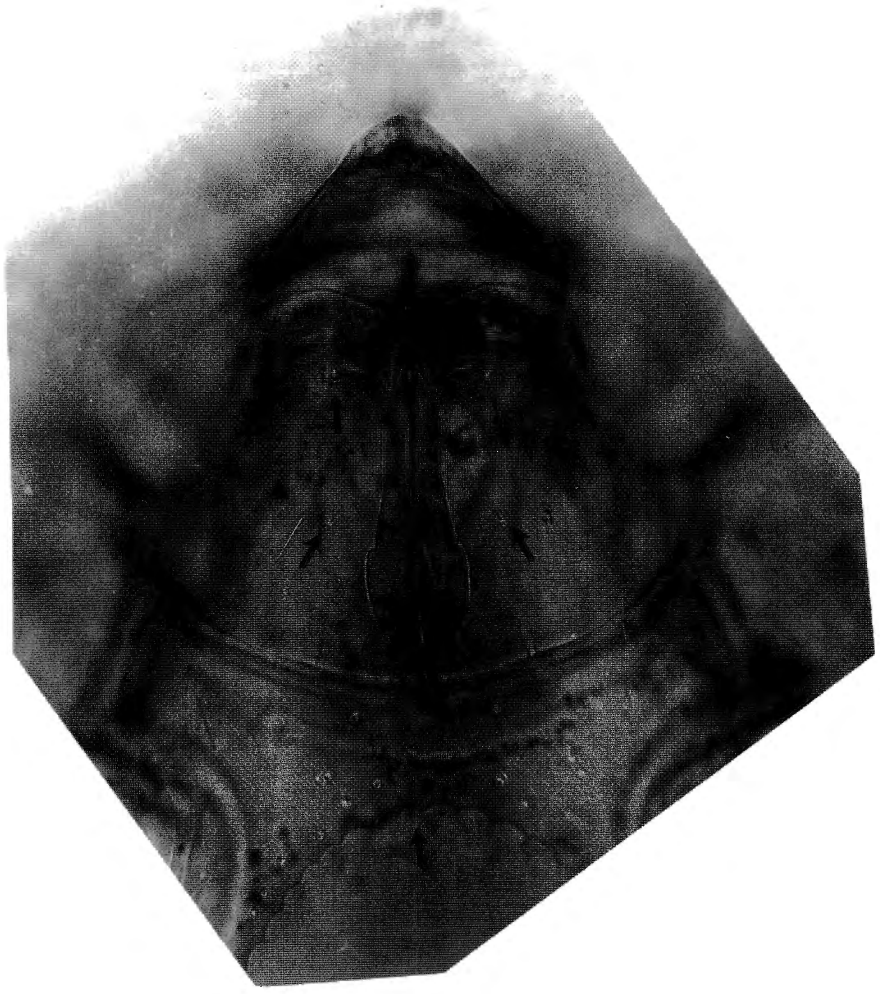


Plate II

Slide 3 Myrm./27: male-camerostome, detail of gnathosoma, showing gnathosomal setae + scabellum; note detail of loops forming rim of perigenital depression; note numerous sternal setae hugging perigenital rim

UROPODA ALPINA Berlese, 1904

alpina Berl.,1904	1904: Uropoda alpina(B:271)	1904: Redia I:272,no fig., a desc.-------It.(Belluno):moss
	1913: Uropoda alpina(B:104)	1913: Acarotheca Italico:104
		1936: Lombardini,G.:50,a cat.

Castagnoli & Pegazzano: 10
alpina Berl.
Uropoda

Redia I, marzo 1904: 272.

20/7, m, f, Belluno, decolorata artificialmente.

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide: 20/7: 2 males & 1 female: the photographed male and female are designated as the types for the species.
Plate I. female: 1. whole mount, 2. detail of intercostal region showing genital plate, metapodal lines, camerostome
Plate II. male: 1. intercostal region, showing genital plate and metapodal lines; 2. showing position of peritreme

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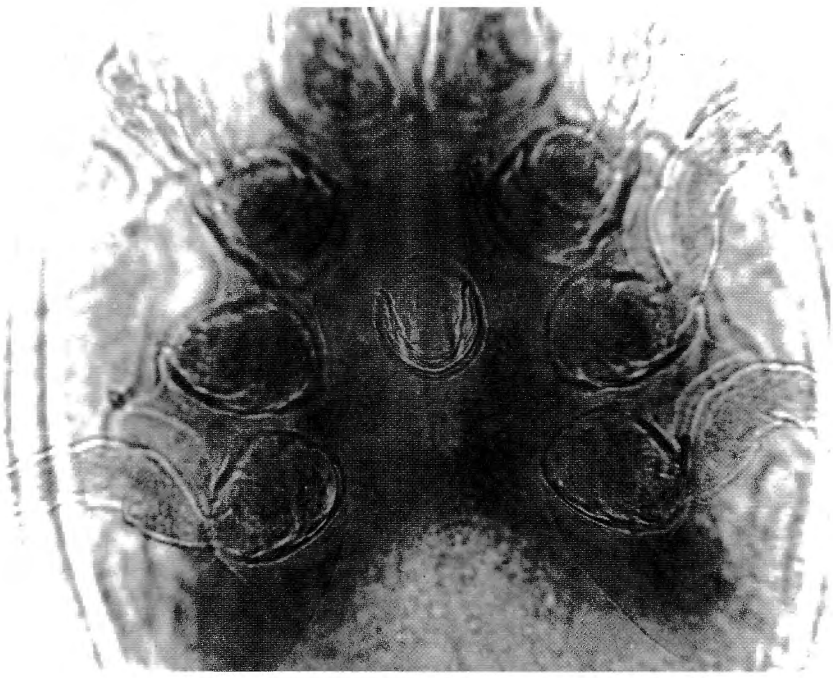
UROPODA ALPINA Berlese, 1904

1 2

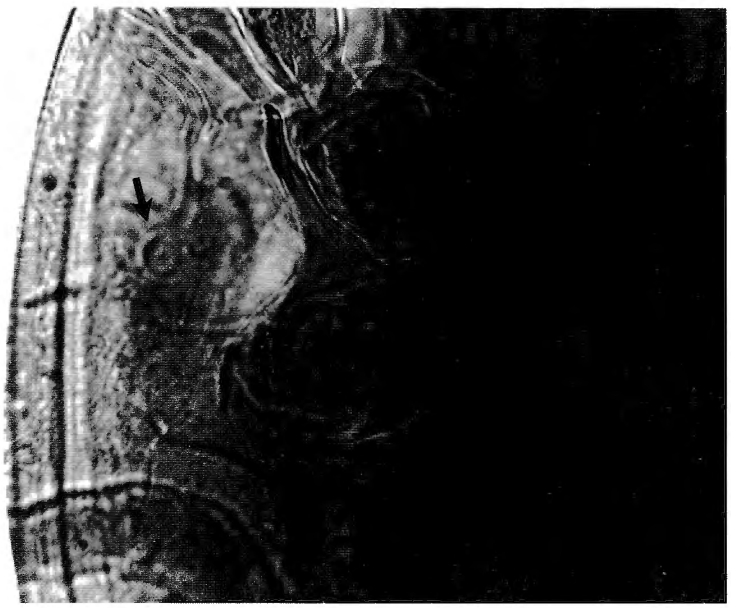
Plate I.

Slide 20/7: 1. female-whole mount, 2. detail of intercostal region showing genital plate, metapodal lines, camerostome

UROPODA ALPINA Berlese, 1904



1



2

Plate II.

Slide 20/7: 1. male-detail of intercostal region showing genital plate, metapodal lines; 2. showing position of peritreme

PHAULOCYLLIBA AMPLIOR Berlese, 1923

amplior Berl., 1923	1923: Phaulocylliba amplior	1923: Redia 15:246,no fig.a desc.--------Sumatra,(Fort de Koch),(Cl.Jacobson)
	1925: Diphaulocylliba amplior(V:52)	1925: Vitzthum,G.:51,52,a desc., --------Sumatra Figs.30-32
		1943: Vitzthum,H.:784
		1950: Radford,C.D.:48,a cat.
		*1952: Nicol, I.,:100, unpublished doc.thesis,a desc.,Figs.66-69
	1961: Uropoda amplior(H&Z-N:17)	1961: Hir.& Z-N.,F/4:1,17,Taf.9,#15(chl)
	1964: Uropoda (Phaulodinychus)amplior (H&Z-N:19)	1964: Hir.& Z-N.,F/6:19,Taf.1,#13
		1965: Hir.& Z-N.,F/8:2,2-8,a key; Taf.1,#12;Taf.2,#46;Taf.3,#64; Taf.4,#77,#88
	1967: Diphaulocylliba ampl.(H&Z-N:3)	1967: Hir.& Z-N.,F/10:3
		1968: Hir.& Z-N.,F/11:12,13
	1969: syn:Diphaulocilliba! debilior V.,1925,Cilliba celsocyclosa V.,1926(H&Z-N:126)	1969: Hir.& Z-N.,F/12:57-66,desc.,-------Sumatra:molding 126,142,Taf.11,#79 plants
	1971: Diphaulocylliba amplior(H:5)	1971: Hirschmann,W.,F/16:5,16,25,a cat.
	idem: Phaulocylliba amplior(H:16)	
	idem: Uropoda(Phaulo.)amplior(H:25)	
		1972: Zirngiebl-Nicol,I.,F/18:50,a desc.
		idem: Hirschmann,W.,F/18:68,a key
		idem: Hutu,M.,F/18:97----------OIM
		1974: Hir.& Hutu,F/20:34
	1979: U.(Phaulo.)amplior(H:17)	1979: Hirschmann,W.,F/26:17
		1981: Wis.& Hirsch.,F/28:44-5,Taf.XII, #22,4th & 5th setae of papal trochanter(f);74-5,Taf.XXVII,#41, form of dor. & ven.setae(l);78-9, Taf.XXIX,#29,operculum(f)
		1984: Hirschmann,W.,F/31:9,52(a key)
		**1985: Castagnoli & Pegazzano:14
		1993: Wis.& Hir.,F/40:189
		idem: Wisniewski,J.,F/40:279

*Nicol,I.: Nicol's figures are included, some were republished in 1961, 1965 & 1969 under Hirschmann & Zirngiebl-Nicol.

**Cast.& Peg.1985:14: The ref. "Gli Insetti, vol.II,1925" was inadvertently placed as a reference for amplior. It should be placed under the species Canestriniella amplexans which appears on the same page.

Castagnoli & Pegazzano, 1985: 14

amplior Berl.
Phaulocylliba

Redia XV, agosto 1923: 246
**Gli Insetti, vol. II, 1925: 54

224/40, t, f, f, Fort de Koch, Sumatra, Jacobson!; 44°/2174, idem.

PHAULOCYLLIBA AMPLIOR Berlese, 1923

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide: 224/40: slide had to be remounted

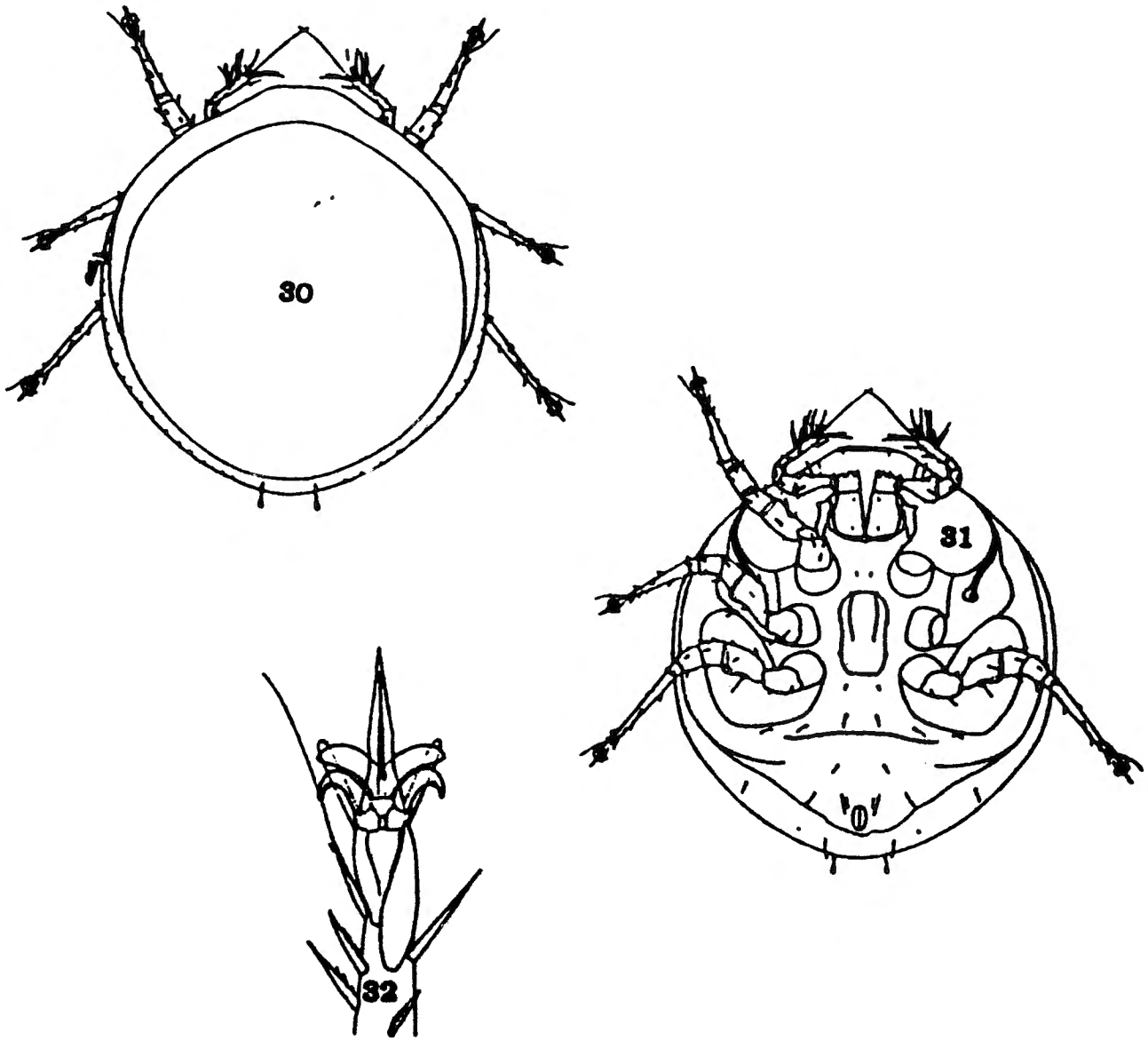
Plate I. 1. internal view of gravid female showing setae and legs of larval (?) forms
2. idem. showing details of a gnathosoma: setae & corniculi

Plate II. 1. idem. showing a different type of larval (?) setae
2. legs of very small immature form (nymph ?)
3. showing larval (?) setae and claws of legs

Plate III. 1. female-detail of genital plate
2. female-peritreme

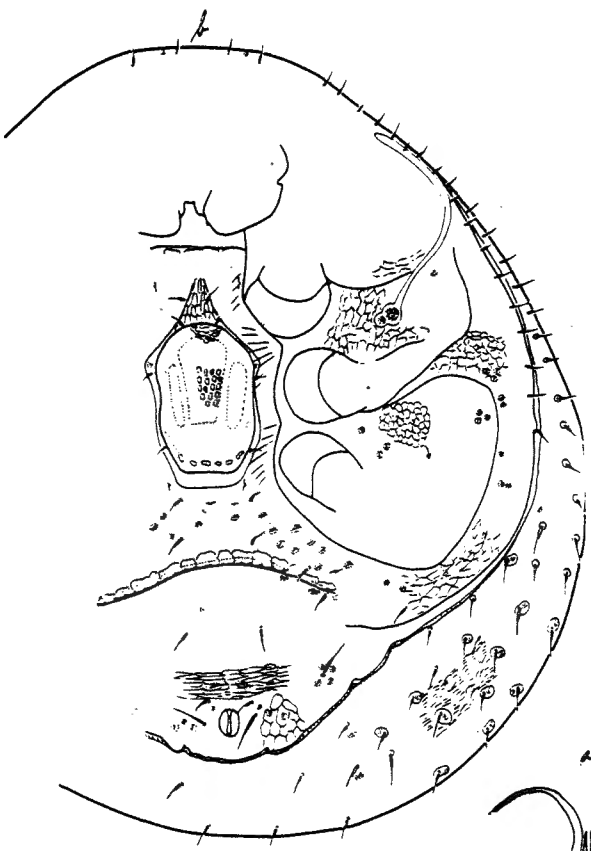
Plate IV. 1. female-ventrum, Gorirossi-Bourdeau, from type
2. female-detail of ventrum, Gorirossi-Bourdeau, from type

PHAULOCYLLIBA AMPLIOR Berlese, 1923

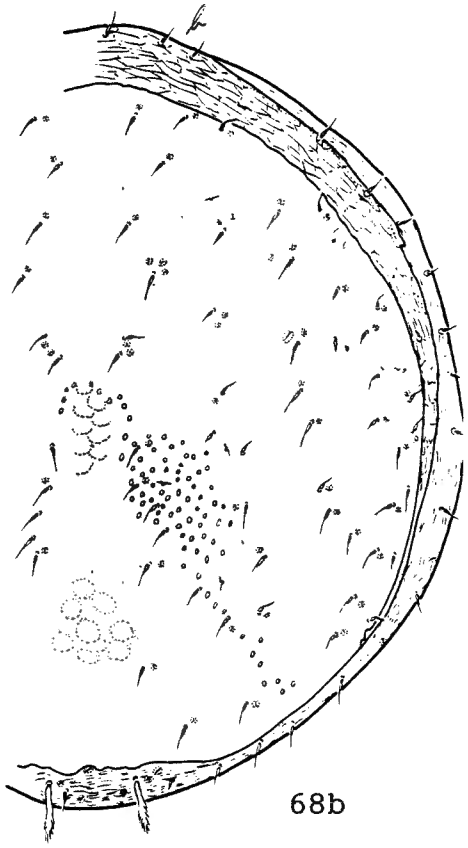


1925: VITZTHUM, FIG. 30-female (dorsum), 31-female (ventrum), 32-female (tarsus II).

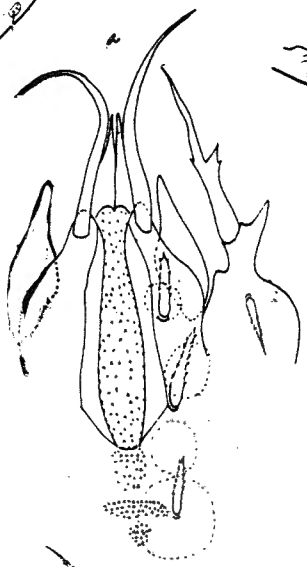
PHAULOCYLLIBA AMPLIOR Berlese, 1923

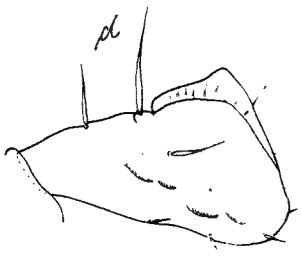


69b

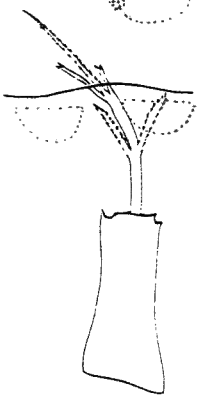


68b



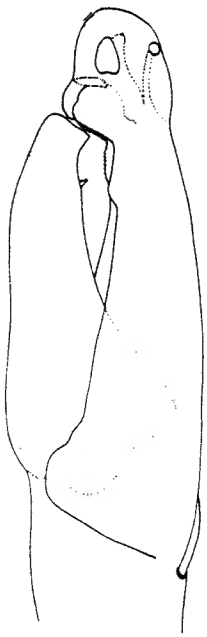


68d



68

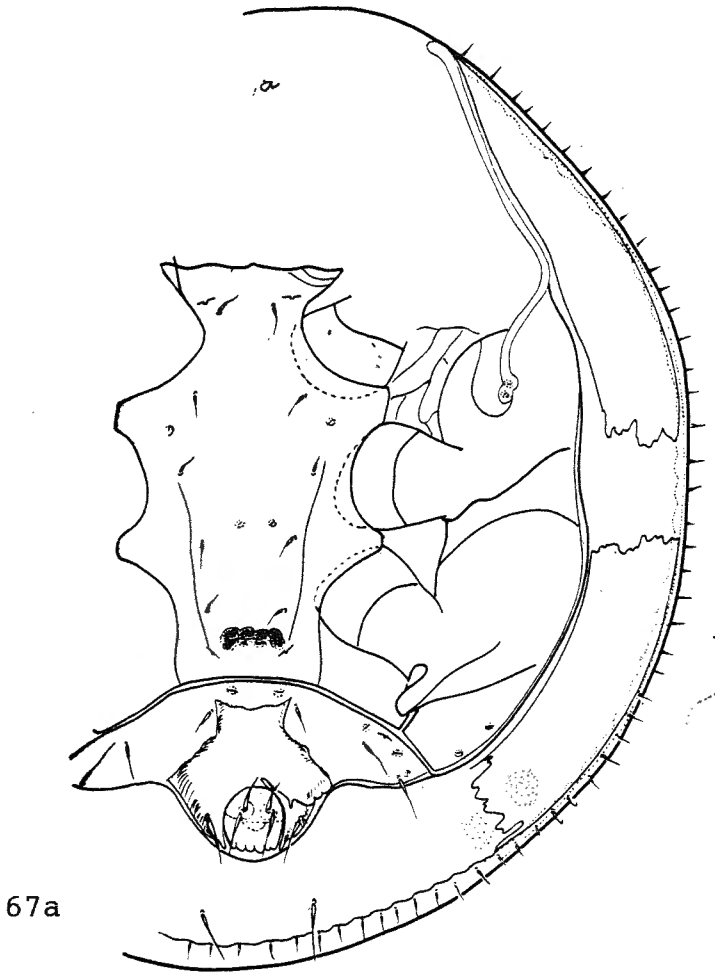
68e



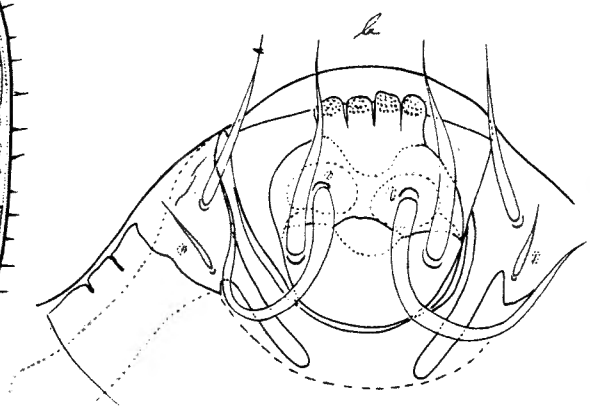
66

1952: NICOL, 66-69: 66-female (chela), 68-female (hypostome & tritosternum), 68b-female (dorsum), 68d-female (femur I, squamous, 68e-female (apotele of papal tarsus), 69b-female (ventrum)

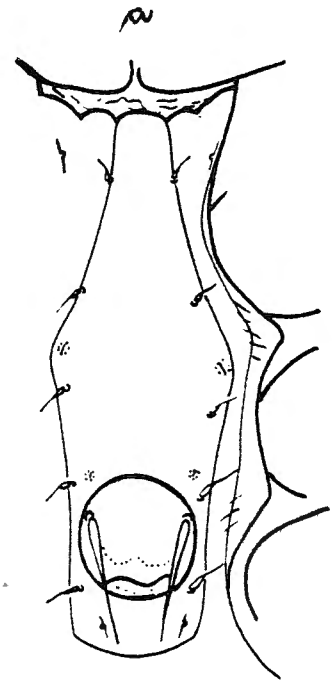
PHAULOCYLLIBA AMPLIOR Berlese, 1923



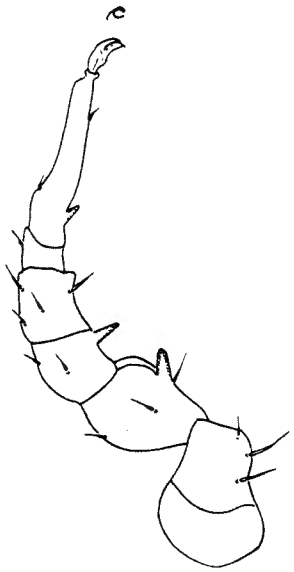
67a



67b



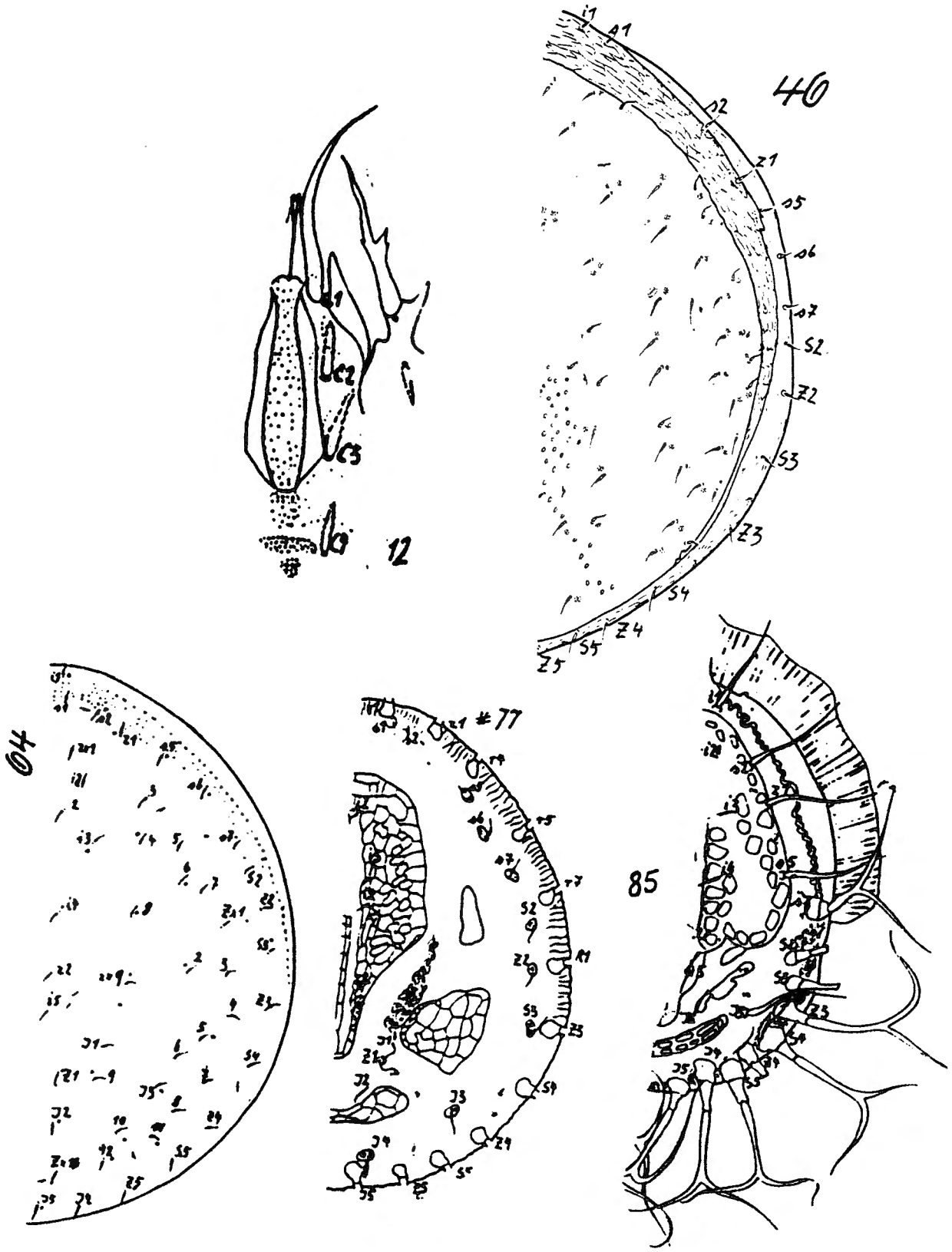
68c



69a

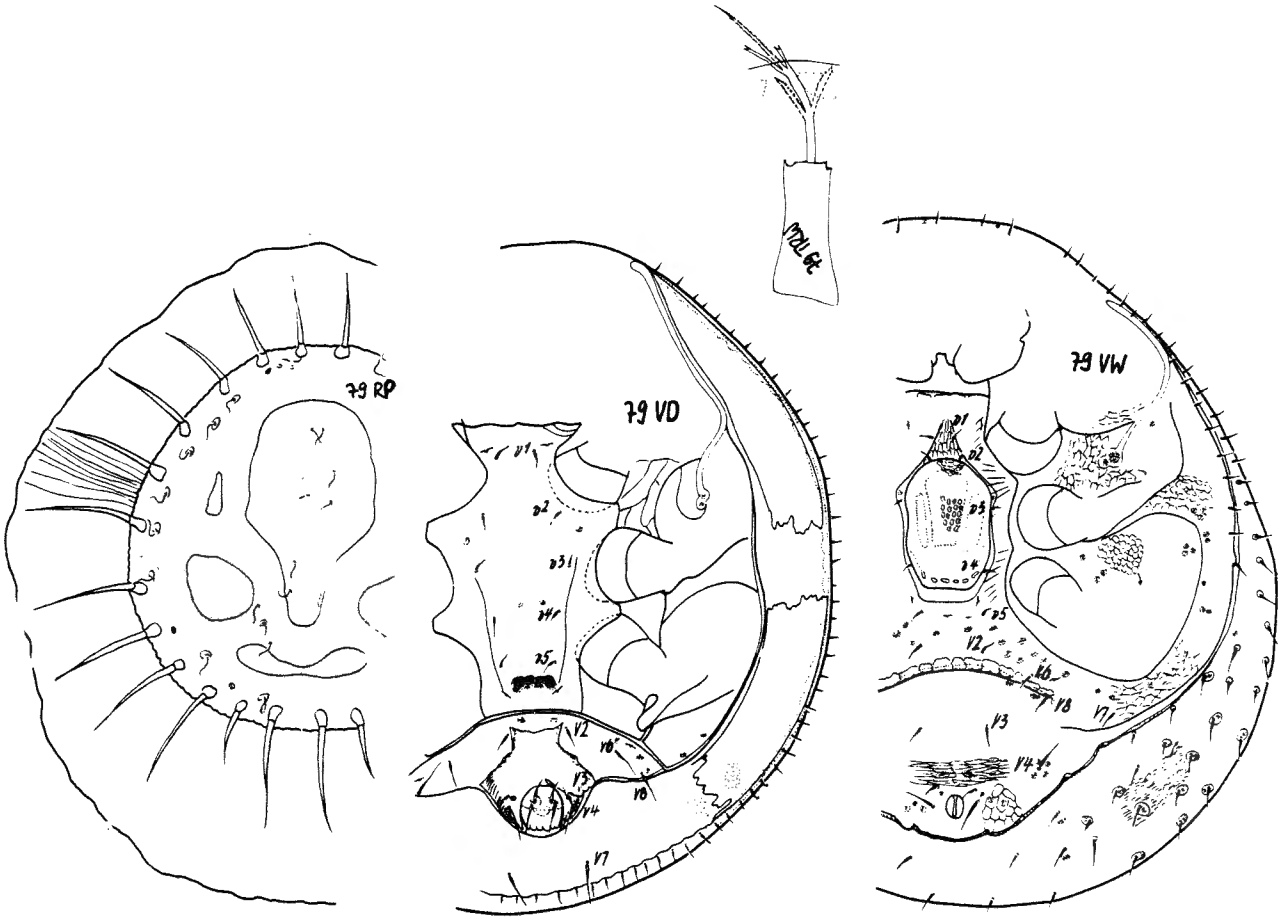
1952: NICOL, 67a,b: 67a-deutonymph (ventrum), 67b-deutonymph (anal plate), 68c-male (leg II), 69a-male ventrum)

PHAULOCYLLIBA AMPLIOR Berlese, 1923

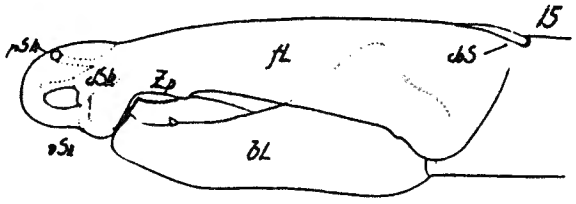


1965: HIRSCHMANN & ZIRNGIEBL-NICOL, F/8, Taf. 1, Fig. 12-female (hypostome); Taf. 2, Fig. 46-female (dorsum); Taf. 3, Fig. 64-deutonymph (dorsum); Taf. 4. Figs. 77-protonymph (dorsum), 85-larva (dorsum)

PHAULOCYLLIBA AMPLIOR Berlese, 1923

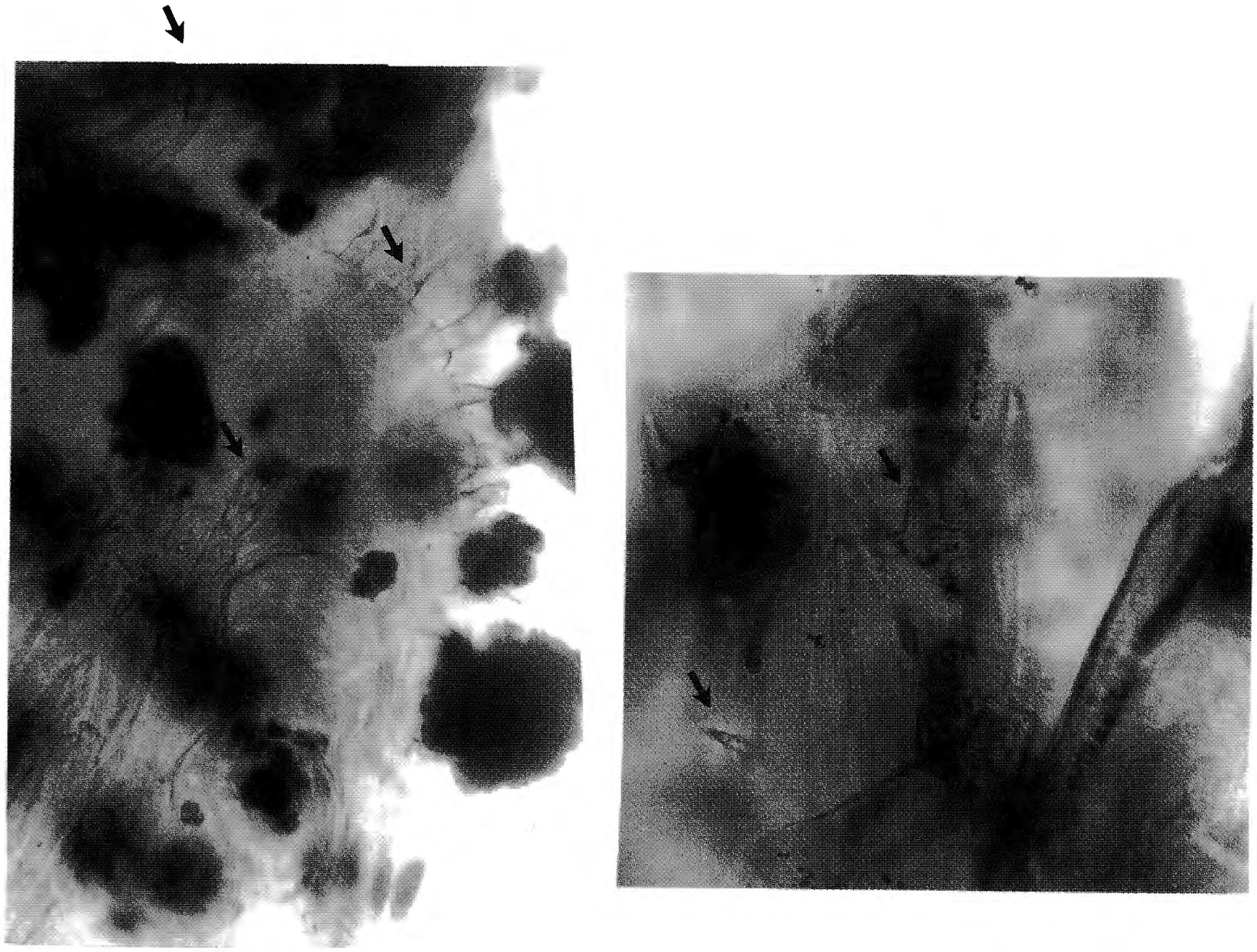


1969: HIRSCHMANN & ZIRNGIEBL-NICOL, F/12, Taf. 11, #79: RP-protonymph (dorsum), VD-deutonymph (ventrum), VW-female (ventrum), TRW-female (tritosternum).



1961: HIRSCHMANN & ZIRNGIEBL-NICOL, F/4, Taf. 9, #15-female (chela)

PHAULOCYLLIBA AMPLIOR Berlese, 1923



1 2

Plate I.

Slide 224/40: 1. internal view of gravid female showing setae and legs (claws); 2. idem., showing detail of gnathosoma, note setae, corniculi

PHAULOCYLLIBA AMPLIOR Berlese, 1923

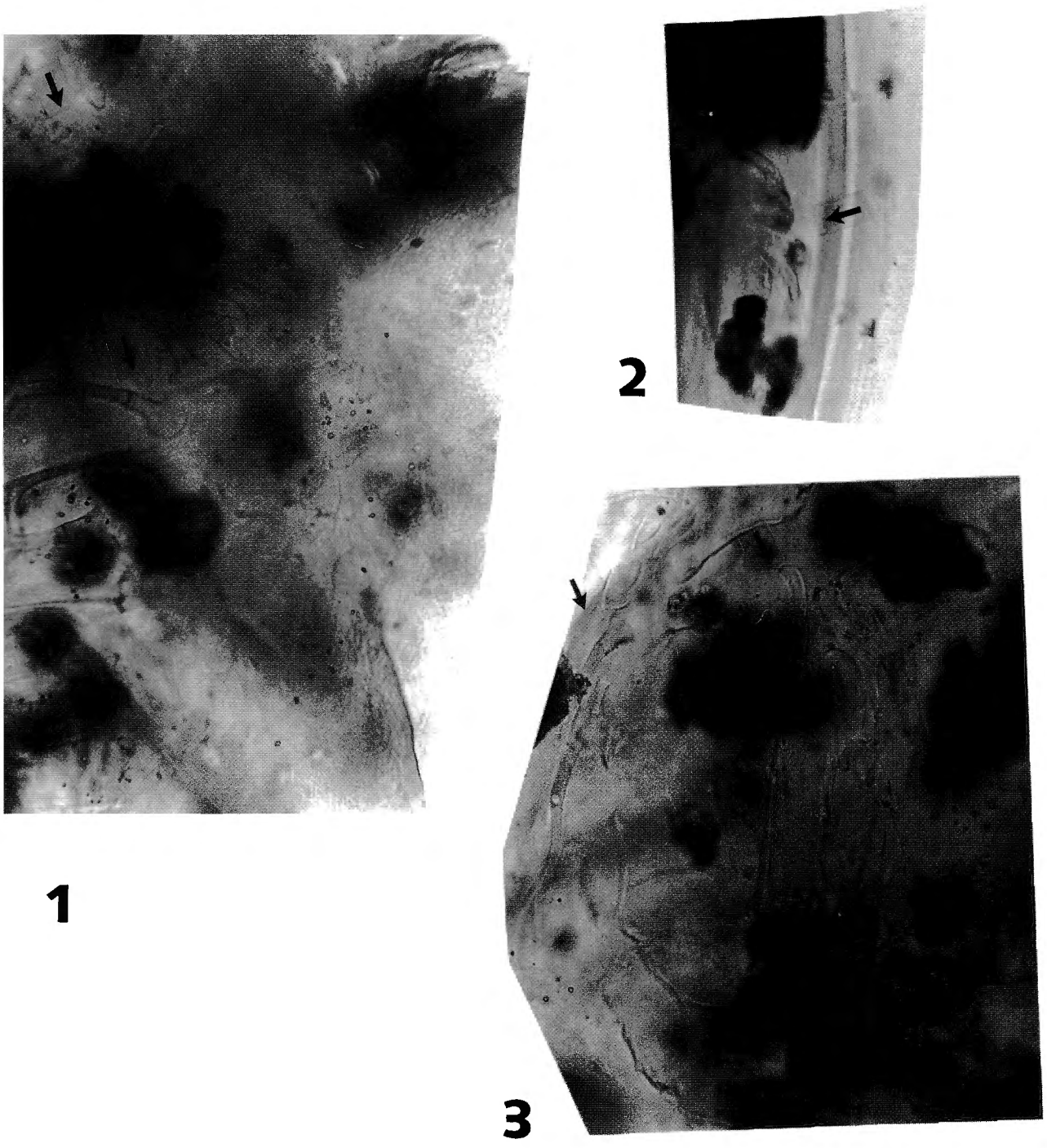
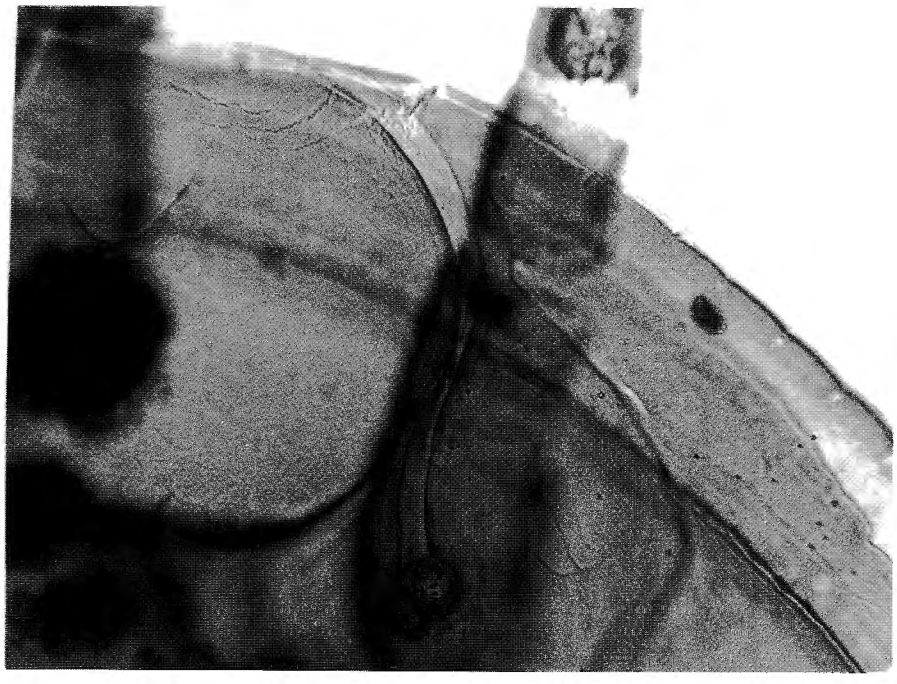


Plate II.

Slide 224/40: 1. internal view of gravid female, note setae; 2. idem, legs (nymph ?); 3. idem, note setae and legs (claws)

PHAULOCYLLIBA AMPLIOR Berlese, 1923

1



2

Plate III.

Slide 224/40: 1. female-detail of genital plate
2. female-peritreme

PHAULOCYLLIBA AMPLIOR Berlese, 1923

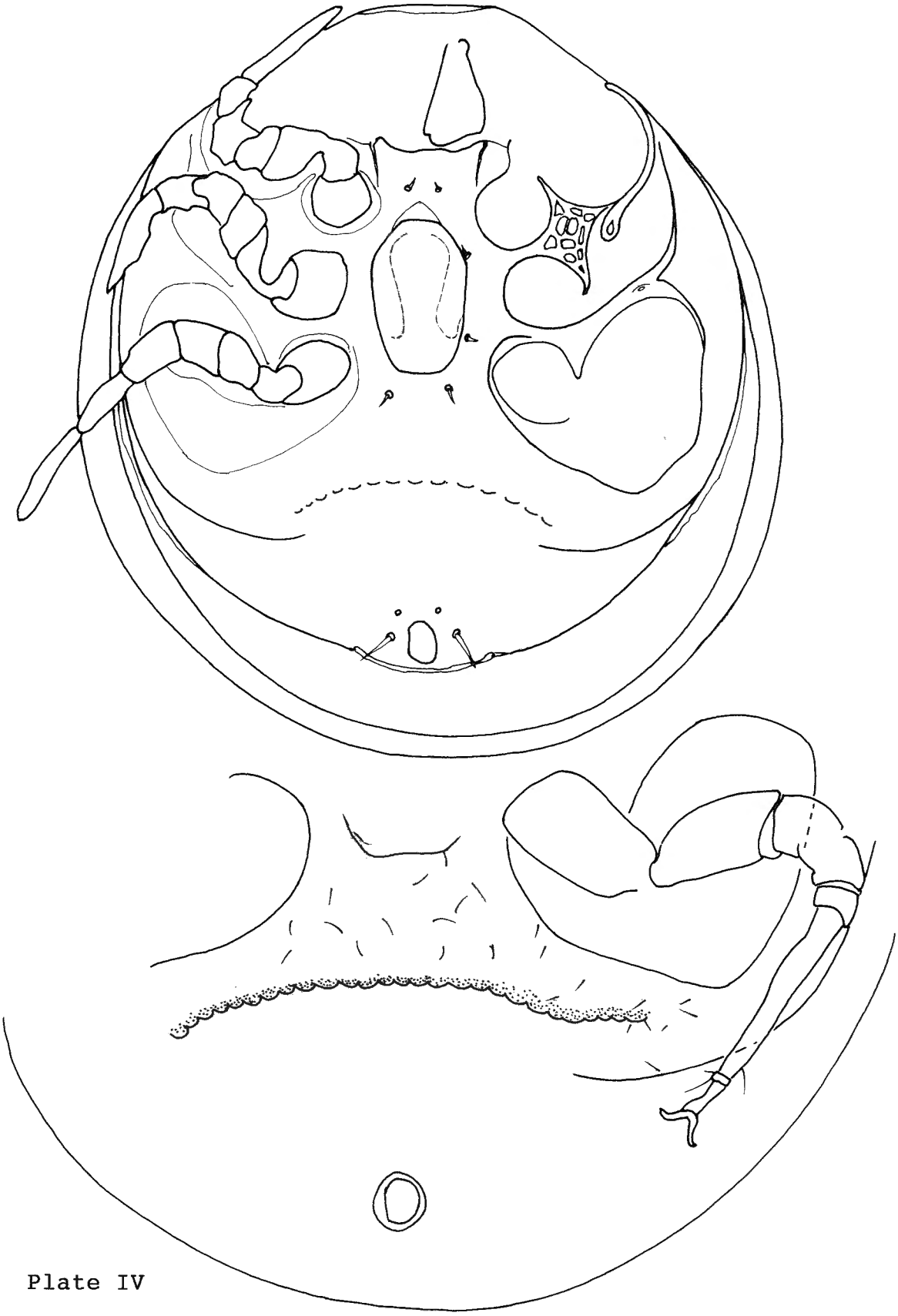


Plate IV

Slide 224/40: 1. female-ventrum, Gorirossi-Bourdeau, from type
2. female-ventrum, showing detail of scalloped ridge, Gorirossi-Bourdeau, from type

DINYCHUS APPENDICULATUS Berlese, 1910

appendiculatus Berl., 1910	1910: Dinychus appendiculatus	1910: Redia 6:245,no fig.,a desc.--------It.(Fl.):in soil
	1917: Dinychopsis appendiculata	1917: Redia 13:11,no fig.,no desc.
[BWB]:485	1936: Dinychopsis appendiculata(L:40)	1936: Lombardini,G.:40,a cat.
	1962: Uroobovella append.(H&Z-N:58)	1962: Hir.& Z-N.,F/5:58,76,desc., Taf.27,#7;Taf.29,#4
		1964: Hir.& Z-N.,F/6:20,Taf.2,#110
		1965: Hir.& Z-N.,F/8:22,a key
		1969: Hir.& Z-N.,F/12:92-94,desc.
	1971: Dinychus appendiculata(H:5)	1971: Hirschmann,W.,F/16:5,24,a cat.
	idem: Uroobovella appendiculata(H:24)	
	1972: Fuscuropoda appendiculata(E:198)	1972: Evans,G.O.:198
		1972: Hutu,M.,F/18:100----------Med
		1974: Hir.& Hutu.,F/20:26,31----------Ger.
	1977: Uroob.appendiculata(K&P:664)	1977: Kadite & Petrova:664,a key; Fig.518,#1,2(aft.H&Z-N,1962)
		1979: Hirschmann,W.,F/26:37----------France
		idem: Nicol,I.,F/26:6
		1981: Wis.& Hir.,F/28:26-7,Taf.III, #45,epi.(f);78-9,Taf.XXIX,#4, oper.(f);80-1,Taf.XXX,#41, peri.(f)
		1982: Bloszyk,J.A.,thesis,----------Fig.216(map with 396,a desc.,Fig.213(aft.H&Z-N., dist.in Pol.) 1962),Fig.215(v/f),96,a key
	1988: Dinychopsis appen.(A-B&H:379)	1988: Athias-Binch & Habersaat,:379
	1989: Uroobovella appendiculata(H:85)	1989: Hirschmann,W.,F/36:85,86-88, a key,133,187,a key
		1989: Karg,W.:147,a key(adult);151-------Ger.:from field & 140,Abb.108(a-b,d) pasture soils,decaying plants
	1990: Fuscuropoda appen.(B&M:34)	1990: Bloszyk & Miko,L.:34,36,----------Cz.:Pieniny Mts. 40,43-44 (slavic side),(first record for Cz.fauna)
		*1993: Wis.& Hir.,F/40:159
		idem: Wisniewski,J.,F/40:249,250,252,263-Belgium

Nicol, 1979: 4-7, a translation of Berlese's 1918 unpublished key from his work book [BWB]: Genera Mesostigmata. In 1961, F/4, Teil 4, H & Z-N had published from the same BWB:485, the RW, VW, & T sketches: Die Uropodiden-Gattungen und das System der Uropodiden nach Berlese 1918, Nr. 408-549.

*Wis.& Hir.,1993:159, reference to Redia 13:11 should read 1917 and not 1913.

Castagnoli & Pegazzano, 1985: 20

appendiculata Berl.

Dinychopsis

Redia VI, febbr. 1910: 245 (Dinychus appendiculatus).
Redia XIII, agosto 1917: 11 (Dinychopsis appendiculata).

85/29, t, f, nel musco, Golfo degli Aranci, Sardegna; 85/30, t, m, idem;
85/31, Giardino R. Stazione Entomologia, Firenze.

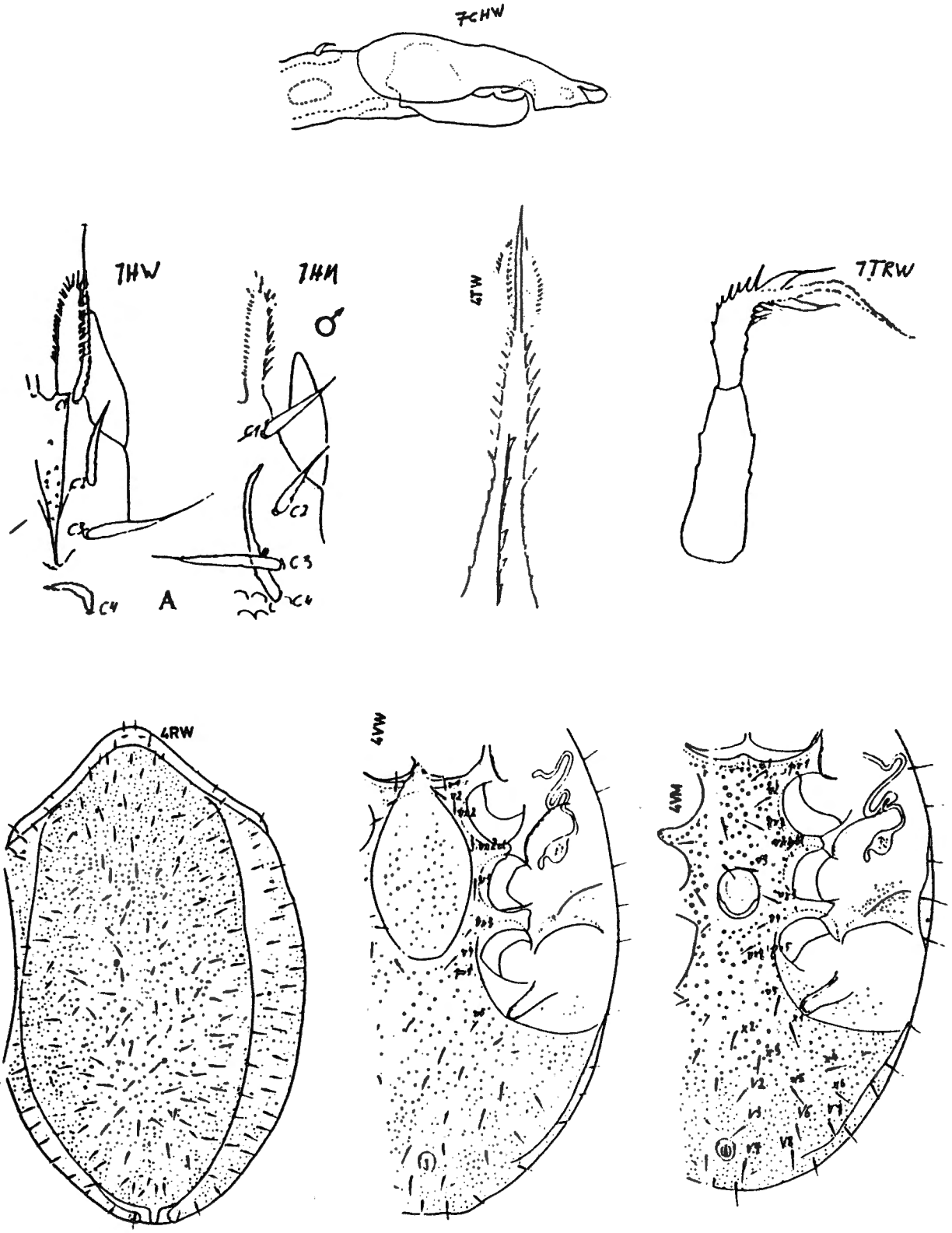
DINYCHUS APPENDICULATUS Berlese, 1910

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide: 85/31: nymphs

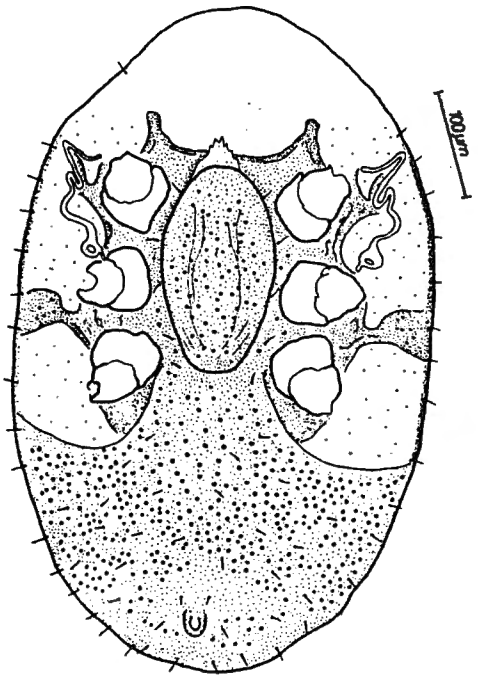
slide: 85/30:
Plate I. male: 1. whole mount, 2. showing corniculi, peritremes, genital plate, leg grooves, "appendix"

DINYCHUS APPENDICULATUS Berlese, 1910

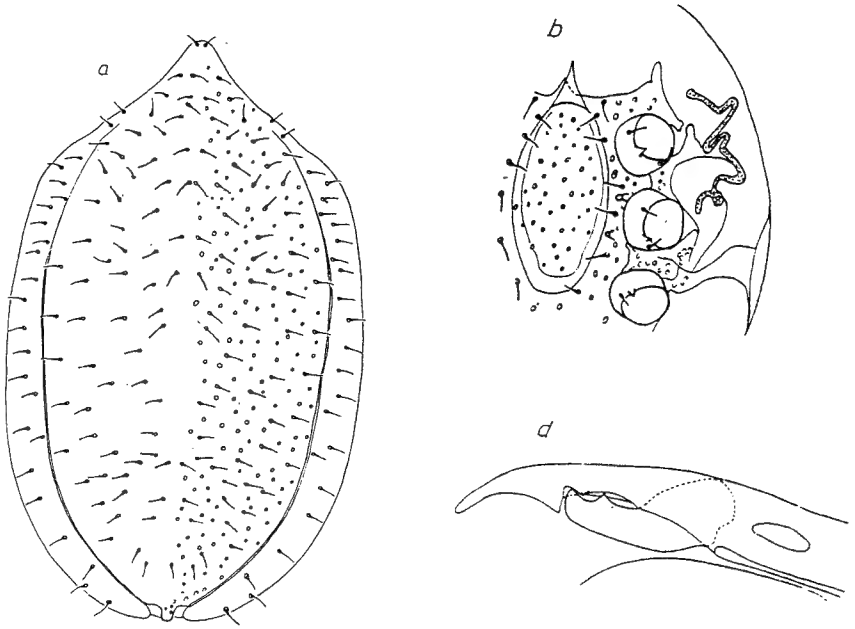


1962: HIRSCHMANN & ZIRNGIEBL-NICOL, F/5, Taf. 27, #7: HW-female (hypostome), HM-male (hypostome), TRW-female (tritosternum), CHW-female (chela); Taf. 29, #4: RW-female (dorsum), VW-female (ventrum), VM-male (ventrum), TW-female (tectum).

DINYCHUS APPENDICULATUS Berlese, 1910



1982: BLOSZYK, Fig. 215-female (ventrum).



1989: KARG, Abb. 108 a-female (dorsum), b-female (genito-coxal area) d-female (chela).

DINYCHUS APPENDICULATUS Berlese, 1910

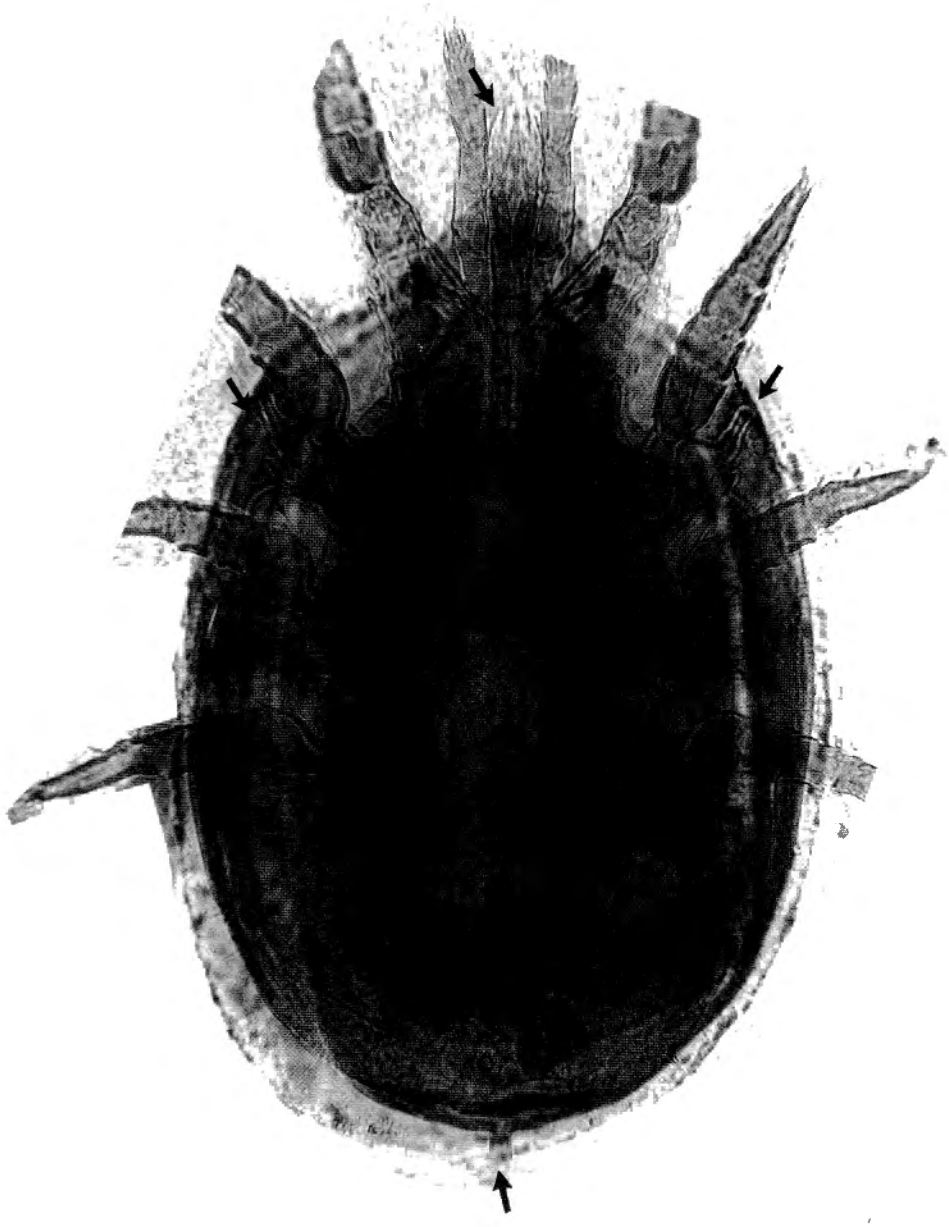


Plate I

Slide 85/30: male-ventrum, note "appendix", corniculi, peritremes, leg grooves

METADINYCHUS ARGASIFORMIS Berlese, 1916

argasiformis Berl., 1916 [BWB]:451	1916: Metadinychus argasiformis	1916: Redia 12:135,no fig.,a desc.-------Brazil(Santos): fallen palm trunk (Cl.Bruck)
	1917: Metadinychus argasiformis	1917: Redia 13:10,no fig.,no desc.
		1936: Lombardini,G.:44,a cat.
		1943: Vitzthum,H.:784
		1950: Radford,C.D.:47,a cat.
		1952: Baker & Wharton:116
	1964: U.(Phaulodinychus)arg.(H&Z-N:19)	1964: Hir.& Z-N.,F/6:19,Taf.1,#40
	1967: Metadinychus argas.(H&Z-N:3)	1967: Hir.& Z-N.,F/10:3
		1969: Hir.& Z-N.,F/12:127,143; Taf.13,#92(Z-N,from type)
	1971: Metadinychus argasiformis(H:13)	1971: Hirschmann,W.,F/16:13,25,cat.
	idem: U.(Phaulo.)argasiformis(H:25)	
		1972: Zirngiebl-Nicol,I.,F/18:58,a desc.
		idem: Hirschmann,W.:68,a key
		idem: Hutu,M.,F/18:97----------NtB
		1974: Hir.& Hutu.,F/20:21
	1978: U.(Meta.)argasiformis(H&Hira:9)	1978: Hir.& Hiramatsu,M.,F/24:9, a desc.,Taf.1,#1
		1979: Hirschmann,W.,F/26:20,76,77--------Bolivia
		*idem: Nicol,I., F/26:5
		1981: Wis.& Hir.,F/28:44-45,Taf.XII, #30,IV & V setae of papal trochanter(f)
		1983: idem.,F/30:80
		1990: Farrier,M.:personel corres.--------Trinidad
		1993: Far.& Hen.,Checklist:192
		idem: Wis.& Hir.,F/40:190,234,236,237
		idem: Wisniewski,J.,F/40:234,236-7

*Nicol, 1979: 4-7, a translation of Berlese's 1918 unpublished key from his work book [BWB]: Genera Mesostigmata. In 1961, F/4, Teil 4, H & Z- Z-N published from the BWB:451, the RW,VW,VM, & RP sketches: Anhang: Die Uropodiden-Gattungen und das System der Uropodiden nach Berlese 1918, Nr. 408-549.

Castagnoli & Pegazzano, 1985: 24

argasiformis Berl.

Metadinychus

Redia XII, agosta 1916: 135.
Redia XIII, agosta 1917: 10.

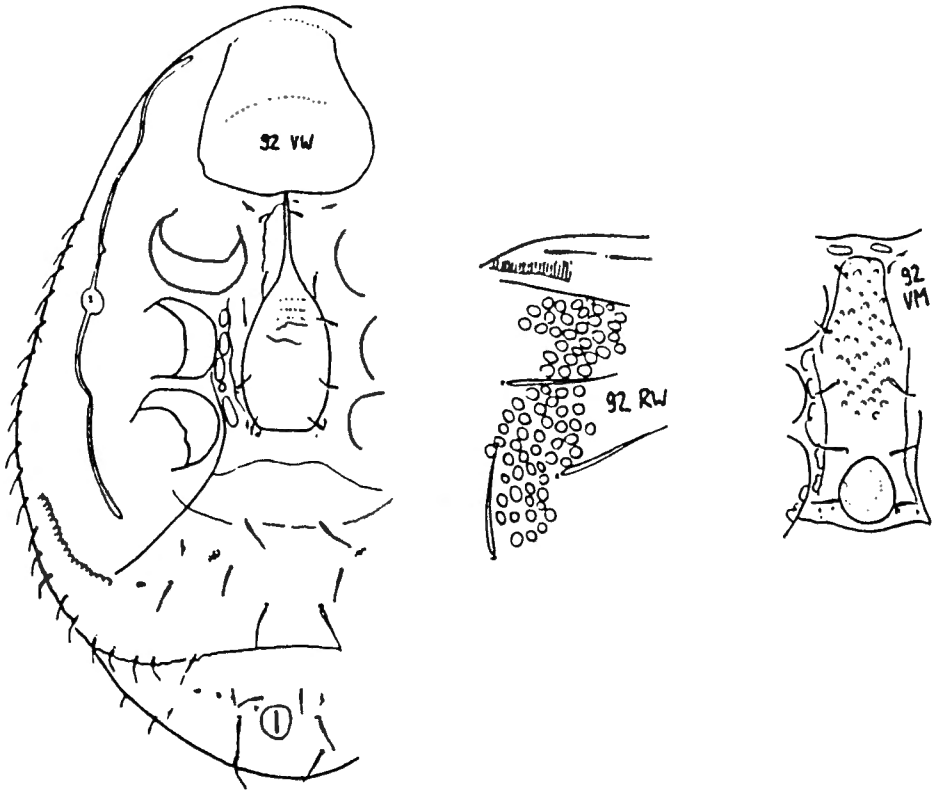
168/8, t, m, f, tronco di palma, Santos (Brasile), Brucki!;
*167/15-16, f, n, tronco di plama, Santos (Brasile).

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slides: 167/15: a nymph; *167/16: marked as FEMALE but is a MALE

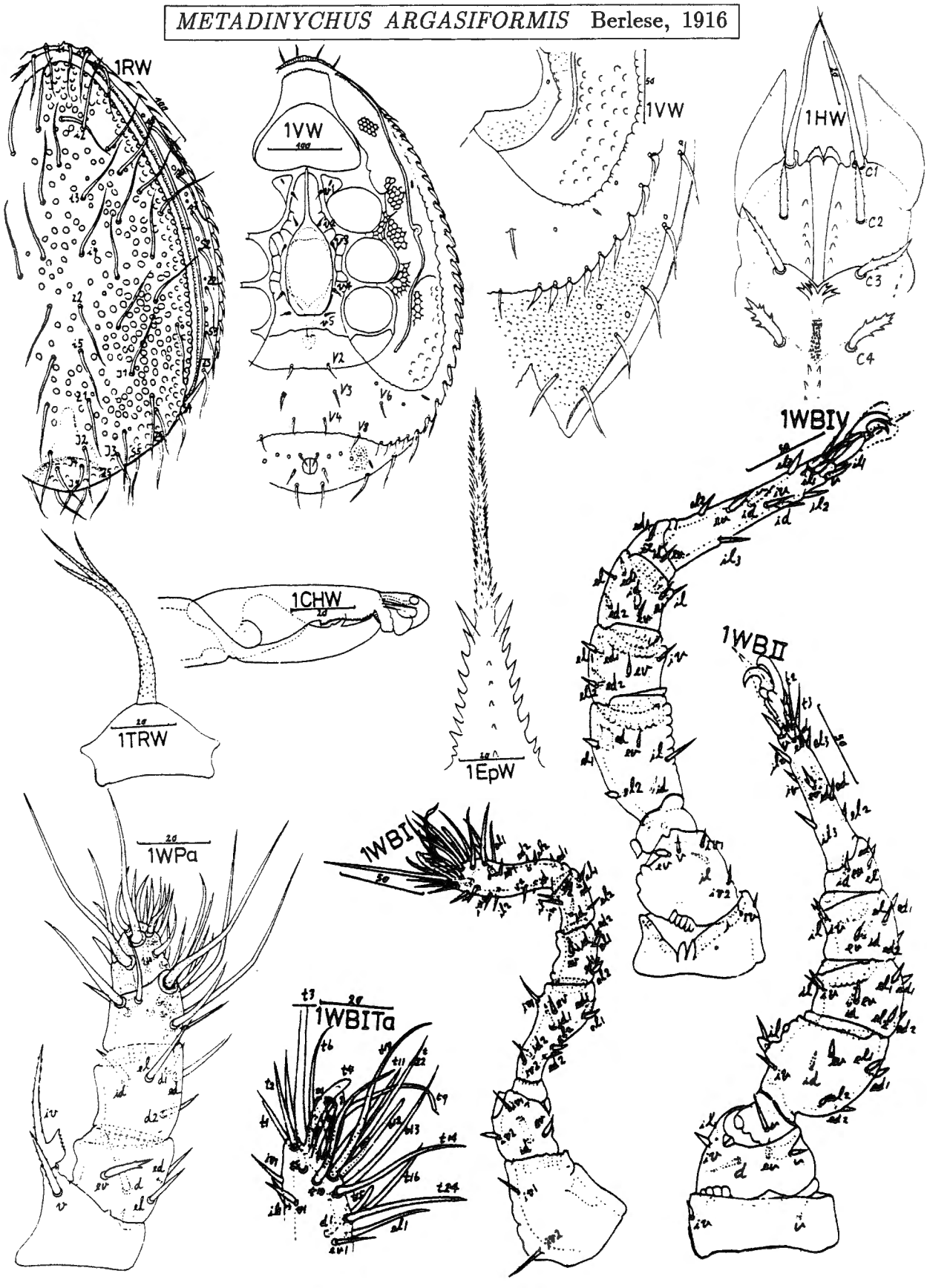
Plate I. slide 168/8: 1. female-ventrum;
167/16: 2. male-intercostal region, note raised ridges of genital plate, genital setae, sternal setae, metapodal lines, ventral setae
Plate II. slide 168/8: male-ventrum, Gorirossi-Bourdeau, from type

METADINYCHUS ARGASIFORMIS Berlese, 1916



1969: HIRSCHMANN & ZIRNGIEBL-NICOL, F/12, Taf. 13, #92: RW-female (ventrum), RW-female (dorsum, detail), VM-male (genito-sternal region).

METADINYCHUS ARGASIFORMIS Berlese, 1916



1978: HIRSCHMANN & HIRAMATSU, F/24, Taf. 1, #1: RW-female (dorsum), VW-female (ventrum), VW-female (ventrum, detail), HW-female (hypostome), TRW-female (tritosternum), CHW-female (chela), EPW-female (epistome), WBIV-female (leg IV), WPa-female (palp), WBITa-female (tarsus, leg I), WBI-female (leg I), WBII-female (leg II).

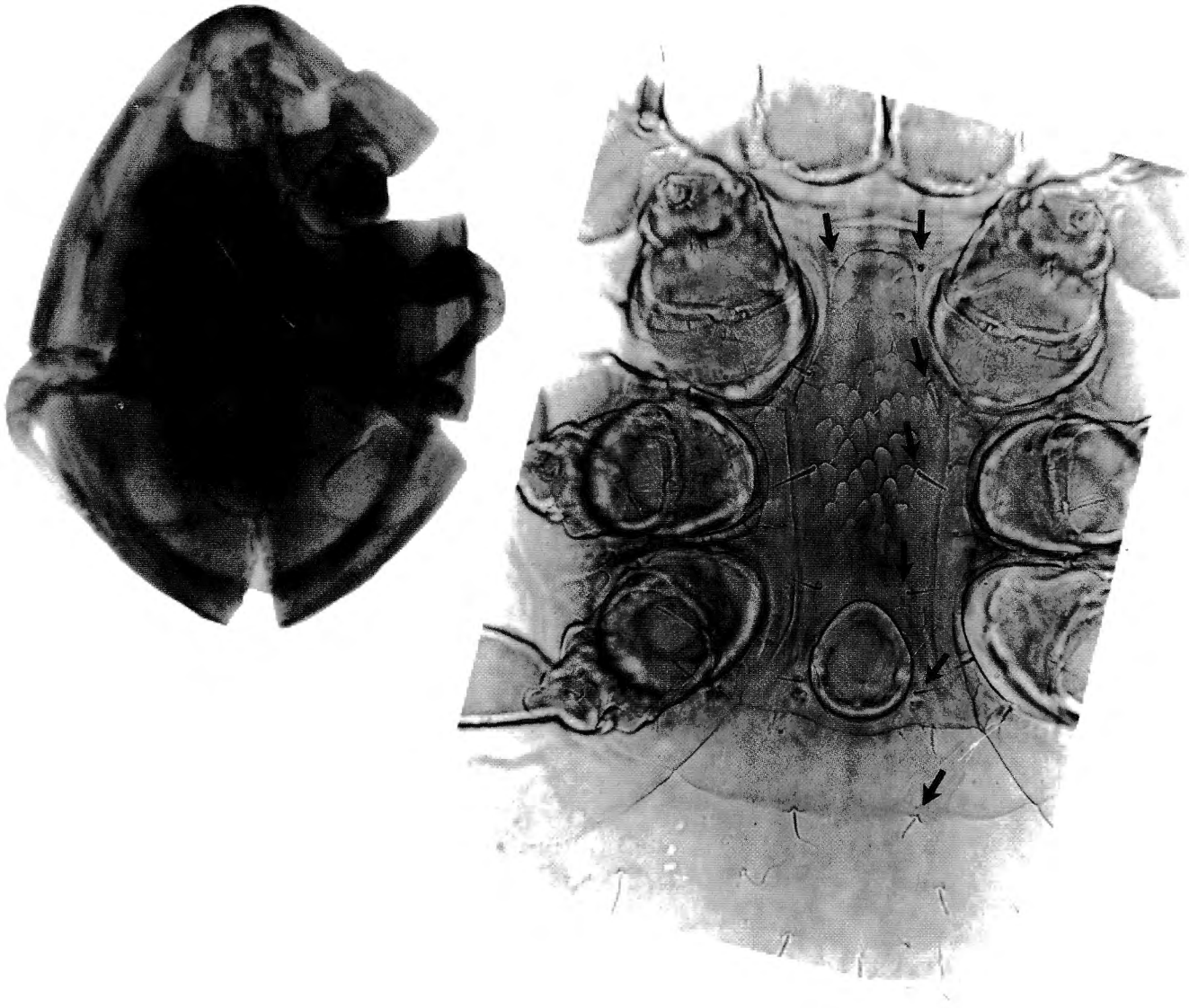


Plate I.

slide 168/8: 1. female-ventrum
167/16: 2. male-intercostal region: note formation of perigenital depression with presence of 4 genital setae, note sternal setae at upper limit of perigenital depression, note position of the two, first ventral setae on lower horizontal line posterior to genital plate

METADINYCHUS ARGASIFORMIS Berlese, 1916

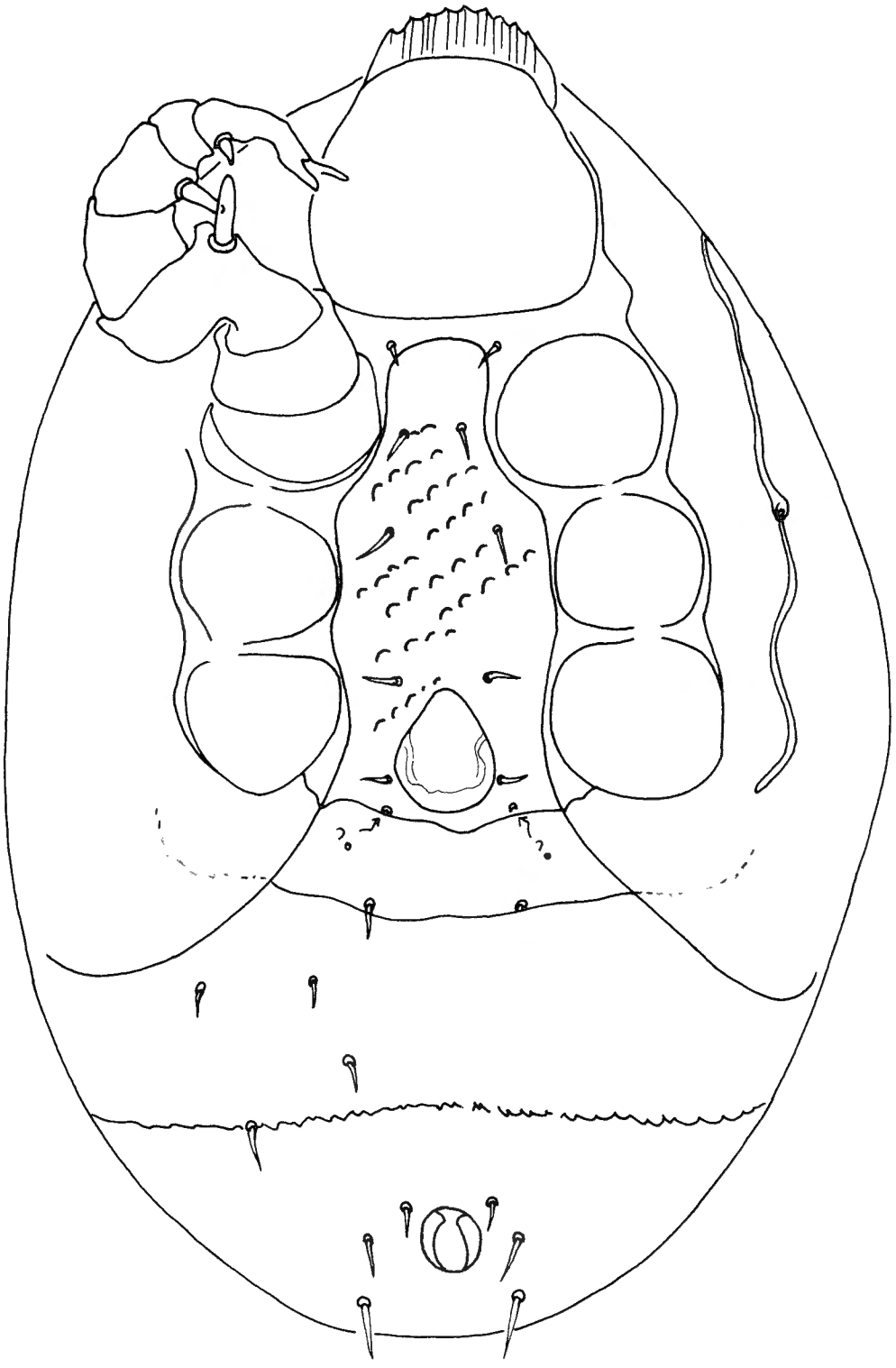


Plate II

Slide 168/8: male-ventrum, Gorirossi-Bourdeau, from type

POLIASPIS AUSTRALIS Berlese, 1910

australis Berl.,1910	1910: Poliaspis australis	1910: Redia 6:379,no fig.,a desc.--------Aus.(Queensland): (nympha pedunculata) on Blatta sp.(Cl.Froggatt); Java:on Passalus dentatus (Cl. Jacobson)
	1936: Polyaspis australis(L:47)	1936: Lombardini,G.:47,a cat.
	1961: Polyaspis(P)australis(J:530)	1961: Johnston,D.:530
	1967: Polyaspis australis(H&Z-M:18)	1967: Hir.& Z-M.,F/10:18
		1971: Hirschmann,W.,F/16:16,a cat.
		1976: Athias,F.:213
		**1989: Hir.& Kem.,:4

** Hirschmann & Kemnitzer, 1989: 4, list P. australis as 1916, should read 1910.

Castagnoli & Pegazzano, 1985: 31

australis Berl.

Polyaspis

Redia VI, luglio 1910: 379

101/22-25, t, n pedunculata, su Blatta, Australia; 12°/596, t, su Passalus dentatus, Goenoeng Dengaran-Giavc, Jacobson!, ott. 1909; 120/28, n, su Passalus dentatus, Giava, Jacobson!; 15°/708, n, Blatta, Australia.

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slides: 101/22-25: complete deterioration of mounting media, impossible to see specimens

---

UROPLITELLA LEONARDIANA var BECCARII Berlese, 1904

beccarii Berl., 1904 var leonardiana	1904: Uroplitella leonardiana Berl. var beccarii 1964: Oplitis beccarii(H&Z-N:22) (listed as Berlese,1907!) 1971: Oplitis beccarii(H:14,as 1907!)	1904: Redia 2:22,no fig.,a desc.---------Java:in asci of Schiidiae(Cl.Beccari) 1964: Hir.& Z-N.,F/6:22,Taf.5,#237 1971: Hirschmann,W.,F/16:14,a cat. 1976: Hunter & Farrier:48 1991: Hirschmann,W.,F/38:4; Abb.S.4 1993: Wis.& Hir.,F/40:49,278 idem: Wisniewski,J.,F/40:278

Castagnoli & Pegazzano, 1985: 34

beccarii Berl. var.

Uroplitella leonardiana Berl.

Reia II, luglio 1904: 22.

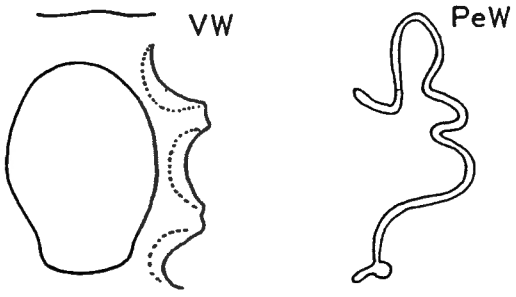
sub Uroplitella beccarii: 24/1, t, m, f, negli ascidi de Schidia, Giava, Prof. Beccari!

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide: 24/1: Plate I. 1. female-ventrum (specimen in poor condition), 2. genital plate
Plate II. 1. male-ventrum, 2. detail of ventroanal plate, 3. detail of camerostome showing scabellum and vertex
Plate III. 1. male-ventrum, Gorirossi-Bourdeau, from type

Plate IV. UROPLITELLA LEONARDIANA Berl., 1903:
Berlese, 1904: 28-dorsum, 29-ventrum
Hir. & Z-N., 1969, Tav. 21: 174-VM, WM, HM, CHW, TRM

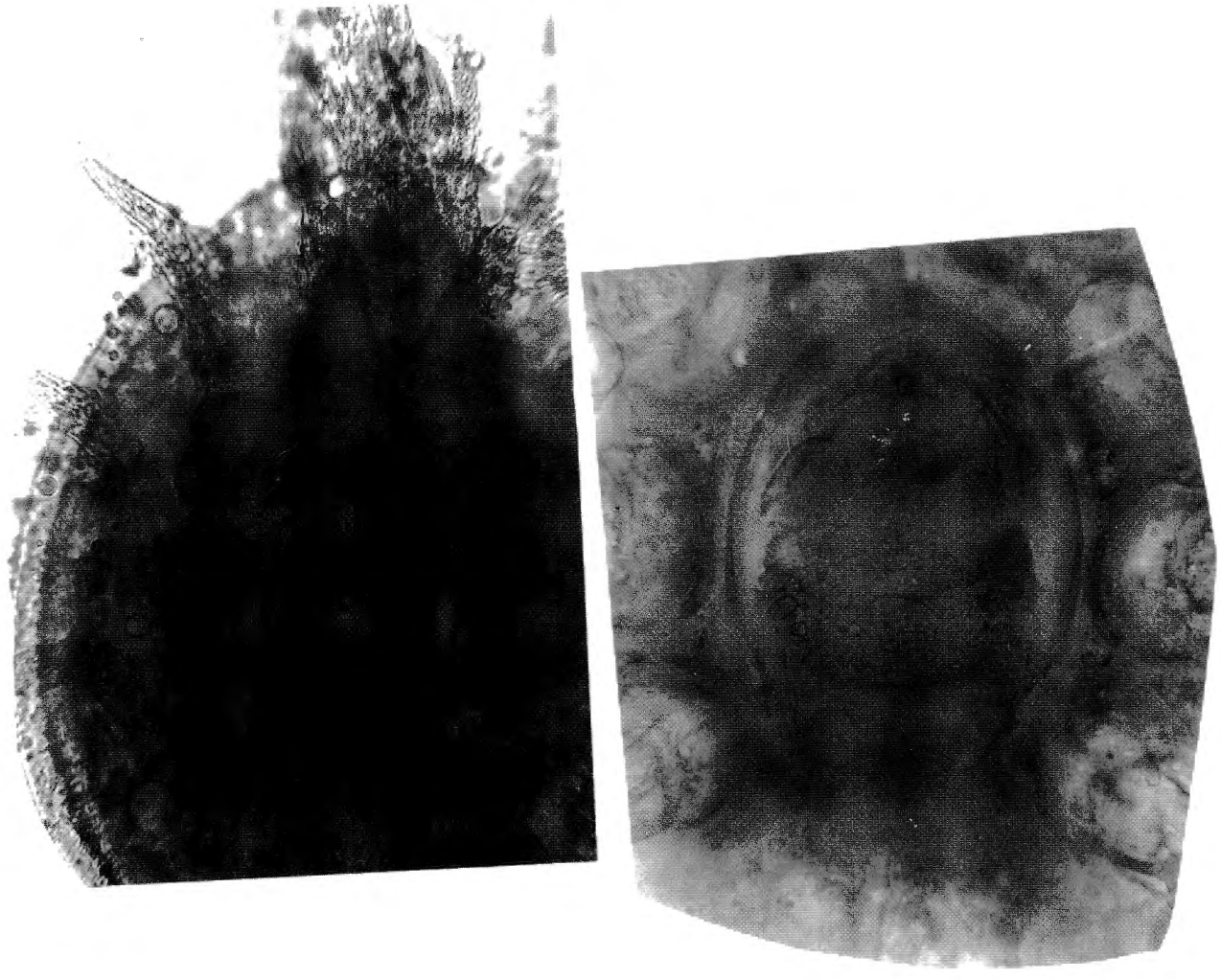
UROPLITELLA LEONARDIANA var BECCARII Berlese, 1904



Oplitis beccarii (BERLESE 1904)

1991: HIRSCHMANN, F/38, Abb.4: VW-female (genital plate), PEW-female (peritreme).

UROPLITELLA LEONARDIANA var BECCARII Berlese, 1904



1 2

Plate I.

slide 24/1: 1. female-ventrum, 2. genital plate

UROPLITELLA LEONARDIANA var BECCARII Berlese, 1904

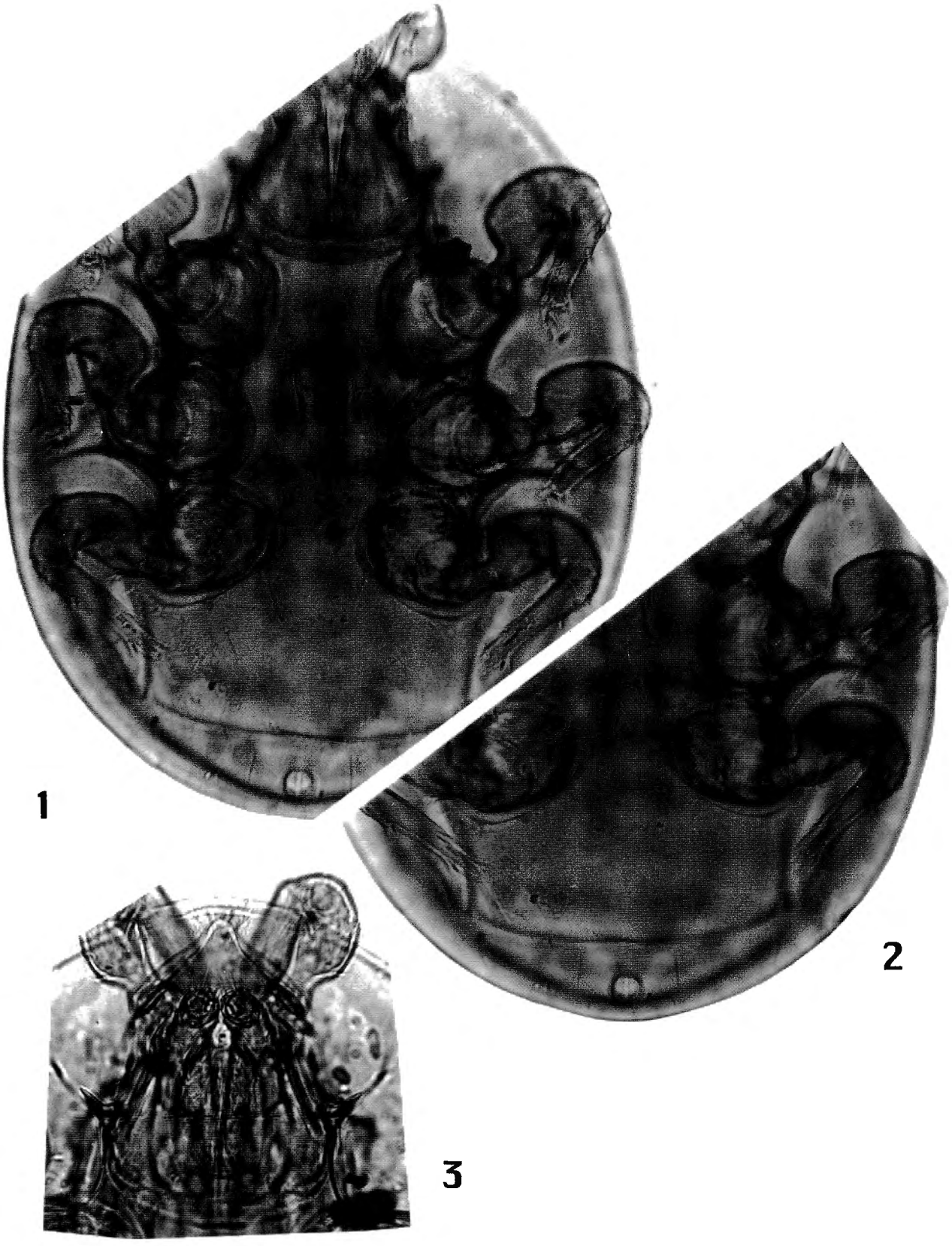


Plate II

slide 24/1: 1. male-ventrum, 2. detail of posterior region of ventral surface, 3. detail of camerostome showing scabellum & vertex

UROPLITELLA LEONARDIANA var BECCARII Berlese, 1904

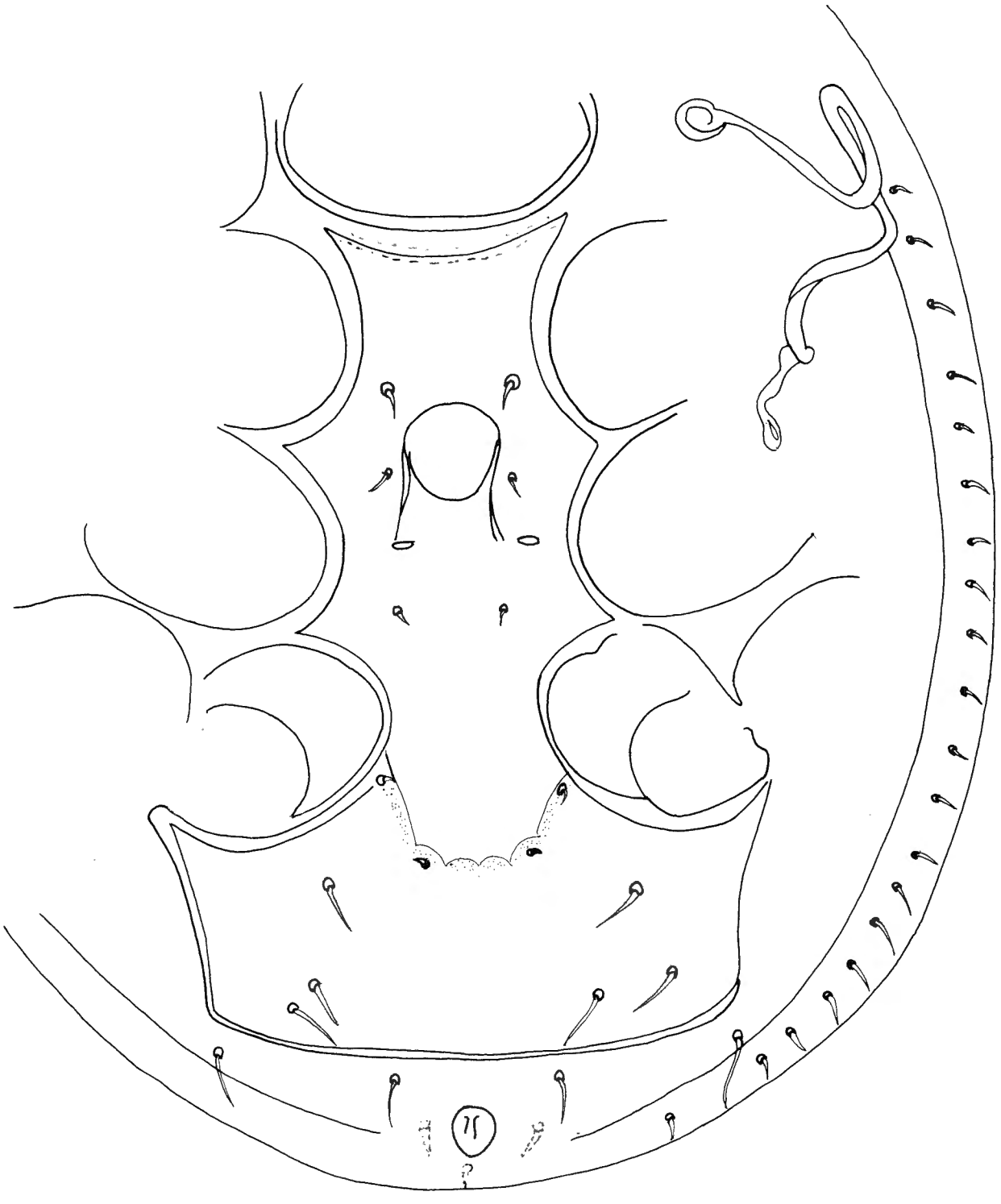


Plate III

Slide 24/1: male-ventrum, Gorirossi-Bourdeau, from type

UROPODA LEONARDIANA Berlese, 1903

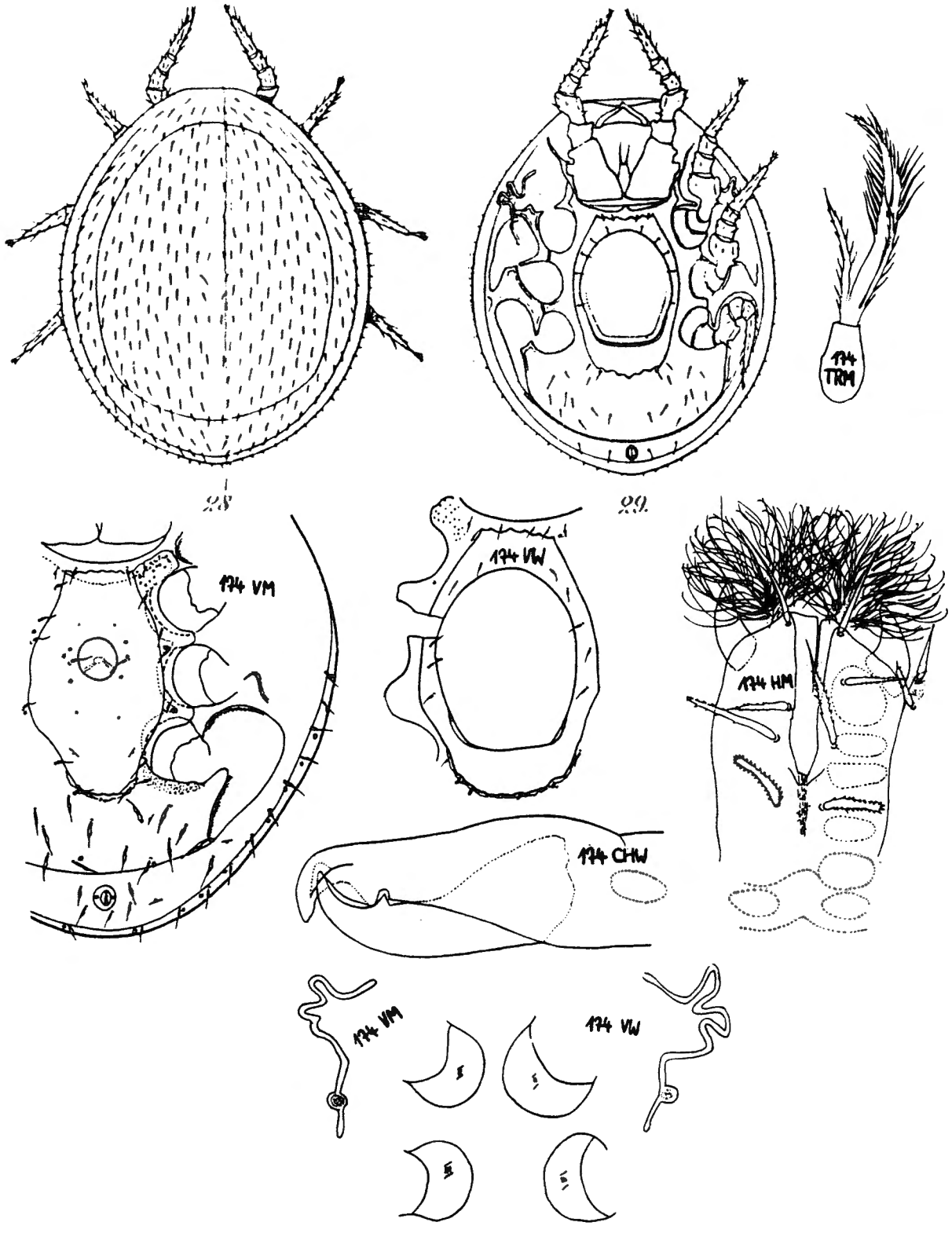


Plate IV

BERLESE, 1904: 28-dorsum; 29-ventrum

HIRSCHMANN & ZIRNGIEBL-NICOL, 1969: No. 174 TRM-tritosternum (male), VM-ventrum (male), VW-ventrum (female), HM-hypostome (male), CHW-chelicera (female), WM-[!]-peritreme (male), VW-[!]-peritreme (female)

POLIASPIDELLA BERENICEA Berlese, 1910

berenicea Berl., 1910	1910: Poliaspidella berenicea	1910: Redia 6:379,no fig.,a desc.--------Java(Tjompea):humo (Cl.Jacobson)
[BMW]:431	1917: Polyaspidiella! berenicea	1917: Redia 13:10,no fig.,no desc.-------Italia
		1936: Lombardini,G.:47,a cat.
		1941: Tragardh,I,:354,a desc.,Fig.9 (after Berl.type in Fl.)
	1943: Poliaspidella! berenicea(V:790)	1943: Vitzthum,H.:790
		1950: Radford,C.D.:55,a cat.
	1952: Polyaspidella beren.(B&W:110)	1952: Baker & Wharton:110
	1961: Polyaspidiella! beren.(H&Z-N:12)	1961: Hir.& Z-N.,F/4:12
	1962: Uroobovella berenicea(H&Z-N:61)	1962: Hir.& Z-N.,F/5:61
		1964: Hir.& Z-N.,F/6:20,Taf.2,#81
	1971: Polyaspidiella berenicea(H:16)	1971: Hir.& Z-N.,F/16:16,24,a cat.
	idem: Uroobovella berenicea(H:24)	
	1979: Uroobovella berenicea(H:34)	1979: Hirschmann,W.,F/26:34
		*idem: Nicol,I., F/26:5
		1989: Hirschman,W.,F/36:85,90,114, a key,115
		idem: Karg,W.,F/36:80,a key
		1993: Wis.& Hir.,F/40:166
		idem: Wisniewski,J.F/40:279

*1979: Nicol: 4-7, a translation of Berlese's unpublished key from his work book [BWB]: Genera Mesostigmata. In 1961, F/4, Teil 4, H & Z-N published from the BWB:431, the RW & VW sketches: Anhang: Die Uropodiden-Gattungen und das system der Uropodiden nach Berlese 1918, Nr. 408-549.

Castagnoli & Pegazzano, 1985:35
berenicea Berl.
Polyaspidiella

Redia VI, luglio 1910: 379
Redia XIII, agosto 1917: 10

108/10, t, f, Tjompea-Giava

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide 108/10: female (remounted by Dr. R. Mannelli)

Plate II. 1. dorsum-note cup-like depressions, row of tiny setae on marginal shields, lateral shields & pygidial shield; 2. idem

Plate III. 1. dorsum-note outlines of tarsal grooves; 2. dorsum-note humeral projection and formation of vertex; 3. dorsum-note cup-like depressions, humeral projections, formation of vertex, median & marginal shields

Plate IV. 1. shows well-formed tarsal groove of leg IV; 2. ventrum shows outline of metapodal lines; 3. gnathosoma showing corniculi, detail of metapodal line

Plate V. dorsum-sketch, Gorirossi-Bourdeau, from type

POLIASPIDELLA BERENICEA Berlese, 1910

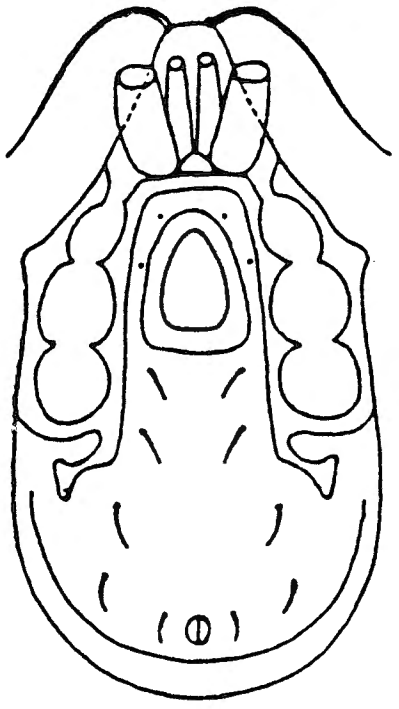


Fig. 9. ***Polyaspidiella berenicea*** **Berl. ♀ drawn after BERLESE's type specimen in Florence.**

1941: TRAGARDH, Fig. 9-female (ventrum), "drawn after Berlese's type specimen".

POLIASPIDELLA BERENICEA Berlese, 1910

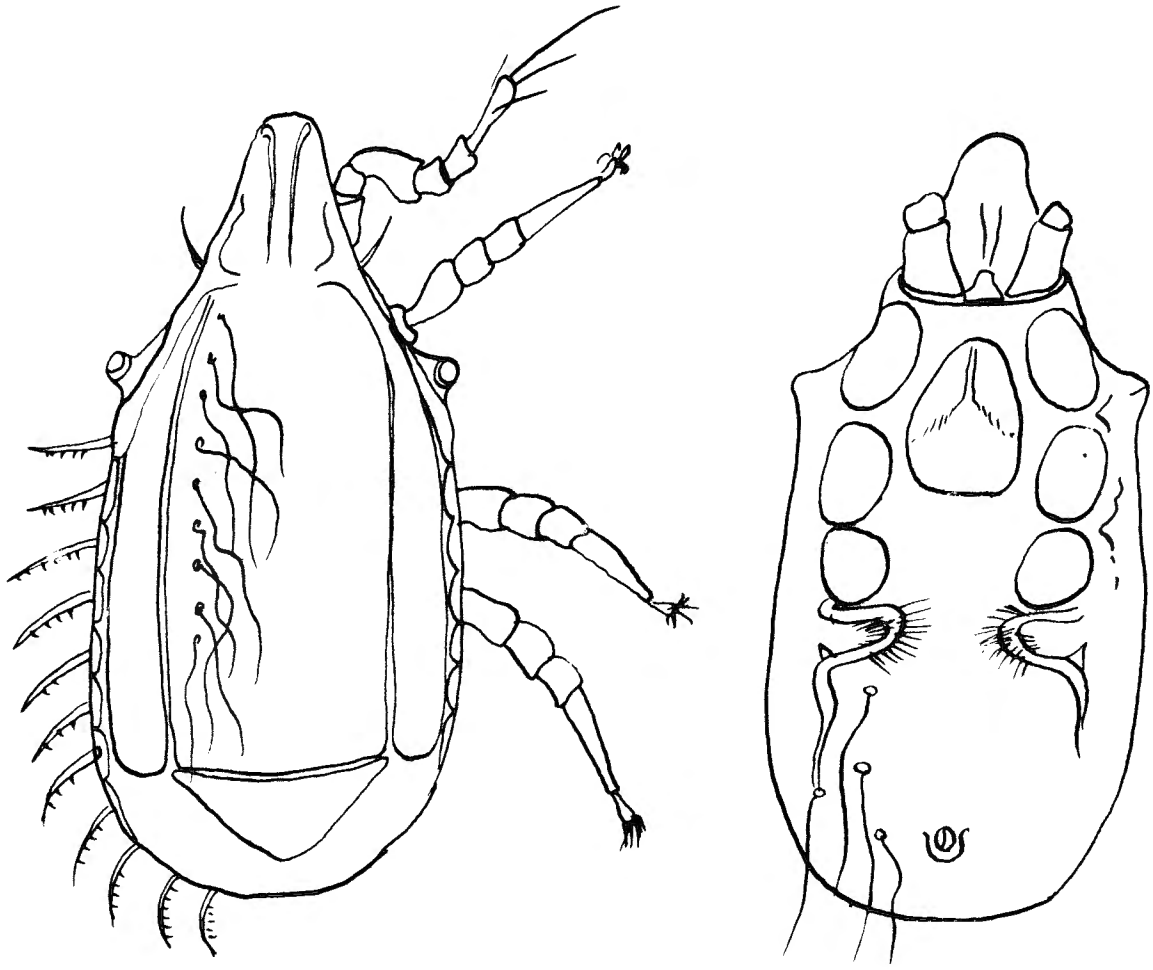


Plate I.

BERLESE: workbook, p. 432 - sketches showing dorsal and ventral views

POLIASPIDELLA BERENICEA Berlese, 1910

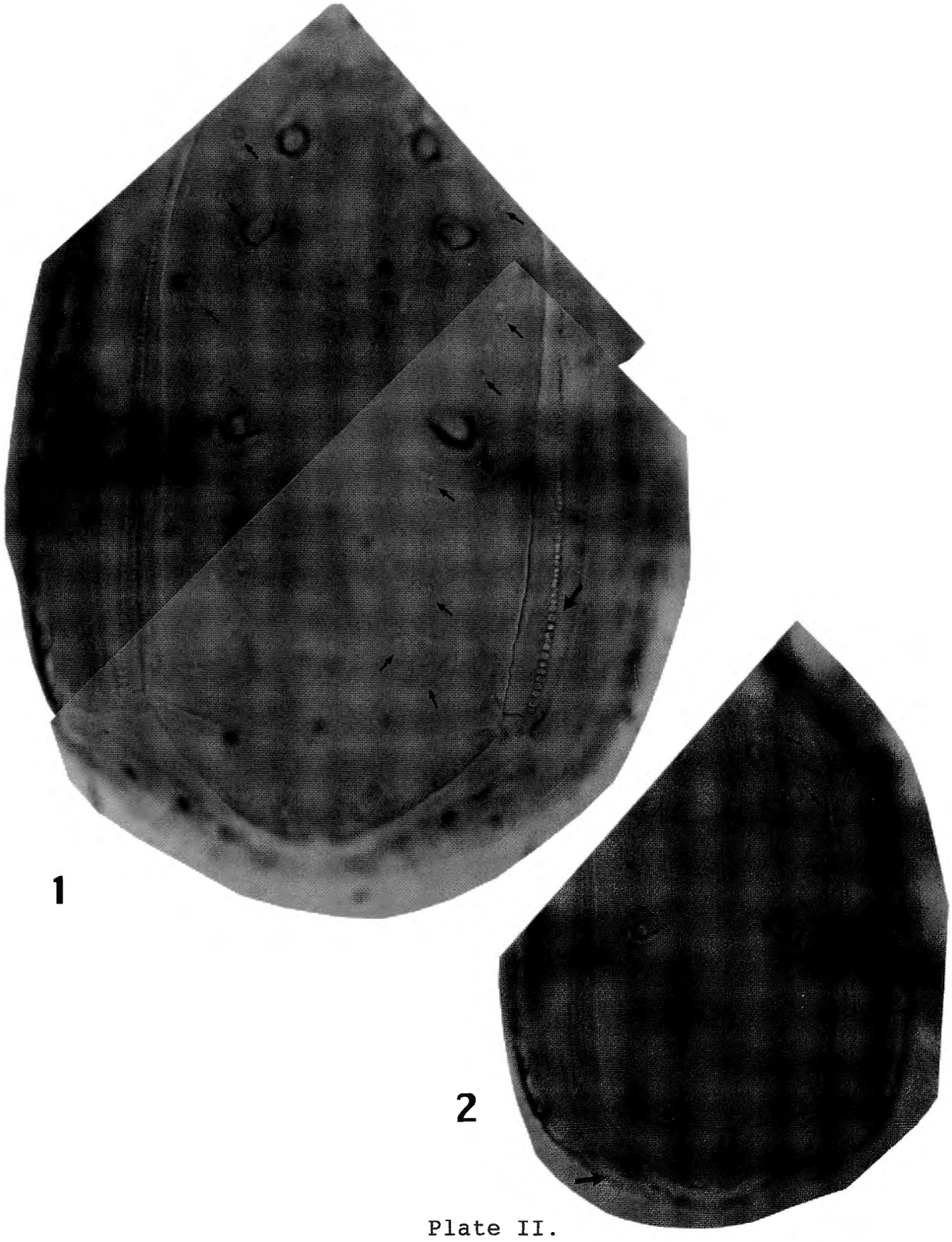


Plate II.

Slide 108/10: 1. female-dorsum: median shield with 3 prs. of cup-like depressions, marginal shields with a row of minute setae, lateral shields, pygidial shield, small setal bases at inner edge of median shield (small arrows); 2. note spatula-shaped setae along posterior edge of body, note shape of pygidial shield

POLIASPIDELLA BERENICEA Berlese, 1910

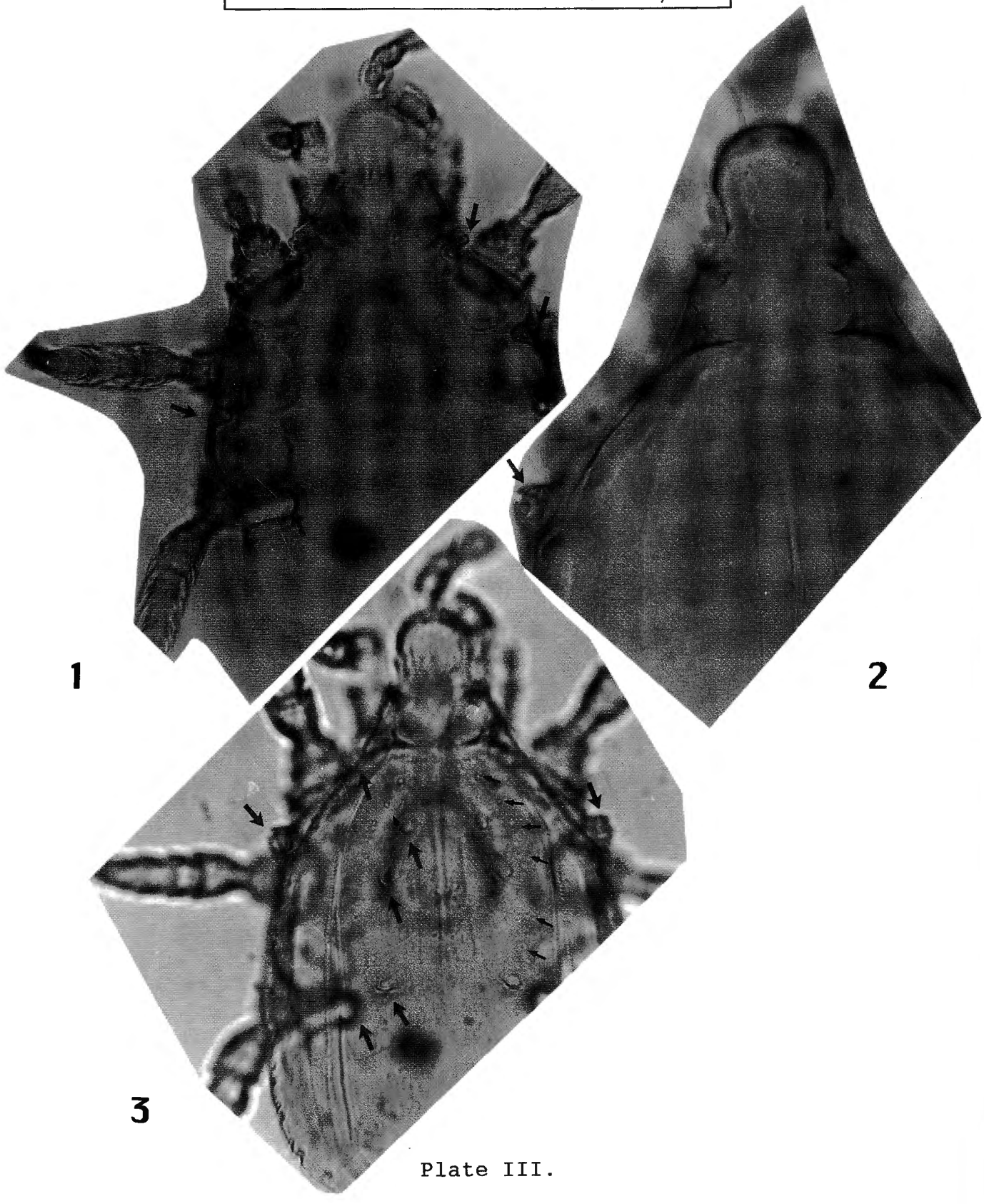


Plate III.

Slide 108/10: 1. female-dorsum: note outlines of 4 tarsal grooves; 2. note prodorsal extension to form vertex with two setae at tip, humeral porjection; 3. note lateral shields extending anteriorly to form vertex, note small setal bases along inner ledge of median shields (small arrows) (see Berlese's sketch)

POLIASPIDELLA BERENICEA Berlese, 1910

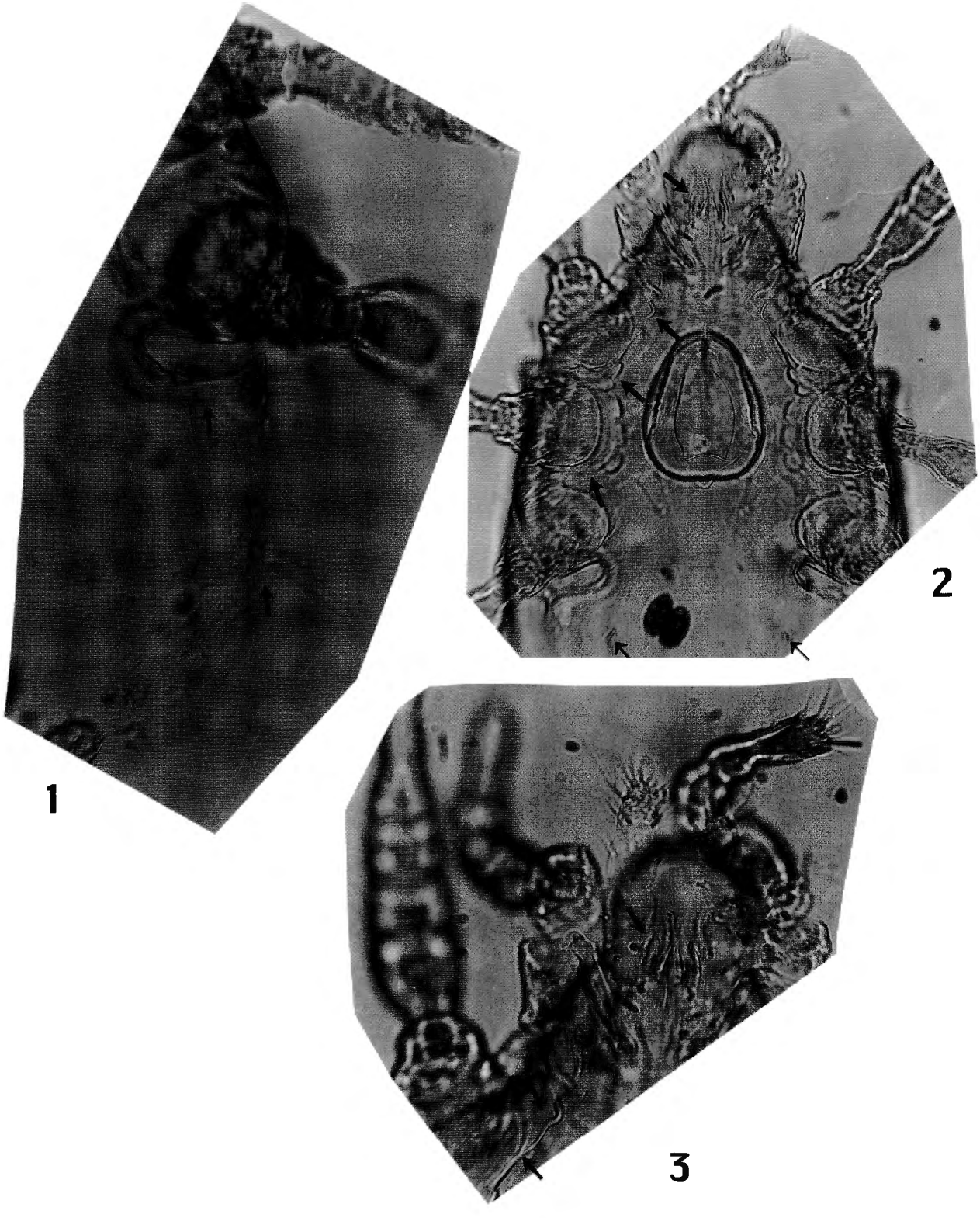


Plate IV

slide 108/10: 1. female-ventrum: note large tarsal pocket-groove receptacle for leg IV, large, sharp setae, anal opening. 2. intercoxal region showing genital plate + 'metapodal' fringe extending from base of coxae I to base of coxae III + tarsal grooves for coxae IV. 3. detail of gnathosoma showing short, strong corniculi + some detail of 'metapodal' fringe.

POLIASPIDELLA BERENICEA Berlese, 1910

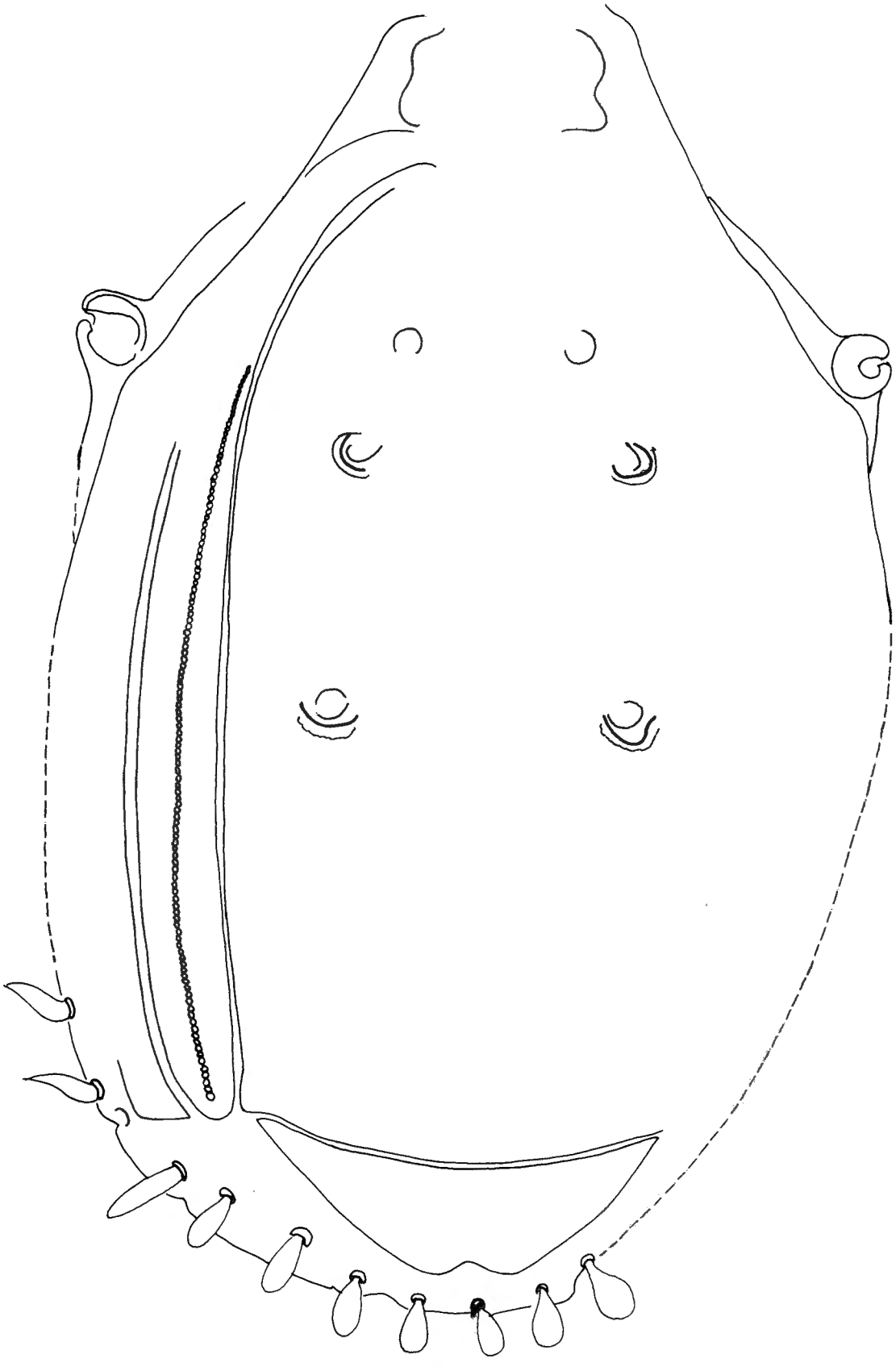


Plate V

Slide 108/10: female-dorsum: sketch, Gorirossi-Bourdeau, from type

UROPODA BERLESIANA Berlese, 1887

berlesiana Berl., 1887	1887: Uropoda berlesiana	1887: AMS.Fasc.38,N.4,a desc.,Figs.1-7---It.(Padova)(bot. gard.):in moss
[BWB]: 465	1888: Trachyuropoda berlesiana Uropoda laminosa, U.berlesiana Europae)	1888: Bull.Soc.Ent.It.,20:209 (footnote)
	1892: Uropoda berlesiana	1892: AMS.Meso.:83,85,88(U.sculptae) 88a(a key)
		1894: Michael,A.D.:294
		1902: Oudemans,A.C.:73,a key (Zool.J.,3rd Series)
		1903: idem.:139,a key(Ent.J.:5th Series)
	1903: Cephalouropoda berlesiana	1903: Redia I:248(Mn.I)
		1917: Redia 13:11,no fig.,no desc.
	1920: Uropoda berlesiana(=Cephalouropoda berlesiana)	1920: AMS.,:Indici
	1936: Cephalouropoda berlesiana(L:38)	1936: Lombardini,G.,:38,a cat.
		1943: Vitzthum,H.,:785
		1950: Radford,C.D.,:48,a cat.
		1952: Baker & Wharton,:118
	1965: Trachy.berlesiana(H&Z-N:38)	1965: Hir.& Z-N.,F/8:30,a key
	1967: Cephalouropoda berl.(H&Z-N:21)	1967: Hir.& Z-N.,F/10:20,21
		*1969: Hir.& Z-N.,F/12:113,a desc., Taf.20,21,#168
	1971: Cephalouropoda berlesiana(H:2)	1971: Hirschmann,W.,F/16:2,18,25,
	idem: Trachyuropoda berlesiana(H:18)	a cat.
	idem: Uropoda berlesiana(H:25)	
		1972: Hutu,M.,F/18:103----------Med
		1973: Zirngiebl-Nicol,I.,F/19:34,a desc.
	1974: Trachyuropoda berlesiana(H&Hu:31)	1974: Hir.& Hutu,F/20:31
		1976: Hirschmann,W.,F/22:5,7,a key,27
		1977: Kad.& Pet.,:687,a key; Fig.535,#3-4(aft.H&Z-N,1969)
	1979: Trachy.berlesiana(H:52)	1979: Hirschmann,W.,F/26:52
		idem: Nicol,I.,F/26:5
		1993: Wis.& Hir.,F/40:86
		idem: Wisniewski,J.,F/50:267

* I think the figure labelled as '168 VM' by Hir. & Z-N., 1969, is actually a ventral view of the vertex showing in part the vertex and the scabellum, see Fig. 3 of Berlese's Fasc. 37, No. 4, and Pl. II, nos. 1 & 2.

Castagnoli & Pegazzano, 1985: 37

berlesiana Berl.

Cephalouropoda

A.M.S.it., XXXVIII (4), maggio 1887 (Uropoda berlesiana)
Bull.Soc.Ent.It., XX, 1888: 209 (Trachyuropoda berlesiana)
Redia I, marzo 1904: 248 (Cephalouropoda berlesiana)
Redia XIII, agosto 1917: 11

sub Cephalouropoda: 9/20, t, m, musco, Orto botanico di Padova
sub Uropoda: 10*/488, Orto botanico de Padova

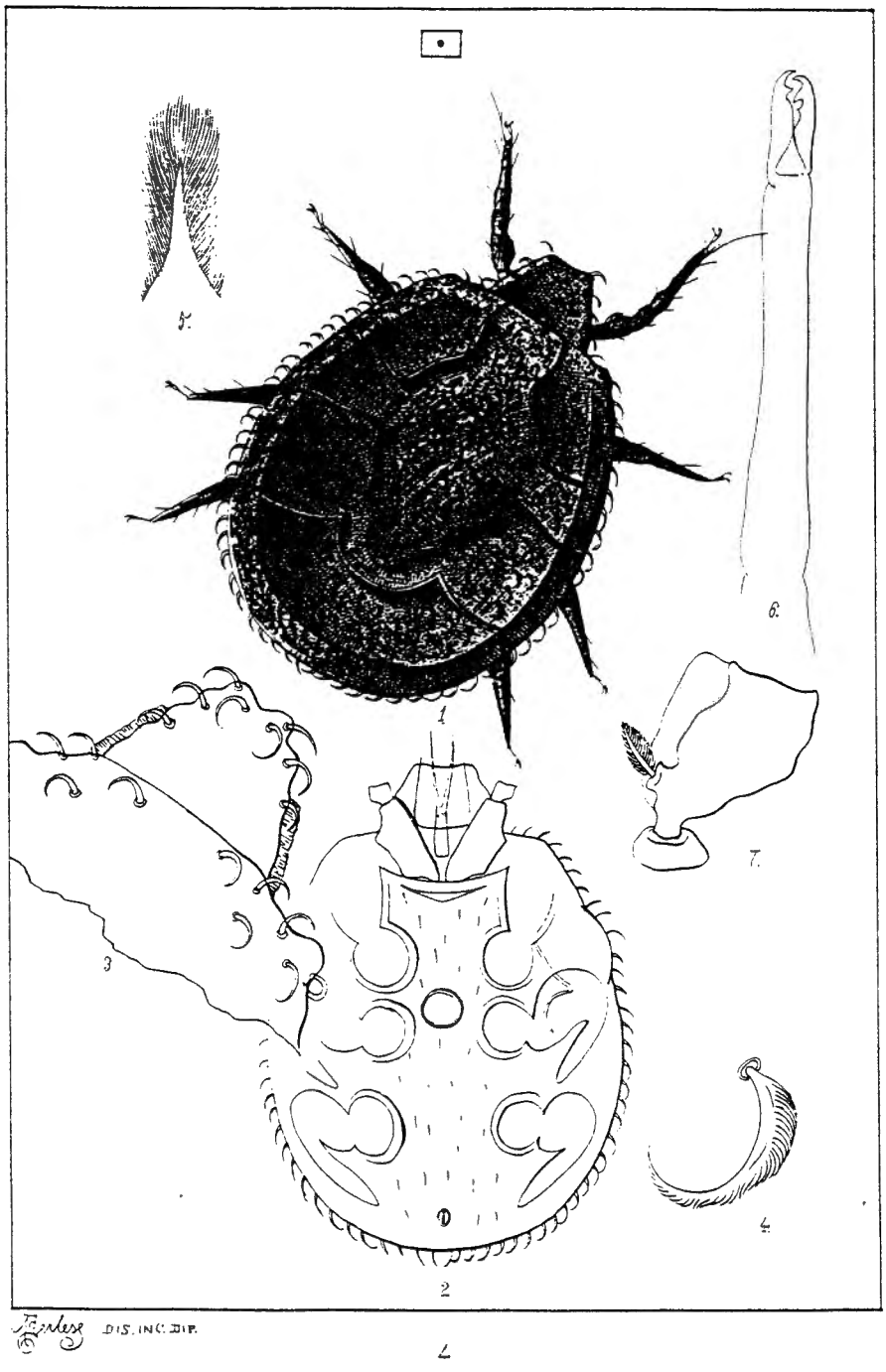
UROPODA BERLESIANA Berlese, 1887

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide: 9/20: male-the specimen had been dissected since last seen in 1952!

Plate I. 1. dorsum
2. detail of dorsum
Plate II. 1. dorsal view of vertex
2. ventral view of vertex
3. detail of peritreme

UROPODA BERLESIANA Berlese, 1887

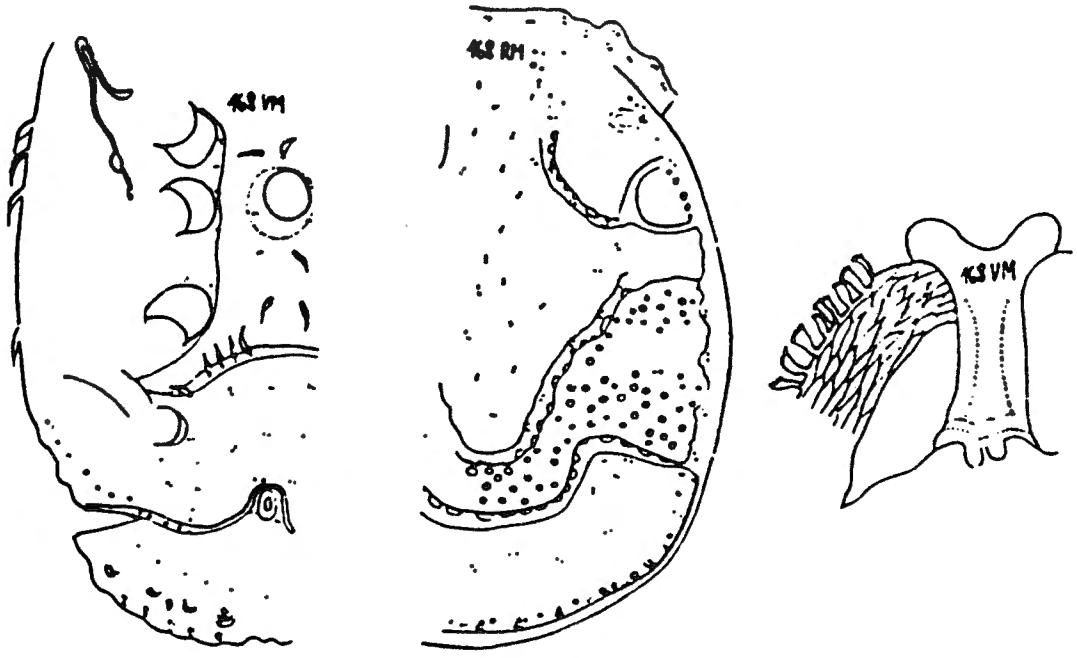


4

UROPODA BERLESIANA BERL. N. SP.

1887: BERLESE, Fasc. 37, N. 4. Figs. 1-7: 1-male (dorsum), 2-male (ventrum), 3-male (detail anterior portion of dorsum), 4-plume-like curved setae of body, 5-epistome, 6-chelicera, 7-femur (leg II showing protuberance with plume-like seta

UROPODA BERLESIANA Berlese, 1887



1969: HIRSCHMANN & ZIRNGIEBL-NICOL, F/12, Taf. 20, #168: VM-male (ventrum), RM-male (dorsum); Taf. 21, #168: VM-male (ventrum).

UROPODA BERLESIANA Berlese, 1887

1

2

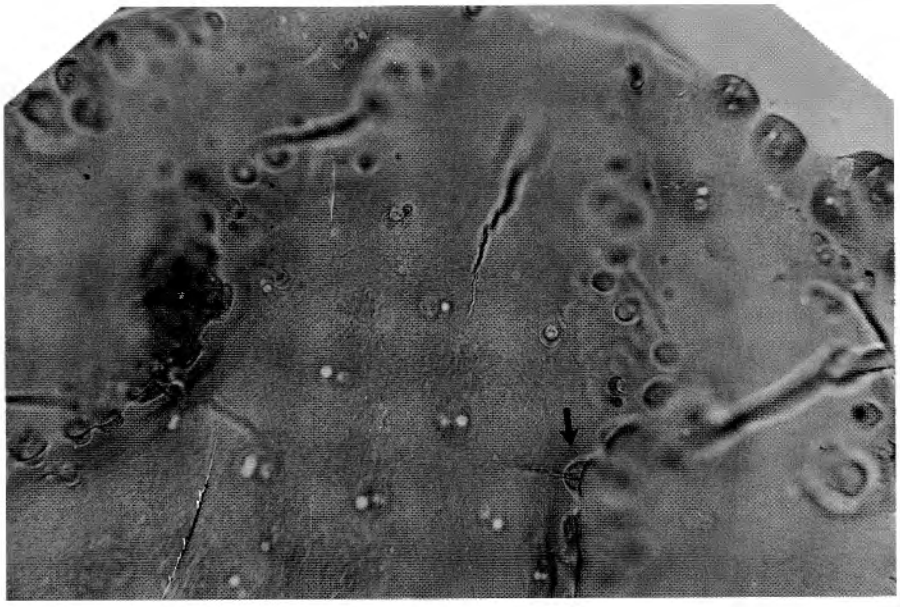
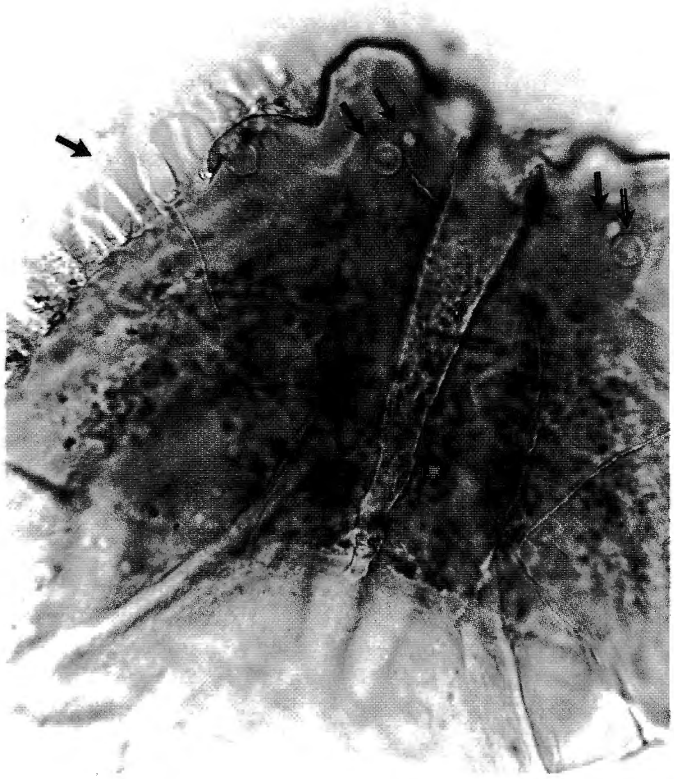


Plate I

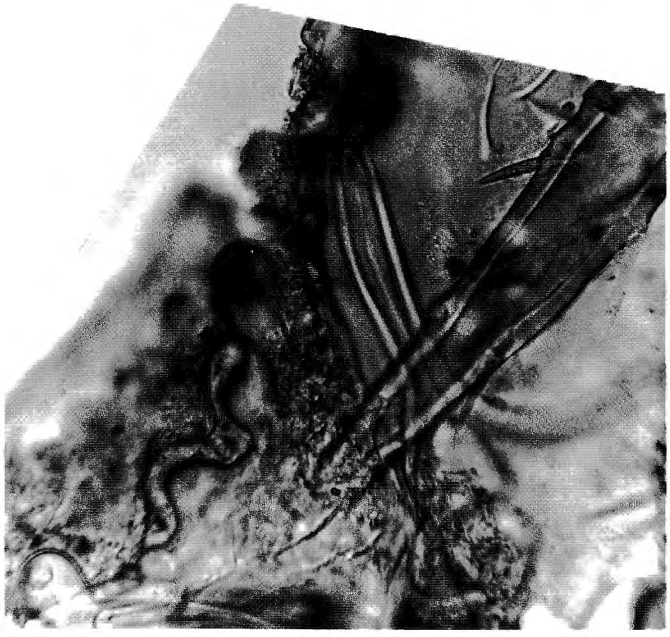
slide 9/20: 1. dorsum: note posterior, two rows of ridges and, anteriorly, the two symmetrical, oblique, inward curved ridges which meet, laterally, the arms of the lower ridges; 2. dorsum: detail of anterior ridges, note small, raised, sclerotized projections

UROPODA BERLESIANA Berlese, 1887



1

2



3

Plate II

slide 9/20: 1. vertex-dorsal view: note broad, flat setae (?) lining edge, large setal bases (?) at anterior tip with small pores (?) associated with them; 2. vertex-ventral view; 3. detail of peritreme

TRACHYUROPODA BITUBEROSA Berlese, 1920 (M)

bituberosa Berl.,1920 (M)	1920: Trachyuropoda(?)bituberosa	1920: Redia 14:191,no fig.,a desc.-------Arg.(La Plata):on Ontophagus sp.(Cl. Spegazzini)	
	1974: Trachy.(?)bituberosa(H&H:24)	*1974: Hirschmann,W.& M.Hutu:24	
		**1985: Castagnoli,M.& Pegazzano,F.:445	

*Hir.& Hutu,1974:24 list locality as uncertain, yet Berlese,1920 lists Argentina (la Plata)
**Castagnoli & Pegazzano,1985: 445 "(in Latin), Maybe concealed under the name T.tuberculata(204/12) and T.bituberculata (39°/1934). See Trachyuropoda (Trachyuropoda) tuberculata Berl."
idem.:426 under T.tuberculata among the slides listed is 39°/1934 with the species name T.bituberculata recovered from Onthophagus from the La Plata collection. One might suspect that the term bituberculata and bituberosa could refer refer to the same species. The T. tuberculata slide information has been included here for reference.

Castagnoli & Pegazzano, 1985: 445

bituberosa (*) Berl.
Trachyuropoda

Redia XIV, sett, 1920: 191 (Trachyuropoda ? bituberosa)

(*) Forsitan sub nomine T. tuberculata (204/12 et T. bituberculata (39°/1934) celata.
Vide Trachyuropoda (Trachyuropoda) tuberculata Berl.

Castagnoli & Pegazzano, 1985: 426

tuberculata Berl.
Trachyuropoda (Trachyuropoda)

Redia IX, agosto 1913: 85

sub Trachyuropoda tuberculata: 142/14, t, m, Samarang, Giava;
204/12, t, n, n, su Onthophagus, La Plata, Spegazzini !(*).
sub T. bituberculata: 39°/1934, n, n, Onthophagus, La Plata (*)

(*) An Trachyuropoda tibuterosa Berl. super Onthophagus ad La Plata collecta?

OBSERVATIONS

N.B.: The relationship between tuberculata and bituberculata proved impossible to decifer .

DISCOPOMA BORDAGEI Berlese, 1916

bordagei Berl.,1916	1916: Discopoma bordagei	1916: Redia 14:191,no fig.,a desc.	--------Fr.(Paris)(Bois de Meudon):moss (Cl.Bordage)

Castagnoli & Pegazzano, 1985: 139

bordagei Berl.

Discopoma

Redia XII, agosto 1916: 139

167/20, t, f, musco, Parigi, Bois de Meudon.

UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slide 167/20: female: (remounted for study)

Plate I. 1. ventrum, before mounting, 2. ventrum, after mounting, 3. camerostome showing tritosternum with lacinae

Plate II. 1. details of genital plate, leg groove IV; 2. detail of portion of dorsum

Plate III. 1. sketch, composite view of dorsum & ventrum, Gorirossi-Bourdeau, from type

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DISCOPOMA BORDAGEI Berlese, 1916

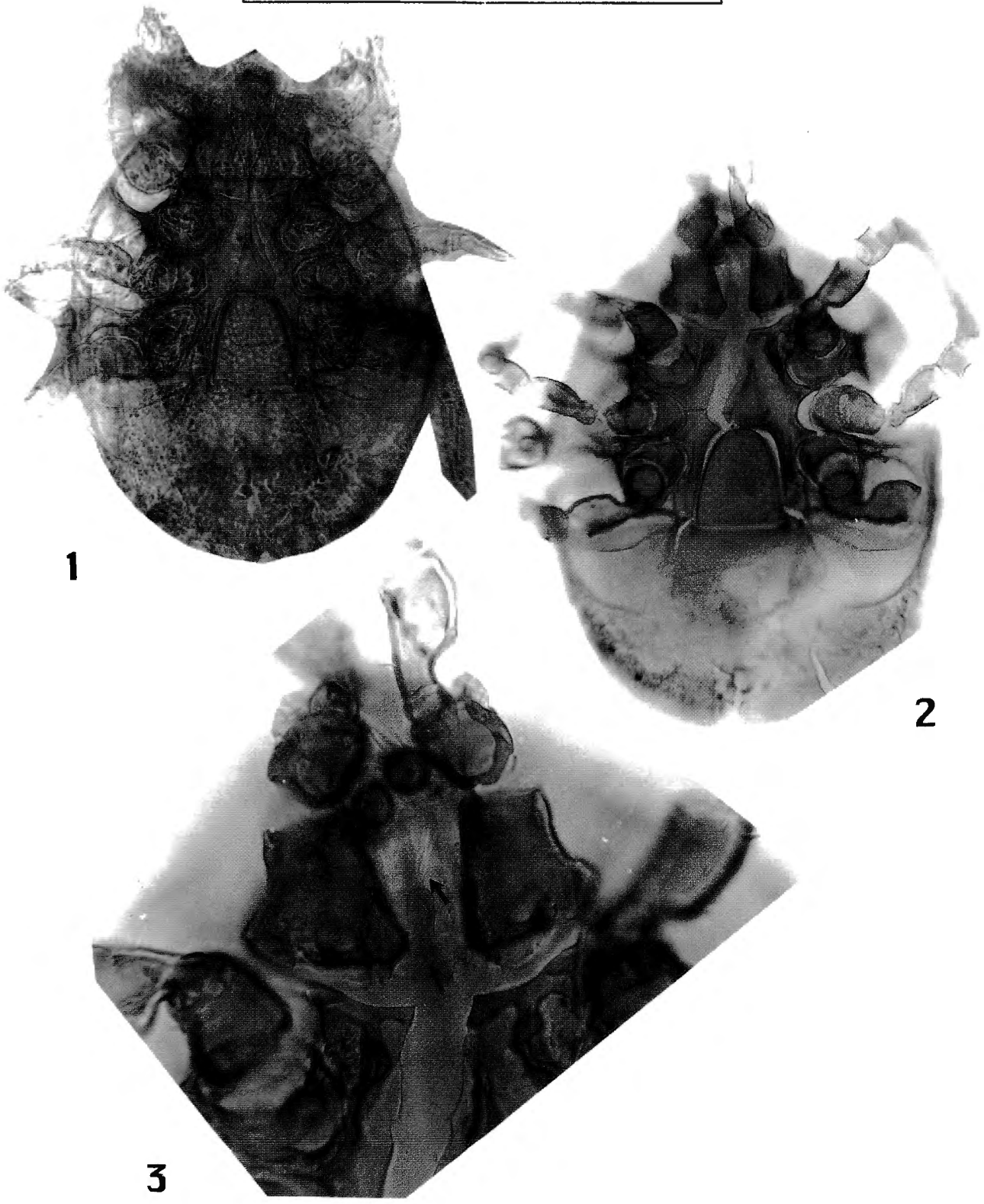
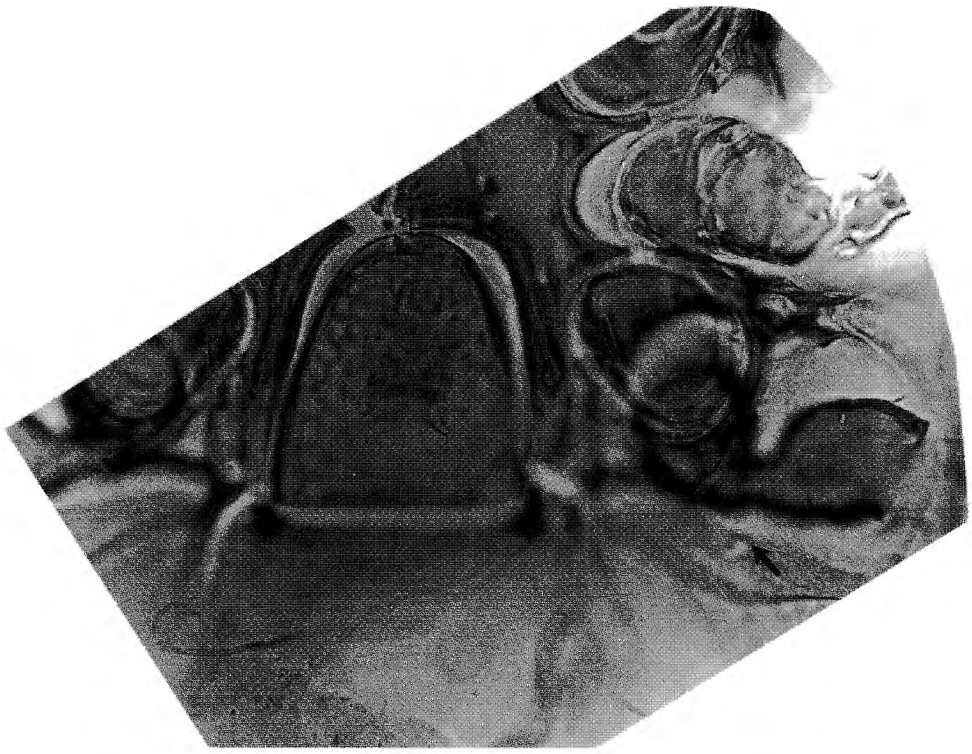


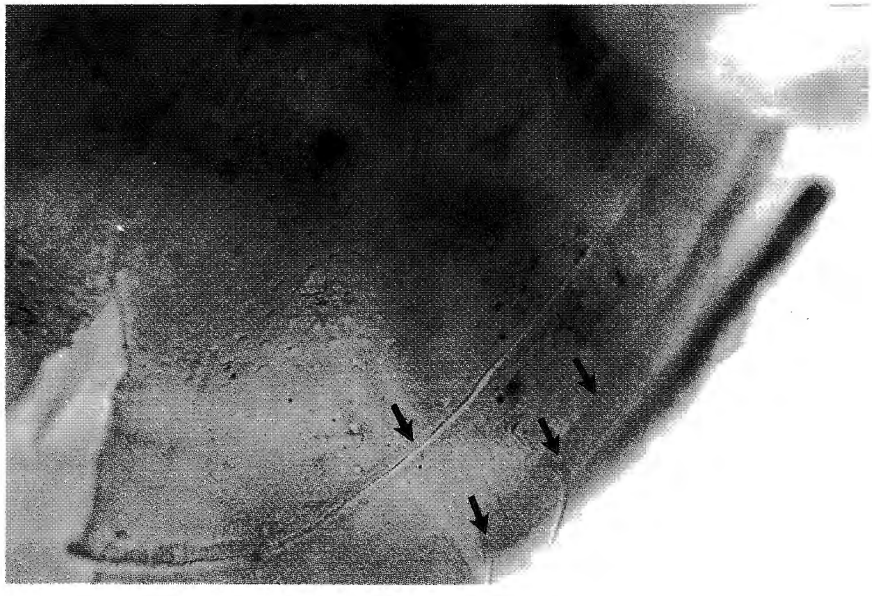
Plate I

slide: 167/20: 1. female-ventrum (before remounting), 2. after remounting, 3. detail of camerostome showing tritosternum with lacinae, note sculpturing of intercostal region

DISCOPOMA BORDAGEI Berlese, 1916



1



2

Plate II

slide 167/20: female: 1. genital plate, note shallow leg grooves IV; 2. detail of dorsum: note separation of median dorsal & marginal plates, note ornamental edge of marginal plate & spacing of setae along edge of marginal plate

DISCOPOMA BORDAGEI Berlese, 1916

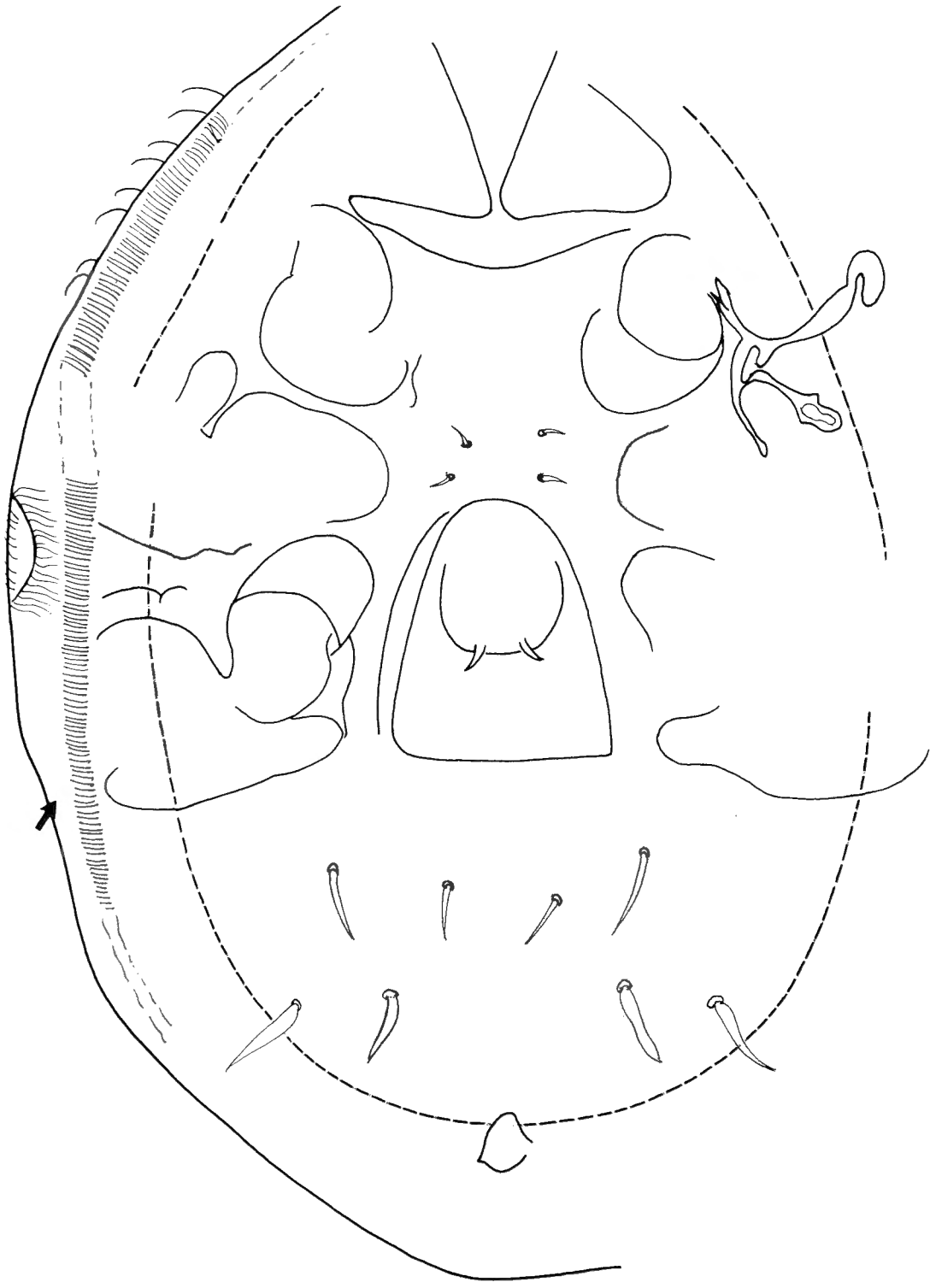


Plate III

slide 167/20: female: composite sketch of ventrum & dorsum showing portion of scalloped edge of dorsal marginal shield, Gorirossi-Bourdeau, from type

UROPODA BRASILIENSIS Berlese, 1903

brasiliensis Berl., 1903	1903: Uropoda brasiliensis	1903: Redia I:249,no fig.,no desc. (Mn.I)
	1904: Uropoda brasiliensis	1904: Redia 1:271,no fig,a desc.----------Brazil(St.Caterina), (Mn.II) (Cl.Silvestri)
	1913: Uropoda brasiliensis	1913: Acarotheca Italica:104
	1924: U.(Fuscuropoda)brasil.(V:360)	1924: Vitzthum,H.,:360
	1936: Uropoda brasiliensis(L:50)	1936: Lombardini,G.,:50,a cat.
	1964: Uroactinia brasiliensis(H&Z-N:22)	1964: Hir.& Z-N.,F/6:22,Taf.4,#222
	*1965: Uropoda (Phaulodinychus) brasiliensis(H&Z-N:2)	1965: Hir.& Z-N.,F/8:2,5,a key;Taf.1, #8,Taf.2,#40*
		1967: Hir.& Z-N.,F/11:14
	1969: Uroac.(Uroac.)brasil.(H&Z-N:122)	1969: Hir.& Z-N.,F/12:122,132,144, Taf.23,#186
	1971: Fuscuropoda brasiliensis(H:7)	1971: Hirschmann,W.,F/16:7,23,25,a cat.
	idem: Uroactinia(Uroactinia)bras.(H:23)	
	idem: Uropoda brasiliensis(H:25)	
	1972: Uroac.(Uroac)brasil.(Hutu:104)	1972: Hutu,M.,F/18:104----------NtB
		1973: Zirngiebl-Nicol,I.,F/19:45,a desc.
		1974: Hir.& Hutu,F/20:23
		1979: Hirschmann,W.,F/26:56
	1989: Uroactinia brasiliensis(K:190)	1989: Karg,W.,:190,Abb.149(a-c); 191,Abb.150(a-c)
	1990: Uroac.brasil.sensu Karg,1989= Uroactinia brasiloides Hir., 1990(H:29)	1990: Hirschmann,W.,F/37:15,29, 63,a key
		**1993: Wis.& Hir.,F/40:151
		idem: Wisniewski,J.,F/40:233

*Hir.& Z-N.,1965, F/8, Taf.2, #40 is listed as the dorsal plate of the female, obviously an error in lettering.
**Wis.& Hir.,1993:151, do not list 1903 ref.

Castagnoli & Pegazzano, 1985: 48

brasiliensis Berl.

Uropoda

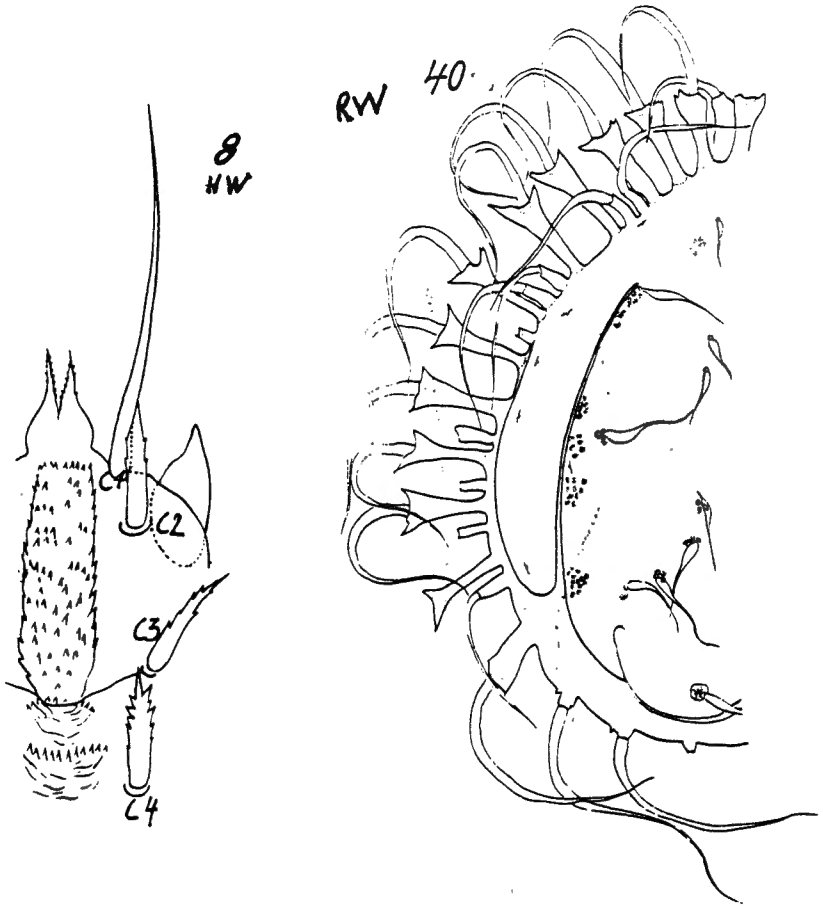
Redia I, nov. 1903: 249
RediaI, marzo 1904: 271

10/20, t, f, Brasile.

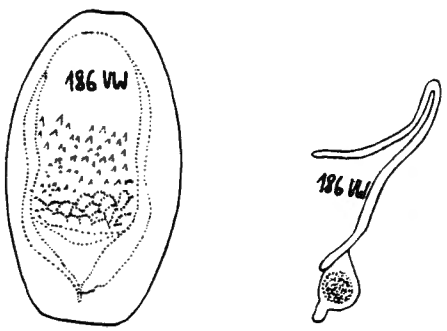
UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

Plate I. slide 10/20: 1. female-ventrum, 2. peritreme, 3. chelicerae

UROPODA BRASILIENSIS Berlese, 1903

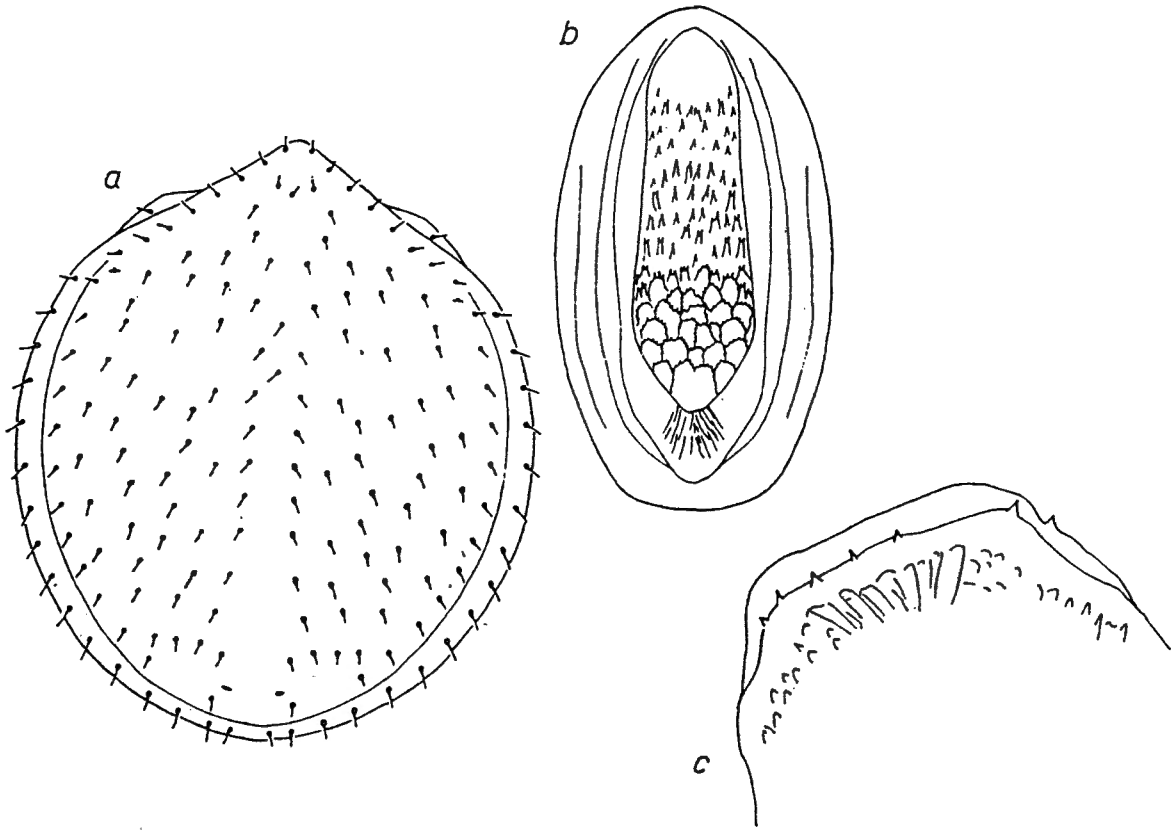


1965: HIRSCHMANN & ZIRNGIEBL-NICOL, F/6, Taf. 1, #8: HW-female (hypo.); Taf. 2, #40: RW-female (dorsum)---(apparently misnumbered, see COMMENTS)

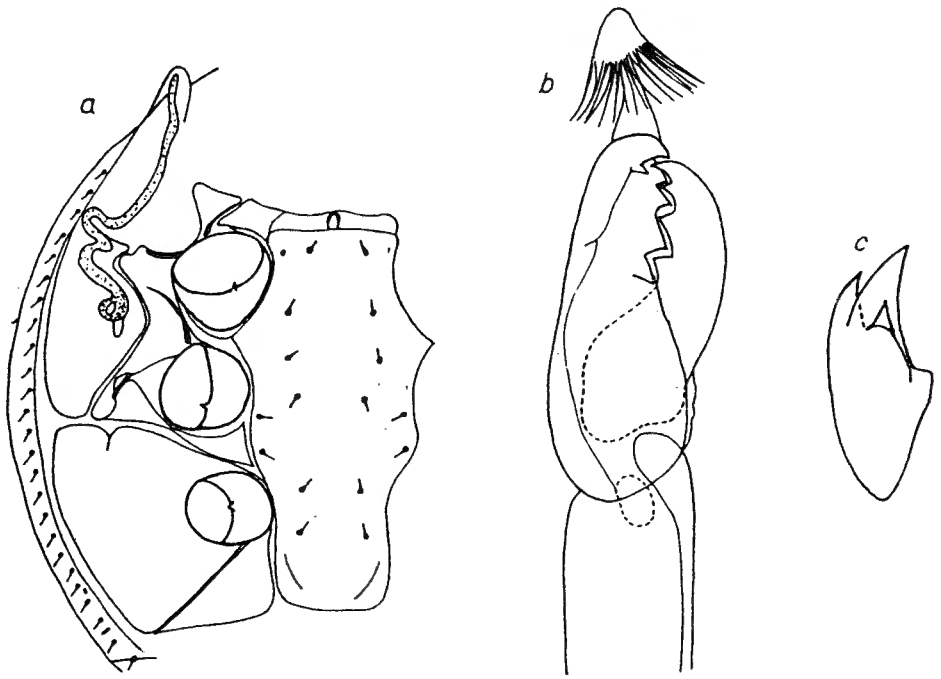


1969: HIRSCHMANN & ZIRNGIEBL-NICOL, F/12, Taf. 23, #186: VW-female (genital plate), VW-[VWP]-female (peritreme).

UROPODA BRASILIENSIS Berlese, 1903

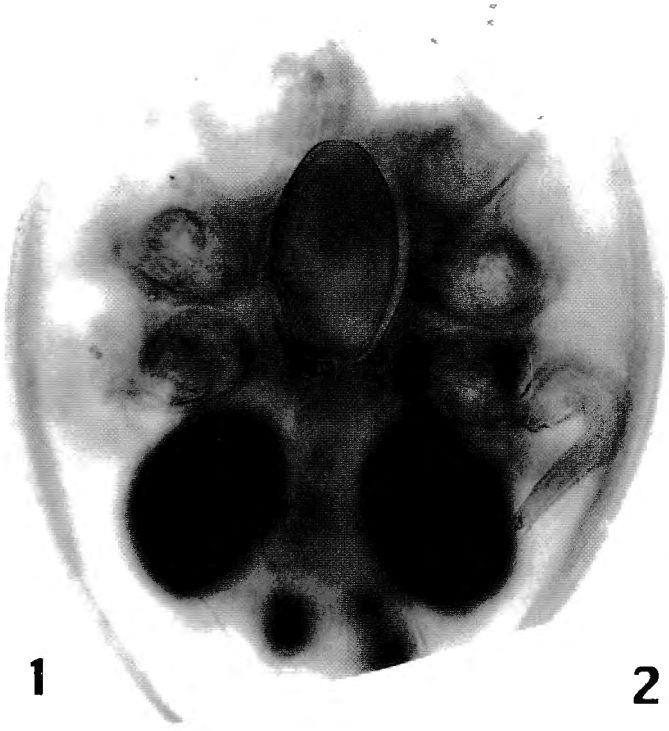


1989: KARG, Abb. 149a-c: a-deutonymphe (dorsum), b-female (genital plate), c-female (tectum).

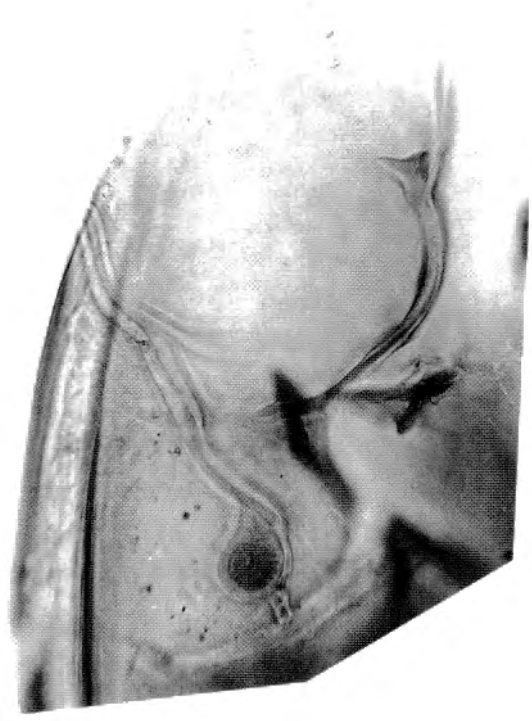


idem: 150a-c: a. deutotonymph (ventrum), b. female (chela), c. female (corniculus)

UROPODA BRASILIENSIS Berlese, 1903



1



2

3

Plate I.

slide 10/20: 1. female-ventrum, 2. peritreme, 3. chelicerae

UROPODA BRUCKII Berlese, 1916

bruckii Berl., 1916	1916: Uropoda bruckii	1916: Redia 12:140,no fig.,a desc.--------Arg.(La Plata):with ants Acromyrnex lundi; (Cl.Bruck)
	1924: U.(Fuscuropoda)bruckii(V:360)	1924: Vitzthum,G.,:360
	1936: Uropoda bruchi!!(L:50)	1936: Lombardini,G.,:50,a cat.
	1962: Uroobovella bruckii(H&Z-N:59)	1962: Hir.& Z-N.,F/5:58,76,desc., Taf.29,#2
		1964: Hir.& Z-N.,F/6:20,Taf.2,#85
		1965: Hir.& Z-N.,F/8:19,a key
		1969: Hir.& Z-N.,F/12:89
	1971: Uroobovella bruckii(H:24)	1971: Hirschmann,W.,F/16:24,25,a cat.
	idem: Uropoda bruckii(H:25)	
		1972: Hutu,M.,F/18:100----------NtC
		1974: Hir.& Hutu,F/20:24----------Chili !
		1978: Wisniewski,J.,F/24:114
		1979: Hirschmann,W.,F/26:36
		1981: Wis.& Hir.,F/28:48-9, Taf.XIV,pod(1)
	1989: Uroobovella bruckii(H:175)	1989: Hirschmann,W.,F/36:175,a desc.
		1993: Wis.& Hir.,F/40:188
		idem: Wisniewski,J.,F/40:237-8

Castagnoli & Pegazzano, 1985: 53

bruckii Berl.

Uropoda

Redia XII, agosto 1916: 140

8 Myrm./24, t, m, f, nidi di Acromyrnex lundi, La Plata, Bruck!;
34°/1698, t, m, f, idem; 34°/1696=1697, t, m, f, idem, 1916
35°/1703, t, m, f, idem; 50/2437, t, m, f, nidi Atta lundi, La Plata, Bruck!, 1916;
8 Myrm./20, 22-23, 25-27, 33, m, f, n, homeom. n heterom., nidi di Atta lundi, La Plata, Bruck!;
34°/1695, 1699, m, f, idem; 34°/1700, n, idem, 1916; 35°/1701-1702 n, idem;
39°/1941-1942, m, f, idem; 50°/2438-2439, m, f, idem.

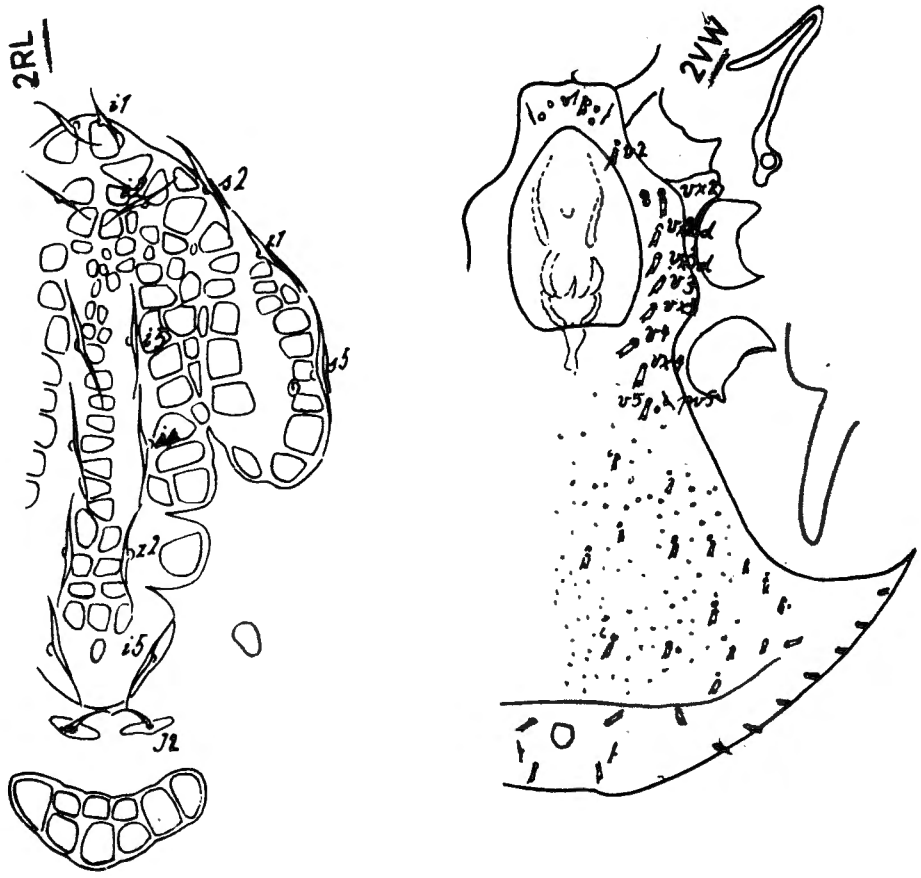
UPDATE ON SLIDE INFORMATION & PHOTOGRAPHS TAKEN

slides: 8 Myrm./20: nymphs
8 Myrm./22: a nymph
8/Myrm./23: two females
8/Myrm./25: two males
8/Myrm./26: one female & one male - tinted red
8/Myrm./27: two females - tinted red

Plate I. slide 8/24: 1. female-ventrum, 2. detail of genital plate
slide 8/27: 1. female-ventrum, 2. dorsum (partial

Plate II. slide 8/25: 1. male-scabellum & vertex
slide 8/26: 1. ventrum

UROPODA BRUCKII Berlese, 1916



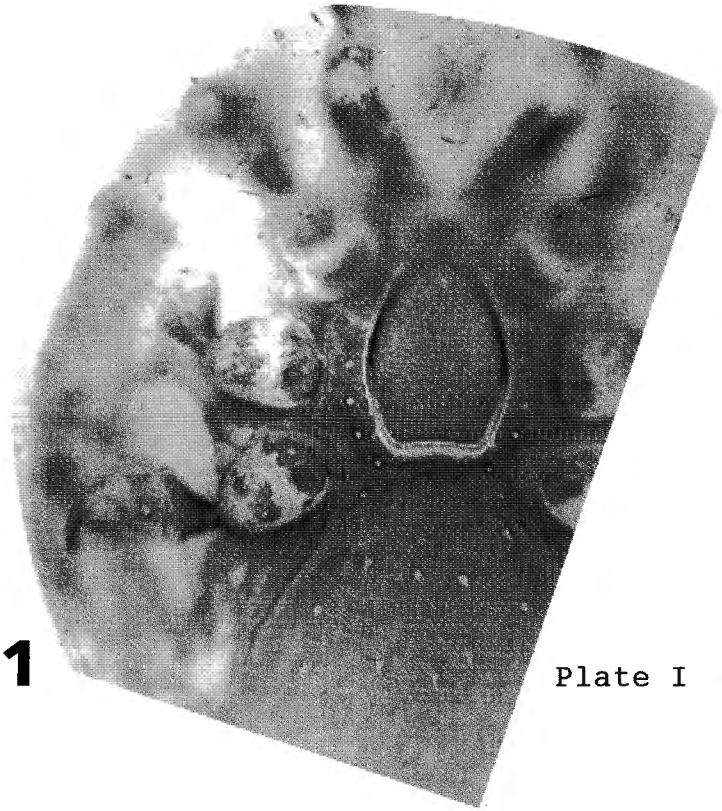
1962: HIRSCHMANN & ZIRNGIEBL-NICOL, F/5, Taf. 29, #2: RL-larva (dorsum), VW-female (ventrum).

UROPODA BRUCKII Berlese, 1916

1

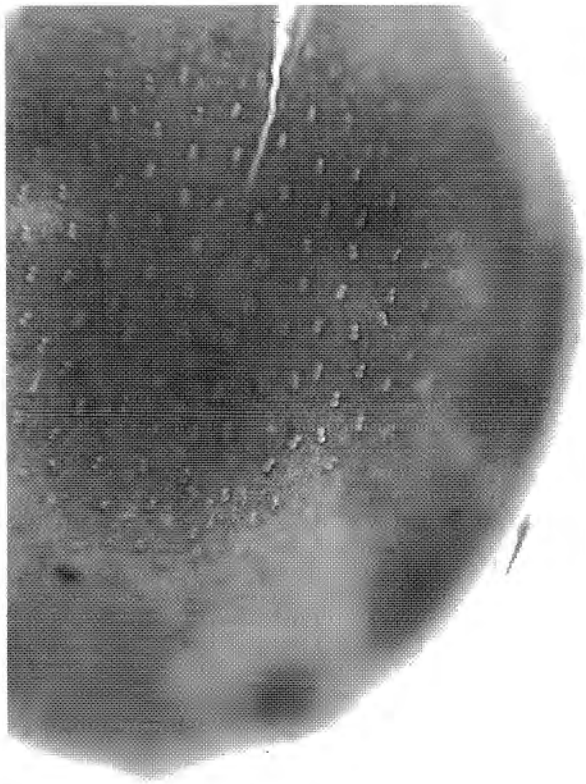
2

slide: 8/24: 1. female-ventrum, 2. detail showing genital plate, camerostome + portion of tritosternum



1

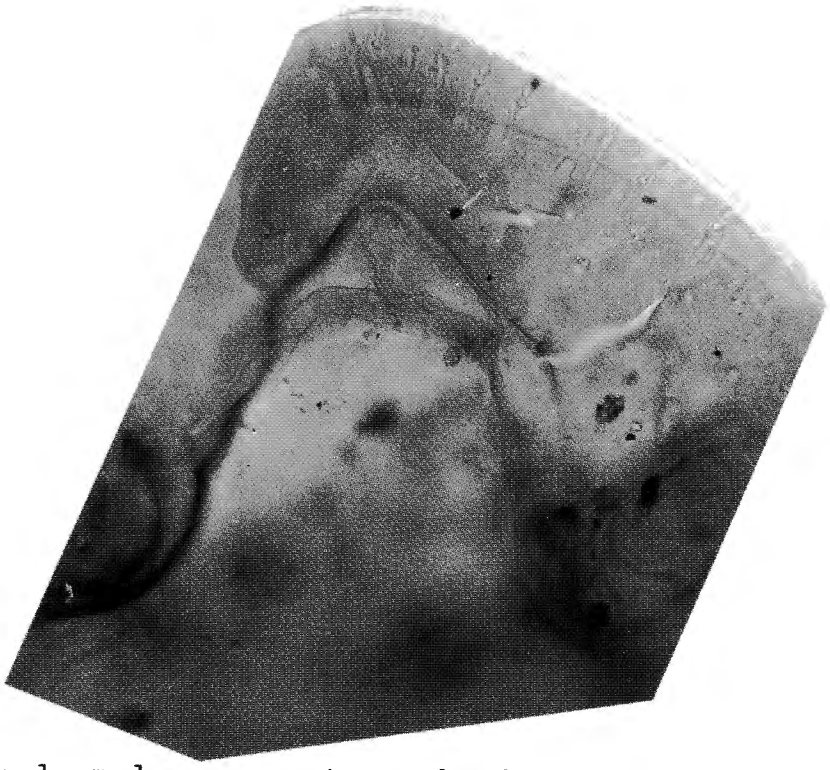
Plate I



2

slide 8/27: 1. female-ventrum showing genital plate, sterno-endopodal-ventral plate and setae, metapodal lines; 2. detail of dorsal plate, note pores associated with setae

UROPODA BRUCKII Berlese, 1916



slide: 8/25: l. male-camerostome showing scabellum and vertex

Plate II.

slide 8/26: l. male-ventrum showing genital plate, sterno-endopodal-ventral plate and setae, metapodal lines and leg grooves

INDEX TO GENERIC NAMES WITH INCLUDED SPECIES AND SYNONYMY

INDEX TO GENERIC NAMES WITH INCLUDED SPECIES AND SYNONYMY

CALOUROPODA Berlese 1916
C. aemulans (Berlese, 1904) = Uroobovella aemulans (Berlese, 1904)

CEPHALOUROPODA Berlese, 1903
C. berlesiana Berlese, 1887 = Trachyuropoda berlesiana (Berlese, 1887)

DINYCHOPSUS Berlese, 1916
D. appendiculata (Berlese, 1910) = Uroobovella appendiculata (Berlese, 1910)

DINYCHUS Kramer, 1886
D. appendiculatus Berlese, 1910 = Uroobovella appendiculata (Berlese, 1910)

DIPHAULOCYLLIBA Vitzthum, 1925
D. amplior (Berlese, 1923) = Uropoda (Phaulodinychus) amplior (Berlese, 1923)

FUSCUROPODA Vitzthum, 1924
F. appendiculata (Berlese, 1910) = Uroobovella appendiculata (Berlese, 1910)
F. brasiliensis (Berlese, 1903) = Uroactinia brasiliensis (Berlese, 1903)

METADINYCHUS Berlese, 1916
M. argasiformis Berlese, 1916 = Uropoda (Metadinychus) argasiformis (Berlese, 1916)

OPLITIS Berlese, 1884
O. alophora (Berlese, 1903)
O. beccarii (Berlese, 1904)

PHAULOCYLLIBA Berlese, 1903
P. amplior Berlese, 1923 = Uropoda (Phaulodinychus) amplior (Berlese, 1923)

*POLYASPIDIELLA Berlese, 1910
P. berenicea Berlese, 1910 = Uroobovella berenicea (Berlese, 1910)

TRACHYUROPODA Berlese, 1888
T. berlesiana (Berlese, 1887)

*UROACTINIA Zirngiebl [nee Nicol], 1955] (unpublished thesis)
U. brasiliensis (Berlese, 1903)
U. brasiliensis sensu Karg, 1989 = U. brasiloides Hirschmann, 1990
U. (Uroactinia) brasiliensis (Berlese, 1903) = U. brasiliensis (Berlese, 1903)

*See discussion in COMMENTS section

URODISCELLA Berlese, 1903
U. alophora Berlese, 1903 = Oplitis alophora (Berlese, 1903)

UROOBOVELLA Berlese, 1903
U. aemulans (Berlese, 1904)
U. appendiculata (Berlese, 1910)
U. berenicea (Berlese, 1910)
U. bruckii (Berlese, 1916)

UROPODA Latreille, 1806
U. aemulans Berlese, 1904 = Uroobovella aemulans (Berlese, 1904)
U. alpina Berlese, 1904
U. amplior (Berlese, 1923) = U. (Phaulocylliba) amplior (Berlese, 1923)
U. berlesiana Berlese, 1887 = Trachyuropoda berlesiana (Berlese, 1887)
U. brasiliensis Berlese, 1903 = Uroactinia brasiliensis (Berlese, 1903)
U. bruckii Berlese, 1916 = Uroobovella ? bruckii (Berlese, 1916)
U. (Caluropoda) aemulans (Berlese, 1904) = Uroobovella aemulans (Berlese, 1904)
U. (Diphaulocylliba) amplior (Berlese, 1923) = U. (Phaulodinychus) amplior (Berlese, 1923)
U. (Fuscuropoda) brasiliensis (Berlese, 1903) = Uroactinia brasiliensis (Berlese, 1903)
U. (Fuscuropoda) bruckii (Berlese, 1903) = Uroobovella ? bruckii (Berlese, 1916)
U. (Metadinychus) argasiformis (Berlese, 1916)
U. (Phaulodinychus) amplior (Berlese, 1923) = Diphaulocylliba debilior Vitzthum, 1925, = Cilliba celsocyclosa Vitzthum, 1926, by Hirschmann & Zirngiebl-Nicol, 1969
U. (Phaulodinychus) argasiformis (Berlese, 1916) = U. Metadinychus argasiformis (Berlese, 1916)
U. (Phaulodinychus) brasiliensis (Berlese, 1903) = Uroactinia brasiliensis (Berlese, 1903)
U. (Urodiscella) alophora (Berlese 1903) = Oplitis alophora (Berlese, 1903)

UNCERTAIN POSITIONS:

DISCOPOMA bordagei Berlese, 1916

POLYASPIS australis Berlese, 1910

TRACHYUROPODA ? bituberosa Berlese, 1920 (M)

UROPODA alpina Berlese, 1904

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