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DANISH SCIENTIFIC INVESTIGATIONS IN ARGENTINE UNDER  
THE AUSPICES OF FUNDACION WILLIAMS, BUENOS AIRES

INVESTIGATIONS ON  
THE ORIBATID FAUNA OF THE ANDES  
MOUNTAINS

I. THE ARGENTINE AND BOLIVIA

BY

MARIE HAMMER




København 1958

i kommission hos Ejnar Munksgaard

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### Synopsis.

The present investigations are based on collection of about 30,000 oribatids. Collections were made in the Andes Mountains from about 36° lat. S. to about 17° lat. S., from about 5400 metres above sea level to tropical mountains slopes about 1200 metres above sea level.

A total of 129 different species were found, which are arranged in systematic succession in Table 1. Tables 2-7 show the faunal composition in the biotopes examined. The extremes are demonstrated at Laguna Atuel (Table 2), where there is constantly a rich influx of water, and where there is a very homogeneous fauna, rich in individuals, but poor in species, dominated by two species, which constitute 98.2 per cent. of the total oribatid fauna. Beside the Arroyo Las Chircas, a small "oasis" on a dry steep mountain slope (Table 6) the contrast, with many species and few individuals, is seen.

In the Argentine 89 species were found, in Bolivia 61. Only 21 species were common to the two countries. Common to the highlands were 11 species, to the tropical regions only 4 species. Very few species were found both in the highlands and in the tropical areas.

Of the 129 species described, 116 were new, only 13 having been described previously.

*Dedicated to*  
THOMAS JEFFERSON WILLIAMS  
*In gratitude*

## Preface

In 1953 the Fundacion Williams, the President of which is Mr. THOMAS JEFFERSON WILLIAMS, Buenos Aires, presented the University of Copenhagen with working facilities at the estancia El Sosneado in the province of Mendoza, the Argentine, and opportunities of freely making studies everywhere in the Argentine. Thanks to this munificence it has been possible for me to finish the first part of my investigations on the oribatid fauna of the Andes Mountains. No less obligingness was shown to me by the shipping company of J. LAURITZEN, who presented me with a free voyage, and by the Directors of the Carlsberg Foundation and the Danish State Research Foundation, who granted economic support for my investigations in Bolivia, Peru, and Mexico. For this extensive support I offer my most cordial thanks. The Carlsberg Foundation has furthermore granted me financial support during my work on the collections for which I owe a debt of gratitude. The Rask-Ørsted Foundation has paid for the translation for which I offer my most cordial thanks. I am also very much obliged to Captain E. MIKKELSEN, Ph. D. h. c., who was the moving spirit at the establishment of the laboratory in the Andes Mountains and who has shown all of us who worked there exceedingly great interest and helpfulness. Furthermore, I should like to offer my thanks to the large number of people at the estancia El Sosneado, where we everywhere met with helpfulness and kindness, more especially to Chief Engineer PEDRO CORTES, who by his great interest did everything possible to make my stay at the estancia as unforgettable as possible. For assistance as regards the nomenclature I want to offer my best thanks to my colleague, Dr. S. L. TUXEN of the Zoological Museum, Copenhagen.

The systematic part has been translated by the author, the rest of the paper by Cand. mag. NIELS HAISLUND.

*Stodam, January 1957.*



### Survey of Previous Findings of Oribatids in South America.

No rational collections of oribatids by means of Berlese funnels have previously been made in the Andes Mountains or, for that matter, in any part of South America. Still, there are as far back as the end of the last century communications in the literature about findings of some species collected more or less accidentally on expeditions or by people who had other tasks. From South Georgia there is information available about two species collected in 1882-83 (MICHAEL 1894). MICHAEL (1903) furthermore reported two species from the Antarctic.

By the "Hamburger Magalhaensische Sammelreise" five species were reported from the Terra del Fuego (KRAMER 1898). The Swedish South Polar Expedition in 1901-1903 collected nine species, two of them, however, being identical with the two species from South Georgia (TRÄGÅRDH 1907). TRÄGÅRDH (1901) mentions one species from Patagonia. BERLESE has described oribatids from many regions in South America, especially the La Plata area, thus ten species in 1888 from Brazil, Paraguay, and the Argentine. One species 1902 from La Plata; one species 1908 from South America; two species 1914 from the Argentine, Uruguay, Paraguay, and Brazil; ten species 1916 from La Plata; two species 1921 from La Plata; BERLESE and LEONARDI five species 1902 from the Argentine and Chile, CANESTRINA one species 1897 from Bolivia; 1896 some species also from Bolivia. PAOLI mentions one species 1908 from South America; JOAN TERESA one species 1917 from the Argentine. SELLNICK 1922 determined one species from Brazil; 11 species 1923 also from Brazil; three species 1924 from Brazil; one species 1930 from Brazil. WILLMANN in 1933 described one species from Bonaire, Curaçao and Aruba in the Caribbean Sea; in 1936 seven species from the same locality. GRANDJEAN from the regions about the Caribbean Sea has described a few species: three species 1929 from Venezuela; two species 1930, one of them found both in Venezuela and in Colombia and one in Colombia; two species 1931 from Venezuela; one species 1932 from Venezuela and Colombia; one species 1936(b) from Venezuela and two species 1950 also from Venezuela. Finally TRÄGÅRDH 1931(a) described 17 species from Juan Fernandez and the Easter Island.

The great majority of the species mentioned in the literature were described for the first time; only exceptionally a species was refound. A total of about one hundred species have so far been described, only two of which have been found by me (see pp. 34, 95). Most of BERLESE's descriptions are not accompanied by drawings, and as they furthermore are very short, it thus being extremely difficult to find out what species are covered by them, there is a possibility that in what follows I have

described some species which have been described previously. Some of BANKS' and EWING's species from the United States as well may also occur among the species described as new in what follows, as their extremely brief descriptions are open to the same objections.

### Brief Mention of the Localities Examined.

From November 1954 to the middle of February 1955 I made a journey through the Andes Mountains in order to collect oribatids by means of Berlese funnels<sup>1</sup>, by which even the smallest species are found. The soil samples in which the animals live, as far as possible were cut out with a steel cylinder with an area of 1/1000 sq. m. In wet moss or in dry tussocks in sand the size of the sample was more or less accidental.

The majority of the investigations were made in regions around the estancia El Sosneado, Mendoza, the Argentine, which served as the starting-point of the investigations in the Argentine. The estancia El Sosneado is situated on the Rio Atuel at about 35° lat.S. on the east side of the Andes Mountains at an altitude of about 1600 m. above sea level, i. e. at the foot of the Andes Mountains. The pampas inclines towards the east, an immense flat plain grown with scrub and grass, knee-deep to the height of a man, in a boundless expanse down towards the Atlantic. In the west the Andes Mountains rise to an altitude of more than 5000 m. only 60 km. away. Immediately behind the estancia towards the northwest there are dry crumbly foothills grown with scattered plants and low shrubs, which often are very prickly,—a shrubby steppe. In this region it is everywhere very dry, almost desert-like, and only where the soil is irrigated, there is a possibility of cultivating it. The rivers and arroyos (small rivers or brooks) swell greatly during the period of the melting of the snow, but outside this period they are rather shallow (see photo on p. 7). As there is practically no rain and the soil consists of dry sand and crumbly rock, there are hardly any conditions of existence for bryophytes—the biotope in which oribatids are preferably found. Along the rivers, because of the violent water pressure in the period of snow melting, there are mostly dry sand banks or stony banks without any vegetation; a little farther away from the river there may be a river plain with stiff grass on sand.

The large number of arroyos which flow into the Rio Atuel, in some places form marshy meadows with a vegetation of *Juncus*, *Carex*, *Ranunculus*, *Trifolium*, *Taraxacum*, etc., varying according to the level of the ground water. The greater part of the very exotic vegetation unfortunately could not be determined, not even as to family, as it partly consists of very low cushions which were not yet in flower. For the one who is familiar with the flora of Northern Europe, it was rather bewildering to note that a good number of the low, compact cushion plants belong to the Umbel-

<sup>1</sup> Technique: see HAMMER 1944, pp. 24–26.





The Rio Atuel, looking North-west towards the frontier of Chile.

liferac.—Only a few centimetres' difference in level is sufficient to change the biotope. A little farther away from the river, where the soil is only a little drier, some spongy, dry cushions rise above the surroundings. These cushions (Yaretiya), which belong to the Umbelliferae, consist of densely growing vertical stems, which fall apart into dry crumbling pieces when cut. If the arroyo in question is rapid, the bank is often overgrown with extensive cushions of low, prickly *Juncus*, *Calceolaria*, or grass. *Mimulus* grows half into the water and sparse bryophytes sometimes grow under the overhanging banks.

High on the yellowish grey, dry mountain sides one sometimes sees green stripes of luxuriant vegetation consisting of luxuriant bryophytes, *Mimulus*, *Calceolaria*, *Juncus*, etc., the stripe often being very short. It begins where a spring wells out of the mountain side, but the water does not reach very far: for a short distance a narrow softly purling or seeping stream is seen down the side of the mountain, where it is soon lost in the sand without reaching an arroyo. Such biotopes created round a spring, which constantly keeps the surroundings moist, may harbour a very large number of species (see e. g. below, the biotope Near Arroyo Las Chircas). These biotopes in the very driest period will presumably shrink considerably, the fauna living there thus being still more isolated from the surroundings and the chances of a spreading outside the biotope in question being negligible.



The Rio Atuel near its source from Laguna Atuel. Notice the picture, and the rich vegetation of *Mimulus*.



The Arroyo de Los Pajaritos. The River banks are covered with thick cushions of short stiff *Juncus*.

The Arroyo de la Cruz de Piedra. Notice the car in the middle distance. The vegetation mainly consists of low, stiff cushions of *Juncus*.



San Antonio de los Cobres in a dry almost desert-like scenery.

At the small source of the Atuel river through a luxuriant overgrown rivulet bed with tall, dense *Mimulus* vegetation, bryophytes, *Carex*, etc. (see photo on p. 8), there was a fauna extremely rich in individuals, but poor in species (see Table 2). On the whole the same vegetation is met with along all arroyos in the Atuel and Salado valley. The Arroyo de la Cruz de Piedra, about 200 km. farther north, has a rather violent fall with a dense, connected vegetation mainly consisting of low, stiff cushions of *Juncus*, which are also found round e. g. the Arroyo de Los Pajaritos, where the fall is violent (see photo on p. 8). Arroyo de la Cruz de Piedra runs through a narrow valley demarcated by steep mountain sides (see photo on p. 9).

The somewhat more highly situated locality San Antonio de los Cobres near Salta in many respects reminds of the highlands of Bolivia. The low green and luxuriant vegetation, which, that is, is only found round springs, consists of Caryophyllaceae, Compositae, Umbelliferae, *Juncus*, and grass. Outside these areas it is, however, much drier than in the highlands of Bolivia, with only sporadic cacti and a few low cushion plants on the waste fell-fields (see photo on p. 9).

In Bolivia conditions are very different from those around the Atuel valley. Most samples were taken on the stretch from the capital La Paz by way of the pass Cumbre (4658 m. above sea level), which is situated about 25 km. east of La Paz, to Chulumani (Yungas) on the east slope of the Andes Mountains at the altitude of 1800 m. above sea level. On the outskirts of La Paz, about 3800 m. a.s.l., there are rather dry *Eucalyptus* forests without any undergrowth, although with scarce bryophyte vegetation on the brink of a gravel pit. At the altitude of 4200 metres the ground is covered by a very thin carpet of vegetation, mainly consisting of a very low, twining umbellifer. Where water runs over rocks, there are also stiff cushion plants, *Polypodium*, and a few other bryophytes. At the height of the pass fog and snow are drifting and covering everything with moisture (see photo on p. 11). A dense, connected plant cover is the result, consisting of low cushion plants (Compositae, Caryophyllaceae, Umbelliferae), Cyperaceae, and some bryophytes. There one finds small shallow lakes, wet meadows, and small streams surrounded by grass and bryophytes; in slightly drier localities there are twining umbellifers. In still drier localities one finds extensive cushions of a dry moss-like plant (Caryophyllaceae), which is also dominant in the drier river plains about San Antonio de los Cobres and in many places in the neighbouring highlands. East of Cumbre at an altitude of about 4000 metres the vegetation is almost the same as in the height of the pass. The moisture is great everywhere, and at Unduavi, with a custom-house of the coca trade, at an altitude of 3180 metres a.s.l., which is situated near the timber line, fog and rain cover the mountains and produce a rich vegetation of bryophytes on the rocks. The farther one gets into the valley towards the east, the more luxuriant the vegetation grows, and soon fern palms, orchids, bananas, and the whole of the luxuriant vegetation of the tropics make their appearance. At Puente Villa at the altitude of 1200 metres the bottom of the valley system is reached. There samples of bryophytes from the wet rocks were taken. At Chulumani at the altitude of 1800 metres the moisture is replaced by drought. Bryophytes and other moist biotopes are extremely rare among

Near the pass Cumbre. The vegetation is dense, consisting mainly of low cushions and grass.

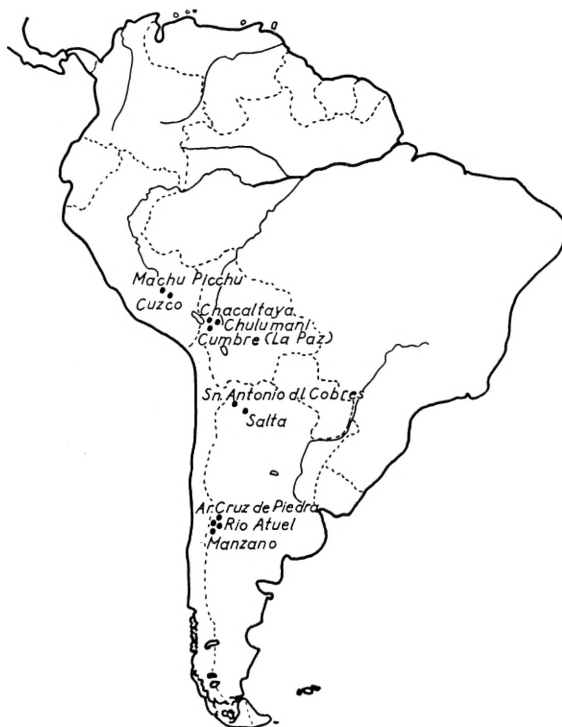


The valley Quebrada de Gallinato near Salta as a whole is green.

the coca plantations. The mountain Chacaltaya, about 6500 metres high, situated a little north of La Paz, is covered by snow down to about 5400 metres a.s.l. Below the snow and between the snow drifts there are between the boulders some scattered tufts of *Polytrichum*, fine moss and low cushions. At the foot of the mountain, which rises rather steeply above the Altiplano about 5000 m. a.s.l., the ground is covered by a connected yellowish green carpet of grass, cushion plants, and some bryophytes, interrupted by small meadows and marshes.

At Salta in the Northern Argentine it was extremely hot and dry, in January, when collections were made, some of the arroyos had dried up and bryophytes were found in very few places, where a little water oozed over rocks in the shade under trees. Around water-bearing arroyos there were luxuriant meadows with grass and a profusion of flowers. The country as a whole is green, but the undergrowth is withered or missing (see the photo on p. 11). Conditions remind somewhat of those at Chulumani. At Salta samples were taken on the shore of the lake Cabeza de Buey about 30–40 km. east of Salta, in the valley Quebrada de Gallinato about 10–15 km. north of Salta, and on limestone cliffs in the somewhat larger valley with the river Rio Caldera about 10 km. north of Salta; a single sample was taken at Campo Santa about 40 km. northeast of Salta, about 1000 m. a.s.l.

For the present investigations collections have mainly been made in the above-mentioned "green spots" along arroyos and springs, but also in very dry cushions



(Map of South America)

in stony fell-fields high on the mountains, e. g. above El Angulo and above the Arroyo de la Cruz de Piedra, where especially interesting forms were found.

The main purpose of the investigations was first of all that of providing as copious a representation of the oribatid fauna as possible, but besides I intended to make a comparison between the alpine and the tropical (subtropical) oribatid faunas. Collections for this purpose could be made in the northern Argentine between San Antonio de los Cobres northwest of Salta at the altitude of 3700 metres and at Salta at the altitude of 1200 metres with a subtropical climate, and in Bolivia between the fauna on Chalcataya from the altitudes of 5500 to 4900 metres and the Cumbre pass at an altitude of 4658 metres as against Puente Villa at an altitude of 1200 metres and Chulumani at 1800 metres with tropical-subtropical climate (p. 118). At present it is difficult to make a comparison between the high alpine and the high arctic faunas as very few species common to both have been found (see p. 119).

In the survey below the localities investigated are arranged from the south towards the north with statement of latitude, altitude, and dates of the collections.

#### The Argentine:

About 36° lat. S.	Manzano, Rio Grande	.....	about 1600 m.	a. s. l.,	23/XI. 1954
- 35°30' lat. S.	Arroyo Plomo, Rio Malargüe	.....	- 2400 m.	-	30/XI
- 35° lat. S.	Hotel Los Molles, Rio Salado	.....	- 1950 m.	-	7, 11/XI
- - -	Niña encantada, Rio Salado	.....	- 1900 m.	-	- - -
- - -	Las Lagunitas, Rio Salado	.....	- 2200 m.	-	- - -
- - -	Estancia El Sosneado, Rio Atuel	.....	- 1600 m.	-	14, 18/XI, 1/XII
- - -	Puente Angosto, Rio Atuel	.....	- 1600 m.	-	20/XII
- - -	Arroyo Blanco, Rio Atuel	.....	- 1800 m.	-	4/XI
- - -	Arroyo Paraguay, Rio Atuel	.....	- 2200 m.	-	17/XI
- - -	Puesto de Los Arroyos, Rio Atuel	.....	- 1900 m.	-	22/XI
- - -	Near Arroyo Las Chircas, Rio Atuel	.....	- 1900 & 2200 m.	a. s. l.,	26-27/XI
- - -	Arroyo de Los Pajaritos, Rio Atuel	.....	- 2300-2700 m.	-	9/XI
- - -	El Angulo, Rio Atuel	.....	- 3300 m.	a. s. l.,	22/XII
- - -	Arroyo El Oscuro, Rio Atuel	.....	- 3300 m.	-	23/XII
- - -	Between El Angulo and Volcán Overo, Rio Atuel	.....	- 3700 m.	-	23/XII
- - -	Near Laguna Atuel, Rio Atuel	.....	- 2900 m.	-	3/XII
- 34°	Arroyo de la Cruz de Piedra near Laguna Diamante	.....	- 2600-3650 m.	a. s. l.,	6/XII
- 25°	Salta	.....	- 1200 m.	a. s. l.,	9-10/I 1955
- 24°	San Antonio de los Cobres	.....	- 3800 m.	-	7/I

#### Bolivia:

About 17° lat. S.	Outskirts of La Paz	.....	about 3800 m.	a. s. l.,	21/I
- - -	West of Cumbre	.....	- 4200 m.	-	21/I
- - -	Cumbre	.....	- 4658 m.	-	21/I
- - -	East of Cumbre	.....	- 4000 m.	-	24/I
- - -	Unduavi	.....	- 3180 m.	-	24/I
- - -	Puente Villa	.....	- 1200 m.	-	24/I
- - -	Chulumani	.....	- 1800 m.	-	23/I
- - -	Chalcataya (north of La Paz)	.....	- 5400-4900 m.	a. s. l.,	26/I

### Descriptions of the Species Found.

The species and genera described in what follows are mainly arranged in accordance with WILLMANN (1931)<sup>1</sup>. In most of the drawings of species, one or more legs are drawn in order to indicate their position and length, without, however, the quite exact position or the number of hairs on the legs being accounted for. Therefore the reader should not too much fasten on the placing or appearance of the hairs of the legs if no special attention is called to them.

*Nanhermannia elegantissima* n. sp.; fig. 1.

Colour brown-mahogany red. Length 0.6 mm.

*N. elegantissima* like *N. elegantula* Berl. has conical protuberances on the posterior margin of the propodosoma. The distance between them is perhaps slightly longer. The protuberances may be blunter with short notches. The interlamellar hairs are much longer than in *N. elegantula*, and they are very thin towards the tip. The same is the case with the lamellar hairs. The rostral hairs are bent steeply downwards. The sculpture of the hysterosoma is like that in *N. elegantula*, the hairs, however, being much thinner. The pits of the propodosoma are very deep and small in the middle of the posterior part, further anteriorly they are as big as on the hysterosoma.

The Argentine: Very common in the Atuel valley; at Arroyo de Los Pajaritos in wet stiff *Juncus* up to 83 individuals per 1/1000 m.<sup>2</sup>; at Puente Angosto in moss; at the estancia El Sosneado at a well grown with *Juncus* and clover; at Puesto de Los Arroyos in wet *Juncus* and clover; in a meadow near Los Molles grown with about 30 cm. high grass tussocks, *Trifolium* and *Ranunculus*; at Arroyo Plomo in dripping wet vegetation of *Juncus* and *Calceolaria*; at San Antonio de Los Cobres very common in a "meadow" with oozing water and grown with *Juncus* and a Composite; on an almost vertical hang with *Mimulus*, *Juncus*, and *Carex* in oozing water; in wet moss and grass; in vegetation of *Ranunculus*, Umbelliferae and green algae, also wet.

Bolivia: At Chulumani a few adults and many nymphs in thick luxurious moss.

*Brachychthonius fimbriatus* n. sp.; fig. 2.

Colour yellowish. Length 0.23 mm.

The propodosoma is considerably narrower than the hysterosoma. The rostrum rounded. Four pairs of light spots between the interlamellar hairs. The anterior pair, which is the longer, is situated on a level with the base of the interlamellar hairs. The posterior pair is long and narrow; all of them sit rather close together. The stalk of the pseudostigmatic organs are only a little longer than the club, which has out-

<sup>1</sup> See also here the general description of oribatids with the terms used in the following.



standing bristles. The lamellar hairs and the exopseudostigmatic hairs are turned backwards, the interlamellar hairs turned forwards, all are shaped as peach leaves. The rostral hairs are strong and broad, apparently smooth. All remaining hairs are asymmetric, the lateral half being the broadest, having an undulating edge or trim which on the medial half is somewhat narrower (fig. 2 a). This is seen most clearly on the posterior half of the hysterosoma;  $b1^1$  and  $b3$  almost reach the base of  $b2$  and  $b4$ ;  $b2$  reaches as far as or beyond the base of  $c1$  and  $c1$  reaches beyond the posterior margin of the hysterosoma. The latter is the longest of all hairs. Several light spots are seen on the segments as shown in the figure. A very distinct spot, apparently the opening for a gland is seen on the first segment almost between  $a1$  and  $b1$ . The posterior margin of the hysterosoma is broadly rounded.

The Argentine: In Rio Atuel valley a few in low moist vegetation of *Ranunculus* on the edge of Arroyo de Los pajaritos; 2 specimens in the same locality in wet stiff *Juncus*. Near Laguna Atuel 3 specimens in wet moss and *Mimulus*. At Arroyo El obscuro 1 specimen in luxurious green moss. At Arroyo de la Cruz de Piedra 3 specimens in wet *Juncus* and one in moist *Calceolaria* vegetation.

*Brachychthonius mollis* n. sp.; fig. 3.

Colour yellowish, only slightly chitinized. Length about 0.175 mm.

The rostrum rounded, rather narrow. The propodosoma is much narrower than the anterior margin of the hysterosoma, which has distinct "shoulders". All hairs are smooth, shaped as peach-leaves. The lamellar hairs are directed backwards; the exopseudostigmatic hairs, which are of the same length as the lamellar hairs are likewise turned backwards. The interlamellar hairs are directed forwards; they are about  $\frac{2}{3}$  as long as their mutual distance. A very faint light spot can be seen just in front of the cups of the pseudostigmatic organs. The latter have very short thick clubs, all bristles being close together. The tip is bifurcate. The hairs of the hysterosoma are short and stiff (fig. 3 a);  $c2$  is the longest and reaches beyond the margin of the hysterosoma, the remainder being of approximately the same length as the interlamellar hairs;  $b1$  reaches beyond the posterior margin of Segment I by  $\frac{1}{3}$ ,  $b2$  likewise by about  $\frac{1}{3}$  beyond the posterior margin of Segment II.

The Argentine: In Rio Atuel valley near Arroyo Las Chircas numerous specimens in wet moss in seeping water at a small stream high on the mountain side.

*Brachychthonius altus* n. sp.; fig. 4.

Colour yellow-orange with white segmental lines. Length about 0.23 mm.

The propodosoma is much narrower than the hysterosoma. All hairs lanceolate with a thick middle rib. Lamellar hairs and exopseudostigmatic hairs are bent and turned backwards, interlamellar hairs straight and directed forwards. The latter are situated off the narrow space between the first and second of the light areas. The distance between the light spots in the anterior row is one and a half times longer

<sup>1</sup> See JACOT (1938).

than the length of the spot, in the second row half as long as the spot, in the third row equal to the length of the spot. The club of the pseudostigmatic organ is rather thick with outstanding bristles, the stalk being almost twice as long as the club. A distinct light area is seen immediately in front of the pseudostigmatic cup, another behind the lamellar hairs, and finally a third pair between the two just mentioned. The bases of the lamellar hairs are connected by an indistinct line, which from the lamellar hairs run as a slightly curved line backwards to the exopseudostigmatic hairs. The hysterosoma has distinct light areas arranged in the usual way as shown in figure 4. Fig. 4a shows a hair from the hysterosoma. The hairs b2, b4, c1, c3 and c2 are a little longer than the others. In many respects this species is like *Br. fimbriatus*; the latter has, however, broader and longer hairs, especially as regards a2, a3, and a4, moreover a double row of light spots behind c1.

The Argentine: In Rio Atuel valley at El Angulo 12 specimens in low moist moss, 4 specimens in a low plant cushion with a little grass.

*Brachychthonius breviseta* n. sp.; fig. 5.

Colour whitish-greyish. Length 0.19 mm.

The propodosoma is considerably narrower than the hysterosoma, which has distinct shoulders. The rostral hairs are almost twice as long as the remaining hairs. The latter are extremely short. They have a middle rib and remind more of spines than of hairs. The lamellar and the exopseudostigmatic hairs are directed backwards, the interlamellar hairs forwards; they are a little more than half as long as the pseudostigmatic club. The club, which is slightly shorter than the stalk, is lanceolate with the bristles close together. No light areas are seen; neither on the propodosoma nor on the hysterosoma. The hairs of the hysterosoma are very short and broad (fig. 5a). b2 about half as long as Segment II, c1 and c2 apparently sit on low "hills". Behind c2 and d3 there is a distinct transverse chitinized line. This species seems to be closely related to *Br. brevis* Mich., which, however, has no "hills" round c1, nor are the hairs of the hysterosoma so broad as in *Br. breviseta*.

The Argentine: In Rio Atuel valley at Arroyo El obscuro 2 specimens in a moist very low cushionlike plant.

*Brachychthonius andinus* n. sp.; fig. 6.

Colour orange with white segmental lines. Length 0.20 mm.

The propodosoma is only little narrower than the hysterosoma, which across the shoulders as almost as broad as long. The rostrum broad, rostral hairs rather close together; they are slender and a little longer than the interlamellar hairs. Lamellar, exopseudostigmatic, and interlamellar hairs are of the same length, the first two pairs turned backwards, the last forwards. There are 4 pairs of light areas in two rows between the interlamellar hairs. The latter is situated off the second pair. The distance between the two longitudinal rows is almost the same all over. A distinct light area is seen in front of the pseudostigmatic cup, another between the cup and

the lamellar hair in front of a short transverse chitinous ridge. A chitinous ridge runs along the side of the propodosoma beginning a little in front of the lamellar hairs and ending off the posterior part of the pseudostigmatic cup. The pseudostigmatic club is a little shorter than the stalk, the bristles are placed close together, their distal fourth, though, is outstanding. The hairs of the hysterosoma are stiff, asymmetric, or a little oblique, often bent outwards at their base, they are equally thick almost to the tip (fig. 6a). b2 is as long as or longer than Segment II; it reaches the base of c1, which reaches the base of c2. The surroundings of the base of b2 and c1 are more strongly coloured so as to indicate that these hairs are situated on low "hills". The many light areas are placed as shown in the figure. At the posterior margin of Segments I and II they are merged more or less with a slightly chitinized integument. The posterior margin of the hysterosoma is broadly rounded. Fig. 6b shows the animal from its lateral side.

The Argentine: At San Antonio de los Cobres 8 specimens in luxurious moist moss on a vertical hang.

Bolivia: At Cumbre 2 specimens in moist moss, grass, and plant cushions; east of Cumbre 24 specimens in the same kind of vegetation; at Unduavi 7 specimens in 5 cm. high wet moss and grass on a vertical hang. At Chacaltaya about 5400 m. a.s.l. 5 specimens in *Polytrichum* between stones close to the snow; at the foot of the mountain about 4900 m. a.s.l. 8 specimens in a low cushion with a little grass on a pile of stones and one specimen in moss below a hang.

*Brachychthonius altimonticola* n. sp.; fig. 7.

Colour yellow-pale orange. Length 0.19 mm.

The propodosoma is narrower than the hysterosoma, which has distinct shoulders. Across the anterior part of the propodosoma some arched lines are seen which are not equally distinct in all specimens. The lamellar and the exopseudostigmatic hairs are directed backwards, the interlamellar hairs are directed forwards. The latter are as long as the pseudostigmatic club. This is thick and short with outstanding hairs, about two thirds as long as the stalk. Two longitudinal rows of light spots are seen between the interlamellar hairs as shown in fig. 7. The hysterosoma has many light spots arranged in the usual way (see fig. 7). The hairs are short and stiff with a middle rib; b1 reaches the posterior margin of Segment I; b2, which is one third longer than b1, is a little more than half as long as Segment II and reaches beyond the posterior border of the segment in question by one third of its length; c1 is apparently placed on low "hills"; behind c2 there is a distinct transverse line. The hysterosoma is rounded posteriorly.

The Argentine: At Arroyo de la Cruz de Piedra several specimens in moist moss and some cyperaceae.

Bolivia: At Cumbre 2 specimens in moist moss, grass, and low cushion plants; east of Cumbre 22 specimens in almost the same kind of vegetation, moreover, one specimen in pure green moss. At Unduavi 2 specimens in 5 cm. high

wet moss and grass on a vertical cliff. At Chacaltaya about 5400 m. a. s. l. 7 specimens in *Polytrichum* between stones near the snow; in the same locality but in a dry cushion 2 specimens.

*Brachychthonius tropicus* n. sp.; fig. 8.

Colour pale orange. Length 0.18 mm.

The propodosoma is much narrower than the hysterosoma. The rostrum is a little pointed in the middle. Rostral hairs curved, almost meeting. The lamellar hairs are straight, directed forwards, and also almost meeting. The interlamellar hairs are shorter and thinner than the lamellar hairs, also directed forwards. The exopseudostigmatic hairs are turned inwards. Only one pair of light spots can be seen between the interlamellar hairs. The pseudostigmatic club is long and slender, at least as long as the stalk, and has outstanding bristles. Off the exopseudostigmatic hairs a chitinous ridge turns inwards almost at right angles to a very short distance and then curves forwards. A little behind the rostral hairs it again turns inwards at right angles, then forwards towards the middle of the rostrum, almost meeting the one from the other side. No light spot or pattern can be seen on the hysterosoma. Off a3 a distinct puncture is, however, seen, apparently the aperture for a gland. Scattered over the hysterosoma, especially on Segments I and II, there are many refracting grains, which, however, may originate from the preservation. The hairs are thin and rather short. b1 reaches a little beyond the posterior border of Segment I, b2 reaches beyond the posterior border of Segment II by about one third of its length; c1 and c2 are situated on a darker area, the hairs apparently being placed on low "hills", but the whole appearance is very indistinct.

Bolivia: At Puente Villa 2 specimens in coarse *Polytrichum* on a vertical cliff in a narrow cleft, wet.

*Brachychthonius saltaensis* n. sp.; fig. 9.

Colour white-grey-yellowish. Length 0.20 mm.

The propodosoma is narrower than the hysterosoma, and there is, as it were, a broad neck between them. The interlamellar hairs are directed slightly backwards and inwards, the exopseudostigmatic hairs backwards and the interlamellar hairs forwards; all of them are broad and flat with a middle rib. The interlamellar hairs are about half as long as the rostral hairs and their length is about two thirds of that of the pseudostigmatic club. The latter is thickly clavate, longer than the stalk, and has outstanding hairs. No light spots can be seen, neither on the propodosoma nor on the hysterosoma. Off a3 there is, however, a little puncture. The hysterosoma is almost equally broad throughout; the posterior margin is broadly rounded. The hairs, which have a middle rib, are apparently slightly asymmetric, the lateral side being broader than the medial. b1 reaches the posterior border of Segment I, b2 with one third of its length beyond the posterior border of Segment II; c1 is situated on an elevated area, which, however, seems to extend beyond the base of c2.

The Argentine: At Quebrada de Gallinato near Salta 6 specimens in a slightly moist luxurious meadow with *Zinnia*, *Tradescantia*, grass, etc.

*Brachychthonius ocellatus* Hammer (1952, p. 19, fig. 10); fig. 10.

The specimens found differ from the one described from Yellowknife, Northern Canada, in the shape of the pseudostigmatic organ, which has rather a thick club with the bristles close together (fig. 10a), while the one from Yellowknife has a slender pseudostigmatic organ with outstanding bristles. Moreover, in the specimen from Canada the distance between the hairs b1 is longer than the distance between b2, the opposite being the case with the specimens from the Argentine. Otherwise the resemblance is very great: the long smooth hairs the distal third of which is sometimes bent, the position of the interlamellar hairs unusually far backwards on the propodosoma and the arrangement of the light spots.

The Argentine: In Rio Atuel valley near Arroyo Las Chircas 10 specimens in wet moss at a little well on the mountain side and 2 specimens in dripping wet moss below dripping water. At Yellowknife, Canada found in wet moss.

*Eobrachychthonius montanus* Hammer (1952, p. 17, fig. 5); fig. 11.

The Argentine: In Rio Atuel valley at Arroyo Blanco 2 specimens in a very dry low cushion (Yaretiya). Known from Jasper, Rocky Mountains, Canada in grass and *Hordeum* sp. veg.

*Eobrachychthonius argentinensis* n. sp.; fig. 12.

Colour yellow-pale orange. Length 0.30 mm.

The mite is short and broad. The propodosoma is almost as broad as the hysterosoma. The rostrum is rounded; rostral hairs parallel, twice as long as their mutual distance. They are apparently situated on a sharp edge behind which is seen a distinct half-moon. The lamellar hairs are directed forwards and connected by a transverse line. The interlamellar hairs are longer and stronger than the rostral hairs and directed forwards. The exopseudostigmatic hairs, which are as long as the lamellar hairs are turned upwards and backwards. The stalk of the pseudostigmatic organ is very short, the length being only about two thirds of that of the club. The latter is lanceolate with short outstanding hairs, like an ear of rye. There are 4 pairs of light spots between the interlamellar hairs. In front of the pseudostigmatic cup there is an oblong light spot; two more are seen close together between the lamellar and the exopseudostigmatic hairs. The hysterosoma has many light spots arranged in the usual way, as shown in fig. 12. Between c1 and c2 there are 8 spots in two rows. The hairs are rather long and strong; with no middle rib. Fig. 12a shows the lateral plates. This species has in many respects a great resemblance to *Eobr. sexnotatus* Jacot, but differs among others by its much longer and stronger hairs.

The Argentine: At Arroyo de la Cruz de Piedra 3 specimens in wet 3-4 cm. high moss on a vertical river bank below tussocks of stiff grass.

*Brachychochthonius griseus* n. sp.; fig. 13.

Colour pale greyish. Length 0.20 mm.

The propodosoma is conical, a little narrower than the hysterosoma. The rostral hairs are a little more than half as long as their mutual distance; they are directed forwards and inwards, almost meeting. They are rather thick. The lamellar hairs are situated immediately behind a very distinct posteriorly openshaped line. They are directed forwards and are only half as long as the rostral hairs. The exopseudostigmatic hairs are minute, hardly discernible. The interlamellar hairs are also tiny thin bristles; they are directed forwards. The pseudostigmatic organ has a long and slender club, at least as long as the stalk, with outstanding bristles. The propodosoma has numerous very distinct areas with refracting grains. The pattern of the hysterosoma is in many respects much like the one in *Br. berlesei* Willm. The most characteristic is the pore on either side of Segment I, which looks like a round grey lid on a red oblong spot underneath (see detail fig. 13a). The length and the shape of the hairs varies greatly. a1 is very thin and short, b1 is straight, broad, and long, it reaches beyond the posterior margin of Segment I by about one third of its length; b2, which is the strongest of all the hairs reaches beyond the posterior margin of Segment II by two thirds of its length; c1, c2 and d1 are a little shorter than b2 and slightly curved.

The Argentine: In Rio Atuel valley at Arroyo de Los Pajaritos 1 specimen in moist stiff *Juncus* vegetation near the water, about 2780 m. a.s.l.

*Brachychochthonius elsosneadensis* n. sp.; fig. 14.

Colour yellow-pale orange. Length 0.20 mm.

The propodosoma is very narrow. The rostral hairs are stiff and rather thick, they are about half as long as their mutual distance. In front of the lamellar hairs there is a broad transverse, slightly bent chitinous ridge, which continues backwards and outwards, passing laterally to the exopseudostigmatic hairs, ending at the posterior border of the propodosoma. Laterally to this ridge there is a second ridge almost parallel to the one first-mentioned; it ends a little in front of the lamellar hairs. Lamellar hairs, exopseudostigmatic, and interlamellar hairs are all tiny and thin, hardly discernible. The pseudostigmatic organ has a very short stalk and a slender ear-shaped club with short outstanding bristles. In profile the anterior part of the rostrum is very high or thick like a bubble with a deep furrow between the latter and the transversal ridge immediately behind (fig. 14a). The pore on Segment I is an oblong and obliquely situated clear spot, narrowest anteriorly and medially, broadest posteriorly and laterally. The hair a1 is very thin and shorter than the interlamellar hairs, b1 is much stronger and reaches beyond the posterior margin of Segment I by about one third of its length; b2, which is the longest, is broad and shaped like a peach-leaf; it reaches beyond the posterior border of Segment II by more than half of its length; c1 and c2 are slightly shorter than b2. The pattern of the hysterosoma is of the same type as in *Br. berlesei* Willm. A thick straight transverse line is seen behind c2.

The Argentine: In Rio Atuel valley at Arroyo El obscuro 8 specimens in a very low, moisty cushion between stiff *Juncus*.

*Brachychochthonius rotundatus* n. sp.; fig. 15.

Colour greyish-yellowish. Length 0.19 mm.

Easily distinguishable from *Br. griseus* and *Br. elsosneadensis* by its rounded posterior end of the hysterosoma and by its slightly dentate rostrum. As to the pattern of the hysterosoma, it has a great resemblance to the two species just mentioned, in the propodosoma it is simpler than in *Br. griseus*. I do not believe, however, that too much attention should be paid to the details in the pattern, as they may be difficult to discern in faintly chitinized specimens. The anterior margin of the rostrum is slightly dentate. Behind the rostral hairs there is a transverse line of refractant punctures, like beads on a string. The rostral hairs are curved inwards for one third from their base, they are about two thirds as long as their mutual distance. In front of the lamellar hairs there is a transverse ridge which continues backwards and outwards to the posterior margin of the propodosoma. Lamellar, exopseudostigmatic, and interlamellar hairs are all very thin, short, and directed forwards. The pseudostigmatic organ has a long slender club with outstanding bristles; the stalk is a little shorter than the club. The pore on Segment I is almost circular, surrounded by a distinct ring. The hairs of the hysterosoma are stiff and straight bristles; there is not the great difference in length and shape as in *Br. griseus* and *Br. elsosneadensis*. a1 and b1 are of almost the same length and only little shorter and tinner than b2 and c1. Behind c2 there is a straight transverse ridge. As mentioned above, the posterior end of the hysterosoma is rounded and the two lobes with d1 hardly project beyond the posterior border.

The Argentine: At Arroyo de la Cruz de Piedra 1 specimen in moist moss with some Cyperaceae in a spring.

Bolivia: East of Cumbre 4 specimens in a thick carpet of one cm. high green moist moss.

*Brachychochthonius foliatus* n. sp.; fig. 16.

Colour yellow-orange. Length 0.20 mm.

The rostrum conical with an incurvation on either side in front of the rostral hairs. The latter, which are turned inwards, are rather strong and stiff bristles, which almost meet in front of the rostrum. A thick chitinous ridge, pointed in the middle, is seen in front of the lamellar hairs. From the lamellar hairs it continues backwards in a broad curve and ends at the posterior border of the propodosoma. On the stretch between the exopseudostigmatic and the lamellar hairs it is double. A stronger chitinization is seen on either side of the propodosoma, where it runs as an undulating line between the rostral and the exopseudostigmatic hairs. The lamellar, exopseudostigmatic, and the interlamellar hairs are all very short and thin, directed forwards. The pseudostigmatic organ has a very slender and long club with outstanding bristles

and a stalk about two thirds as long as the club. The sculpture of the propodosoma and hysterosoma is much like that of *Br. elsosneadensis* and *Br. rotundatus*. The pore on Segment I is round. The species differs, however, from the species just mentioned by the broad leaf-shaped hairs on the hysterosoma. a 1 is as thin and tiny as the interlamellar hairs; a 2, a 3, and a 4 are stronger and thicker like spines. The remainder are all broad and flat, narrow at the base. On Segment II and III they are situated on apophyses. Behind c 2 there is a transverse ridge.

Bolivia: East of Cumbre 7 specimens in low moist moss, grass and low cushions.

At Chacaltaya about 5400 m. a.s.l. one specimen in *Polytrichum* between stones near the snow; numerous in a dry low cushion in the same locality.

*Cosmochthonius pulcherrimus* n. sp.; fig. 17.

Colour dirty grey-yellowish. Length 0.23 mm.

The hysterosoma is divided into three segments by two transverse furrows. Segments I and III are of almost the same length, Segment II about two thirds as long. The first segment is subdivided by a faint furrow into two not fully separated parts (fig. 17 a). All segments have broad, branched hairs or hair plates.

The propodosoma is only a little narrower than the hysterosoma across the shoulder. The rostrum is rounded anteriorly; on the lateral sides it has 6-7 fine teeth on either side (see fig. 17 a-b). The rostral hairs are thin, feathered bristles, directed forwards and almost parallel, curved at the tip and about twice as long as their mutual distance. The lamellar and the interlamellar hairs are very broad plates with numerous branches each ending in a tiny bristle. They sit on apophyses. The apophysis of the lamellar hair has on its posterior margin a broad spine, which can be seen in profile (fig. 17 b). Another spine is situated laterally on the posterior part of the propodosoma. The pseudostigmatic organ is a pointed brush with outstanding hairs. The stalk is on the anterior margin set with bristles for about half its length, apparently for a shorter distance posteriorly. Some light spots are seen on the posterior part of the propodosoma.

The hysterosoma: Segment I has 12 almost equally large, broad, and branched hairs arranged in two rows. The hair bases are broad chitinous plates of which those in the middle are different from the lateral ones (see fig. 17). The anterior hairs reach the furrow on Segment I, the posterior hairs reach a little beyond the posterior border of Segment I. Segment II has 4 very long and broad hairs, which reach beyond the posterior border of the hysterosoma by about one fourth of their length. They are situated on apophyses. The hair bases are very broad with lateral pointed protuberances: two on the two medial hairs, one medial protuberance on the two lateral hairs. Segment III has likewise four hairs which are somewhat shorter and broader than on Segment II. The chitinous plates on the hair bases are like those on Segment II but broader. The hysterosoma ends posteriorly in a triangular protuberance, on either side of which a straight stiff seta on an apophysis can be seen below the feathered



hair plates. A half lateral, half ventral view is shown in fig. 17 a. The ventral side is shown in fig. 17 c. From this it appears that this genus is very different from *Brachychthonius*, where Legs I and II are separated from Legs III and IV by a great distance. In *Cosmochthonius* the distance between all legs is the same. The separation of the right and left side by a longitudinal furrow is likewise very distinct. All tarsi have one claw. Tarsus I has a dorsal broad, curved hair, as also known in *Brachychthonius*. It reaches the tip of the joint or beyond it.

The Argentine: In Rio Atuel valley near Arroyo Las Chircas 5 specimens in wet moss in a small stream high on a mountain side.

Bolivia: East of Cumbre 4 specimens in half a centimetre high moist moss, a little grass and low cushions.

*Cosmochthonius plumatus* Berl. var. *suramericanus* n. var.; fig. 18.

Colour pale greyish. Length 0.22 mm.

This species has a great resemblance to *C. plumatus* Berl. (1910, Redia VI, p. 221, fig. 48). It differs, however, in several ways, especially in the position of the hairs. Thus the four short hairs in Segment II in BERLESE'S species are placed close together with the same mutual distance, while in the American specimens they are more scattered and the distance between the lateral and the two middle hairs is twice as great as between the middle hairs. In Segment III all four hairs have the same mutual distance both in BERLESE'S and in the South American specimens, but in BERLESE'S drawing they are placed close together, in the South American specimens they occupy much more of the width of the dorsum. The hairs of hysterosoma are moreover somewhat broader in *C. plumatus* Berl. The interlamellar hairs are unilaterally branched as in BERLESE'S figure. The insertion for the lamellar hairs cannot be seen. The rostral hairs are inserted on short apophyses; they are branched as is also the case with the lamellar and the exopseudostigmatic hairs, but as these hairs are seen from above and not from the lateral side like the interlamellar hairs, it is very difficult to see anything else than the tips of the hair branches.

The Argentine: At Quebrada de Gallinato near Salta 1 specimen in thin moss sheltered by a big stone, under bushes, moist. The type form described from Italy.

*Tetrochthonius* n. gen.

The hysterosoma is divided into four sections the three anterior ones of which are almost equally large, the fourth twice as large as the others. All sections are equally well separated, not as in *C. pulcherrimus*, where the first segment is subdivided by a low furrow into two not fully separated parts.

*Tetrochthonius clavatus* n. sp.; fig. 19.

The rostrum is broad and round. The rostral hairs are situated on short apophyses a short distance behind the anterior margin. They are as long as their mutual distance, strong and almost equally thick throughout; they are directed forwards and medially

meeting in front of the rostrum; they are covered by secretion. Between them there is a line which seems to connect the apophyses. The lamellar hairs are situated rather far posteriorly; they are a little shorter than their mutual distance. They are broad and directed forwards where they almost reach the base of the rostral hairs. A little in front of them there is a transverse line which continues backwards laterally to the lamellar hairs. A little further anteriorly there is a distinct sharp line. The interlamellar hairs are situated at the same distance as the lamellar hairs. They are directed forwards, are a little shorter than the lamellar hairs and of the same appearance. The exopseudostigmatic hairs are turned inwards and are somewhat shorter. In front of the latter a straight chitinous ridge is seen which ends a little in front of the lamellar hairs. The pseudostigmatic organ is a long flat club, broadest near the end and set with numerous short bristles. The propodosoma is covered by a layer of secretion.

The hysterosoma is divided into four parts. On the first segment there are 8 hairs: 2 pairs in the middle and two hairs on either side on the lateral margin. Segment II has four hairs, Segment III also four hairs, and Segment IV two pairs in the middle, and along the dorsal border 10 hairs + 4 from the ventral side. The latter are curved and covered by secretion, the rest are stiff, more or less straight and almost equally thick throughout. They are on an average as long as the lamellar hairs. The second and the third of the transversal lines dividing the hysterosoma in their middle third reach slightly further anteriorly than they do laterally. The surface is covered with secretion. The tarsus has one slender claw. The ventral side is shown in fig. 19a; from this it appears that the genital plates are unusual large.

The Argentine: At Quebrada de Gallinato near Salta one specimen in thin moss sheltered by a big stone, under bushes, moist.

*Trhypochthonius breviclava* n. sp.; fig. 20.

Colour brown to chestnut brown at the posterior end. Length 0.68 mm.

This species has a great resemblance to *T. badius* (Berl.) (1910, Redia VI, fig. 47) by having long thin a little curved hairs, three pairs of which in the posterior part of the hysterosoma are longer than the others, though not so long as indicated by BERLESE for *T. badius*. It differs, however, by having short hairs on the anterior part of the hysterosoma, which are not present in BERLESE's drawing, but in this it closely corresponds to the specimens from Canada identified by me as *T. badius* (Berl.) (HAMMER 1952, p. 21, fig. 16). In the faint reticulation of the hysterosoma, especially in the anterior part and in the dense and fine punctuation of the propodosoma, it also corresponds to the Canadian specimens. It differs from *T. badius* (Berl.) in the very short pseudostigmatic organ, which is not much more than half as long as the distance between the interlamellar hairs (fig. 20a), while in *T. badius* (Berl.) it is at least as long as this distance. The same holds good of the Canadian specimens. The club is short and thick, rounded at the tip and about half as long as the stalk. In *T. badius* (Berl.) it is long, slender and pointed at the tip, between  $\frac{1}{3}$  to  $\frac{1}{4}$  as long as the stalk. The rostral hairs are smooth, the lamellar and the interlamellar hairs

finely serrated. Along the lateral sides of the propodosoma there is a chitinous ridge, as also seen in *Trimalaconothrus* and *Malacothrus*. There are three equally strong claws on all tarsi. Fig. 20b shows a nymph. The hysterosoma is white anteriorly, brownish posteriorly. The propodosoma and the legs are brownish. In the anterior part of the hysterosoma it has oblique furrows, the posterior part is reticulate.

The Argentine: At Arroyo de la Cruz de Piedra many adults and nymphs in wet moss and grass, in wet *Juncus* and in thick green moss and *Juncus* between large tussocks of stiff grass, dripping wet. At San Antonio de los Cobres 2 specimens in moist-wet moss, *Juncus* and *Ranunculus* vegetation.

*Mucronothrus rostratus* Trghd.; fig. 21.

The genus was established by TRÄGÅRDH (1931b, p. 31, figs. 60–62) on one specimen captured from moss in a spring, Thorshavn (Strømø, the Faroes). TRÄGÅRDH's description is, however, very poor probably due to adherent foreign matter. The specimen was later remounted by FÖRSSLUND. When studying it it appeared that *M. rostratus* Trghd. is identical with *M. nasalis* Willm. (1933, p. 374, figs. 1–3). The lamellar hairs project beyond the top of the mandibles and not "almost to the top of the mandibles" as TRÄGÅRDH writes. Concerning the interlamellar hairs he writes that "there is a pore without any hair (which may, however, possibly have fallen off in the only specimen captured)". In the figs. 60–61 the interlamellar hairs consequently are absent, but the specimen itself after being remounted shows long interlamellar hairs as indicated by WILLMANN.

The specimens from South America correspond to WILLMANN's description apart from the length of the posterior hairs of the hysterosoma, but as there is a rather great variation in the hair length within my material this difference does not seem to be important. On either side of the propodosoma there is a chitinous ridge, which WILLMANN does not mention. Nor does he mention the hair situated a little in front of and laterally to the pseudostigmata. This hair must in my opinion represent the exopseudostigmatic hair, while the two posterior ones represent the interlamellar hair (the medial one), which is very long, and the pseudostigmatic organ (the lateral one). The latter has a chitinous squama laterally. In the nymph (fig. 21b) this hair is placed within a ring or a deep cup exactly as is the case with the pseudostigmatic organ in many oribatid species. Fig. 21a shows the ventral side. From this it appears that *Mucronothrus* does not belong to the Malaconothriidae, but to the Trhypochthoniidae. The outer frame surrounding the genital and anal plates thus is not closed posteriorly as indicated by WILLMANN, but open and the two lines diverge at the posterior end as in *Trhypochthoniellus*. Moreover, the anal plates are double, as is also the case in *Trhypochthoniellus* and the number of hairs on the genital plates is very great as in *Trhypochthoniellus*, while in *Malacothrus* it is much smaller, only 4–5 pairs. Also the propodosoma bears a great resemblance to *Trhypochthoniellus*, i. e. the strong lamellar hairs are close together and it has a thin shield-shaped rostrum.

The Argentine: In Rio Atuel valley, extremely common everywhere in very

wet biotopes. Near Laguna Atuel 1250 specimens were found in 1/1000 m.<sup>2</sup> taken from wet *Mimulus* vegetation on running water. At Arroyo de la Cruz de Piedra 1470 specimens in an equally large sample from moss growing on the water in a spring. A single specimen was taken at San Antonio de los Cobres in wet moss.

Bolivia: At Unduavi more than a hundred specimens in wet moss on a vertical hang. This species has been recorded from the following localities in other countries:

The island of Herdla at Bergen, Norway (WILLMANN, 1929), in a swampy spring. In bogs and swampy springs in East Sudetia (WILLMANN 1933, 1939, 1956); in Swedish Lappland in a swampy spring (WILLMANN 1943); in Switzerland in moss in a spring (SCHWEIZER 1956); in Austria in Sphagnum (FRANZ 1953). Moreover I have found it in some old material of *Trimalaconothrus* from a bog at Angmagssalik, East Greenland (not published) and again in Swedish Lappland 1956 (not published).

*Trimalaconothrus australis* n. sp.; fig. 22.

Colour light brown. Length 0.73 mm.

The propodosoma and hysterosoma are densely punctate. The propodosoma has on either side an S-shaped ridge, which anteriorly immediately in front of the lamellar hairs is transverse; then it turns outwards and backwards in a broad curve; further backwards it forms a rather deep incurvation and laterally to the exopseudostigmatic hair it makes another arch though not so pronounced as the anterior. Between Legs I and II there is a distinct projection with a rather sharp edge. The rostral hairs are strongly curved. The lamellar and the interlamellar hairs reach the base of the lamellar hairs. The exopseudostigmatic hairs are thin and curved.

The hysterosoma has dorsally two longitudinal ridges, which posteriorly divide almost at right angles into two, the medial ones touching a little in front of the posterior end of the hysterosoma. The anterior hairs on the hysterosoma are very short; the third lateral and two on the posterior end are much longer and a little curved. The ventral side is shown in fig. 22a. By the identification of the *Trimalaconothrus* and *Malacoconothrus* species it is in my opinion of great help to study intensively the ventral side, as the way in which the ventral plates are connected is very variable. In *Trimalaconothrus australis* the cross medially between the ventral plates I and II is "open". Between III and IV there is a regular cross, which is not open. All tarsi have three claws of which the middle one is a little stronger than the lateral ones and also a little shorter. Fig. 22b shows a nymph.

This species in many respects resembles *T. glaber* (Mich.) (Willm. 1931); the latter does not, however, have the S-shaped ridge on the propodosoma. It also bears a great resemblance to *T. grandis* van der Hammen, but can easily be distinguished from the latter by the dorsal ridges and the hairs, which are somewhat longer in *T. australis*.

The Argentine: In Rio Atuel valley at Arroyo Blanco a few in a wet meadow with *Trifolium*, *Juncus*, and *Taraxacum*; near Arroyo Las Chircas some

in dripping wet moss; at Arroyo de Los Pajaritos several in wet moss, stiff *Juncus* etc., one in wet *Calceolaria*; at El Angulo several in moss and grass in seeping water.

At Arroyo de la Cruz de Piedra about 150 specimens in a wet low cushion at the border of a spring. San Antonio de los Cobres a few in moist-wet moss, *Juncus* and *Ranunculus* vegetation.

Bolivia: At Cumbre a few in dripping wet moss, Cyperaceae and low Umbelliferae on the edge of a little brook.

*Trimalaconothrus montanus* n. sp.; fig. 23.

Colour light brown. Length 0.55 mm.

The propodosoma and hysterosoma are covered by a thin layer of secretion consisting of light granules. Below the secretion the integument is smooth. The propodosoma has a distinct rounded projection between Legs I and II. Along the lateral sides of the propodosoma there is a chitinous ridge, which runs as a faint curved line from the rostral hair to the posterior margin of the propodosoma without any greater turn. The rostral hairs are very short and thin. The lamellar hairs which are also very thin, are a little longer than their mutual distance. The interlamellar hairs are considerably stronger and about half as long as their mutual distance. The exopseudostigmatic hairs are very short and thin. A very faint reticulation is seen at the posterior part of the propodosoma.

The hysterosoma has on one side a dorsal longitudinal chitinous ridge, which, however, cannot be seen on the other side. All hairs are very thin, more or less irregularly curved, and almost equally long, on the posterior part, though, a little longer. There are two pairs of oblong pores: one on the shoulders and one in front of the fifth lateral hair. The ventral side, which is very faintly chitinized, is shown in fig. 23a. All claws are equally strong; the middle one is a little shorter.

Bolivia: At Chacaltaya about 5400 m. a. s. l. one specimen in half a centimetre tall very fine moss.

*Malacothrus translamellatus* n. sp.; fig. 24.

Colour yellowish-brown. Length 0.50 mm.

The propodosoma and hysterosoma have a thin layer of secretion grains, which are larger on the propodosoma, very small on the hysterosoma. The integument does not seem to show any structure below this carpet of secretion. Behind a transverse line between the interlamellar hairs the secretion is lacking. The propodosoma has on either side a very strong and distinct chitinous ridge. The two ridges meet at a point on the rostrum between the rostral hairs, each of them making first an incurvation, which is open anteriorly. Along the lateral sides of the propodosoma they show three low protuberances: one off the rostral hair, one off or a little behind the lamellar hair and one off the interlamellar hair. Between Legs I and II there is a distinct projection. The rostral hairs are very thin, a little curved and as long as their mutual distance. The same holds good of the lamellar hairs. The interlamellar hairs reach

beyond the base of the lamellar hairs; they are also very thin. The exopseudostigmatic hairs are thin, curved, a little more than half as long as the lamellar hairs. The hysterosoma has two dorsal chitinous ridges, which posteriorly are bifurcate, the medial branches meeting at a point a short distance in front of the pointed posterior margin of the hysterosoma. Across the posterior end of the hysterosoma a bent line is seen. All hairs are thin, slightly curved, and of almost the same length. The ventral side is shown in fig. 24a. From this it appears that the cross between the ventral plates of Legs I and II is distinctly open, while it is closed between Legs III and IV. Fig. 24b shows a nymph.

The Argentine: In Rio Atuel valley very common everywhere in wet and moist localities (see Tables 2, 4, 6 showing the fauna from different localities).

At Arroyo de la Cruz de Piedra also very common in wet biotopes (see Table 3).

At San Antonio de los Cobres common especially in *Juncus*, wet moss, *Ranunculus* etc.

Bolivia: At Cumbre about 30 specimens in dripping wet grass and a little moss beside a brook. At Chacaltaya about 5000 m. a.s.l. 4 specimens in a dripping wet low cushion and some Cyperaceae in a bog.

*Malaconothrus atuelanus* n. sp.; fig. 25.

Colour yellowish-brown. Length 0.43 mm.

The propodosoma and hysterosoma are apparently without secretion cover. The propodosoma is extremely finely punctate. A slight reticulation can be seen on the posterior part of the propodosoma, but it may originate in fat-cells below. On each side of the propodosoma there is a chitinous ridge; the two are almost straight and parallel in their anterior half; then they curve slightly outwards between the lamellar and the interlamellar hairs, and off the exopseudostigmatic hairs they curve faintly inwards. Between Legs I and II there is an almost rectangular projection. The rostral and the lamellar hairs are strongly curved backwards. The rostral hairs are only half as long as their mutual distance; the lamellar hairs a little shorter than their mutual distance; the interlamellar hairs are almost as long as their mutual distance. The exopseudostigmatic hairs are rather strong and half as long as the lamellar hairs. The hysterosoma has on either side a longitudinal chitinous line, moreover a transverse line immediately in front of the rounded posterior end of the hysterosoma. All hairs are of approximately the same length, on an average half as long as the interlamellar hairs. Fig. 25a shows the ventral side. The cross between the ventral plates of Legs I and II is distinctly closed, while *T. translamellatus* in this place has an open space where the four lines meet (cp. figs. 24a and 25a).

The Argentine: In Rio Atuel valley at the estancia El Sosneado 3 specimens in wet moss in the drinking water canal; near Arroyo Las Chircas about 20 specimens in wet moss beside a little brook on the mountain side; about 100 specimens in dripping wet moss not far from the first locality, a few in wet moss and *Juncus*.

*Malacoonthrus mollisetosus* Hammer (1952, p. 22, fig. 19); fig. 26.

Colour yellowish-brown. Length 0.40 mm.

The propodosoma and hysterosoma covered by secretion; the strongly refractant grains, separated by greyish meshes, are very small and dense on the anterior part of the hysterosoma; on the propodosoma and the posterior part of the hysterosoma they are of various sizes and make the propodosoma look almost reticulate. Below the secretion the hysterosoma is pitted, the propodosoma is smooth. The propodosoma has on either side a chitinous ridge which follows along the lateral sides of the propodosoma in its anterior half; then it turns outwards and then backwards forming a rounded curve off the exopseudostigmatic hairs. Near the posterior border of the propodosoma there is a transverse ridge, which laterally ends in a small protuberance. The projection between Legs I and II is almost rectangular, the outer part directed slightly forwards. The rostral hairs are straight, rather strong and about two thirds as long as their mutual distance. The lamellar hairs are very thin and a little longer than their mutual distance. The interlamellar hairs are also thin and a little longer than the lamellar hairs. The exopseudostigmatic hairs are half as long as the interlamellar hairs, thin. The hairs of the hysterosoma are all very thin, irregularly bent, on an average a little longer than the interlamellar hairs. Most of the hairs are bent at almost right angles near the base and directed outwards. The hysterosoma is rounded at the posterior end; the sides are parallel. Fig. 26a shows the ventral side, on which is seen an open cross between the ventral plates of Legs I and II, different from the one in *T. translamellatus*, however. The cross between the ventral plates of Legs III and IV is closed.

The Argentine: In Rio Atuel valley several specimens in wet stiff *Juncus* on the edge of Arroyo de Los Pajaritos. At Arroyo Plomo one specimen in moist *Juncus* and *Ranunculus* under a bush. Previously found in Northern Canada at Yellowknife and Churchill in wet meadows (HAMMER 1952). In Swedish Lapland found by the author in a spring with moss 1956 (not published).

*Malacoonthrus conicus* n. sp.; fig. 27.

Colour yellow-brown. Length 0.43 mm.

The propodosoma and hysterosoma are covered by a secretion layer of very small and dense granules. No structure below the secretion. The anterior part of the propodosoma is very narrow, conical. The projection between Legs I and II is very outstanding, rectangular, ending in a forward directed tooth. The rostral hairs are situated rather far backwards and reach beyond the tip of the rostrum by about half their length; they are slightly shorter than their mutual distance. The lamellar hairs are also situated farther backwards than usual, about the middle of the propodosoma. They are as long as their mutual distance, directed backwards and very thin. The interlamellar hairs are of the same length as the lamellar hairs, the exopseudostigmatic hairs about half as long. The chitinous ridge on either side of the propodosoma is almost straight in the anterior two thirds of its length; then it turns outwards at

right angles into the projection between Legs I and II. A slight continuation of its striped structure can, however, be seen in direct continuation of its straight course. Behind the interlamellar hairs there is an undulating line and in front of the latter the structure of a fat-gland can be seen. The hysterosoma is pointed posteriorly. The hairs are very thin, rather long and irregularly curved. Fig. 27a shows the ventral side, which has remarkably big spines, where Legs I and II join the ventral plates. The cross between the ventral plates for Legs I and II is closed and the longitudinal ridge from the anterior margin of the ventral plate II is not so distinct as in the above mentioned species. Genital and anal plates are very narrow and of the same length.

The Argentine: At San Antonio de los Cobres one specimen in a moist meadow on a mountain side grown with *Juncus* and a Composite resembling *Taraxacum*.

*Malaconothrus robustus* n. sp.; fig. 28.

Colour brownish. Length 0.41 mm.

The propodosoma and hysterosoma are covered by secretion consisting of very small dense granules, smallest on the hysterosoma. Along the lateral sides of the hysterosoma, especially along the two dorsal chitinous ridges and partly between them (within the area marked by a punctate line) the structure consists of scattered much larger, more or less confluent light spots against a darker brown background. The chitinous ridge on either side of the propodosoma form a broad translamella. The rostral hairs are situated on or in front of a distinct protuberance on the end of the ridge. They are very broad, the distal end turned outwards; they are about one and a half times longer than their mutual distance. The projection between Legs I and II is bordered by a brown chitinous edge, a continuation of the lateral chitinous ridge, which, however, also continues backwards as a slightly striped line. Medially to the lateral chitinous ridges there are several large light areas surrounded by thick greyish meshes. Similar areas can be seen between the interlamellar hairs. The lamellar hairs are very thin and a little longer than their mutual distance. The interlamellar hairs and the exopseudostigmatic hairs also thin.

The two longitudinal ridges on the hysterosoma form at their posterior end a deep V-shaped figure. Indistinct ridges run from the posterior end of the ridges laterally to the lateral-posterior end of the hysterosoma. A transverse line is seen immediately in front of the posterior rounded end of the hysterosoma. The ridges are more or less striped. The hairs are straight and stiff, almost as broad as the rostral hairs, of medium length. Fig. 28a shows the ventral side. From this it appears that this species is different from the one mentioned above, also in the appearance of the ventral side. Thus the longitudinal ridge between the ventral plates I hardly projects beyond the anterior border of the ventral plates II, and therefore not forming a cross.

Bolivia: At Chulumani about 90 specimens in thick luxurious moss on a vertical hang over a ditch, moist.



*Malacoethrus angulatus* n. sp.; fig. 29.

Colour light brown. Length 0.40 mm.

The propodosoma and hysterosoma are covered by secretion consisting in equally large and dense refractant granules. The chitinous ridge on either side of the propodosoma is almost straight in its anterior half; further backwards it continues in a distinct projection between Legs I and II. The outer point of this projection ends in a forwards directed rounded protuberance. The rostrum is rounded and narrow. The rostral hairs are very thin, not quite so long as their mutual distance. They reach beyond the anterior border of the rostrum by about half their length. Lamellar and interlamellar hairs are also very thin and of about the same length as the rostral hairs, the exopseudostigmatic hairs short and thin. The secretion layer is lacking on the posterior part of the propodosoma. The hysterosoma is shield-shaped. The hairs are thin and flexible, rather long, those in the dorsal rows thus able, if straightened out, to reach the base of those posterior to them. Fig. 29a shows the ventral side. Both crosses between the ventral plates are closed and the longitudinal ridge between the ventral plates for Leg II is very short.

The Argentine: At Quebrada de Gallinato near Salta one specimen in liverworts on a slope over a dry arroyo sheltered by thick bushes, only a very little moist.

*Camisia segnis* (Herm.) (Grandj. 1936a); fig. 30.

The specimens deviate a little from the description given by GRANDJEAN (1936, p. 38, figs. 1-2). Thus the apophyses of the rostral hairs are situated obliquely so that the distance between their ends is somewhat smaller than that between their bases. The hairs on the anterior margin of the hysterosoma and along the dorsal ridges are thinner and especially more pointed. The two posterior hairs K 1<sup>1</sup> are much longer, curved, pointed, and have many more pointed secondary bristles or branches (fig. 30a). PN 1 cannot be seen from the dorsal side. The posterior border between the hairs K 1 is almost straight.

Length 0.83 mm. The hysterosoma has pits which are refractant at the bottom.

Bolivia: At Cumbre about 100 specimens in moss, grass, and low cushions, moist-wet; a few nymphs in various biotopes. East of Cumbre a few nymphs in moss, grass, and low cushions. At Chacaltaya about 5400 m. a.s.l. one specimen in coarse *Polytrichum* between stones near the snow. About 4900 m. a.s.l. about 20 specimens in low moss, a little grass and low Umbelliferae, moist. Known from many countries in Europe.

*Camisia australis* n. sp.; fig. 31.

Colour yellowish-brown. Length 0.75 mm.

The propodosoma with deep pits, the hysterosoma with lower pits of appearance as honeycombs. The propodosoma is pointed. The rostrum has on the tip two tiny toothlike projections, which are the ends of two chitinous ridges between the apophyses

<sup>1</sup> See SELLNICK and FORSSLUND (1955).

of the lamellar hairs. The rostral hairs are smooth and rather broad, curved slightly outwards. The lamellar hairs are situated on long apophyses, which reach the tip of the rostrum. Their bases are very broad so that they almost meet medially. As the apophyses incline, the distance between their ends is only half as long as that between them just before they widen into the base (fig. 31 a). The lamellar hairs are as long as the apophyses, curved inwards at the tip. They are strong, densely covered with thick bristles rounded at the tip. The interlamellar hairs are tiny, thin, and short bristles. The pseudostigmatic organ, which is directed outwards, has a round head set with short spines and a thin stalk. Between the interlamellar hairs and the bases of the lamellar apophyses there are two distinct converging chitinous ridges, which almost reach the lamellar apophyses. The posterior border of the hysterosoma is almost round as in *Camisia lapponica* (Trghd.). The hysterosoma has two longitudinal dorsal ridges, which almost reach the anterior border of the hysterosoma. All hairs on the anterior part of the hysterosoma are short, almost smooth and pointed. Farther posteriorly they are set with short rounded lobes or spines (F 2, PN 1 and PN 3) or densely covered with longer spines (K 1). All the latter are situated on apophyses; K 1 on large apophyses. PN 2 is short and almost smooth. F 1, which is present in *C. borealis* (Thorell), the species which has the greatest resemblance to *C. australis*, is absent. All tarsi have three equally strong claws.

The Argentine: In Rio Atuel valley near Arroyo Las Chircas one specimen in wet *Mimulus* and moss in seeping water from a spring on a mountain side.

*Nothrus suramericanus* n. sp.; fig. 32.

Colour light brown. Length 0.80 mm.

The slit in the rostrum goes as far backwards as to the base of the rostral hairs. The latter are smooth, a little longer than half their mutual distance and slightly inclined. The lamellar hairs are very little longer, twice as broad, finely serrated and slightly curved inwards. The distance between them is about the same as between the rostral hairs. They are situated on distinct apophyses, the bases of which are separated by a chitinous line which is about one and a half times longer than the base of the apophysis. The interlamellar hairs are stiff, rough bristles about half as long as the pseudostigmatic organ and just as thick as the latter. The pseudostigmatic organs are at their base directed forwards, but leaving the cup they curve outwards and slightly backwards. They are not, as usual in *Nothrus*, thin threads, but rather thick clubs set with fine hairs (fig. 32 a). The pseudostigmatic organ is about as long as the distance between the interlamellar hairs. The exopseudostigmatic hairs are thin. The structure of the propodosoma consists of deep pits finely striped. The structure of the hysterosoma also consists of pits, though not so regular as on the propodosoma (see fig. 32 b). Along the lateral margin the pits are much smaller. Most of the hairs are almost smooth, maybe a little rough and stiff. They are situated as shown in fig. 32. C 1<sup>1</sup> and C 2 are close together as in *N. borussicus* Sell. The hairs on the posterior end are thicker than the anterior ones. They are club-shaped and

finely hairy (see detail of PN 2 in fig. 32c). K 1 is very long, smooth and extremely thin at the tip; the proximal end is surrounded by secretion. This species bears great resemblance to *N. palustris* C. L. Koch as regards K 1, but it differs in the position and the shape of the hairs of the hysterosoma, moreover in the short and thick pseudostigmatic organ. All tarsi have 3 claws, the midmost of which is the strongest. Tarsus I is shown in fig. 32d. On the ventral side the epimeres I and II from the left and right side are not separated, the epimeres III from left and right side separated by a distinct slit.

In the younger nymphs the pseudostigmatic organ is very long and thin. All hairs of the hysterosoma are thick, hairy, and club-shaped as seen in fig. 32c of PN 2. The species shows great variation. Thus the hairs of the hysterosoma in some specimens are longer and slender (sometimes a little thicker at the tip), the pseudostigmatic organ is also a little longer. In one specimen from Cumbre PN 1 is thin and almost as long as K 1, while another specimen from the same sample has a PN 1 only a little elongate. The variations are seen especially in the case of PN 1, which sometimes is of the same thickness throughout, sometimes with a thicker club than shown in fig. 32.

The Argentine: In Rio Atuel valley at Arroyo de Los Pajaritos common in many biotopes, i. e. in wet stiff *Juncus* sprayed by water. At Arroyo El obscuro very common in a moist cushion near the edge of the river. Moreover, it has been found in several other localities in Rio Atuel valley (see Table 1).

At Arroyo Plomo a few individuals in a moist cushion near the water. At Arroyo de la Cruz de Piedra rather common in moss, grass, and Cyperaceae near the arroyo, in wet *Juncus*, in *Calceolaria* with a little moss on the edge of the arroyo.

At San Antonio de los Cobres a few specimens in luxurious green moist moss.

Bolivia: At Cumbre a few in a dry mosslike cushion; a few nymphs in dripping wet grass and mosses.

*Platynothrus skottsbergii* Trghd. (1931 a, p. 556, figs. 7-10); fig. 33.

Colour brown. Length 1.01 mm.

The rostral hairs, which are situated on either side of the rostral protuberance, are finely serrated, almost smooth, directed forwards and outwards and about twice as long as their mutual distance. The lamellar hairs sit on short apophyses connected by a chitinous line. They are broader and longer than the rostral hairs, and about twice as long as their mutual distance. They are parallel and set with short hairs. The interlamellar hairs are thin and smooth and as long as the rostral hairs. The exopseudostigmatic hairs are very short. The pseudostigmatic organs are rather short clubs, which are slightly pointed at the end (fig. 33a); as seen from the dorsal side they are not much more than half as long as the lamellar hairs. Posteriorly to the pseudostigmata there are broad swellings meeting medially with two more indistinct ones. The structure of the propodosoma consists of deep pits separated by densely

punctate meshes. The hysterosoma is broadest a little behind the middle, the posterior part rounded. Along the lateral sides there is a thin undulating ridge outside of which the structure is very finely striated, hardly visible. A little deeper some dark spots can be seen as irregular pits. The colour of this field which is marked laterally by a fine line may be a little darker than its nearest surroundings laterally and medially to it. The middle of the hysterosoma has more scattered and indistinct light punctures or pits. The hairs of the hysterosoma are thin smooth spines, which are situated as shown in fig. 33. Along the posterior end the hairs are placed on short apophyses. The epimeres I and II from the left and the right sides have grown together, while the epimeres III and IV are separated by a slit running at least halfway through epimeres III. All epimeres have small brown thick protuberances along the border. As pointed out by SELLNICK and FORSSLUND (1955) the genital plates of the species belonging to *Platynothrus* have a light transversal band; this is seen also in *P. skottsbergii*. The genital plates have on the inner margin 20–21 pairs of hairs. All tarsi have three equally strong claws. Tarsus I is shown in fig. 33b.

This species no doubt belongs to *Platynothrus* even if in some ways it differs from the characters given by SELLNICK and FORSSLUND (1955). Thus the epimeres III are halfway separated (in *Platynothrus* the epimeres I–III have grown together and only IV are separated. In the case of *P. thori* (Berl.) this is not, however, the case, as all epimeres have grown together). It has 3 claws, while all other *Platynothrus* species have only one claw. The number of claws is, however, very variable within many genera.

The nymph has lateral brown glands at the posterior end of the hysterosoma, which is slightly yellowish. It is easily distinguishable from the nymph of *P. quadristriatus* (see below), which is white and without dark glands.

The Argentine: In Rio Atuel valley near Arroyo Las Chircas abundant in dripping wet moss from a spring on a mountain side. Near Laguna Atuel numerous specimens, especially in moist vegetation of *Juncus* and *Ranunculus*, but also in dripping wet moss; common, however, in almost all biotopes from this locality. At El Angulo common in wet *Juncus*. At Arroyo Plomo a few specimens in very wet vegetation of *Juncus* and *Ranunculus*. At Arroyo de la Cruz de Piedra numerous in a low thick cushion near a spring and in wet mosses.

Recorded from Juan Fernandez, Masatierra, among mosses and leaves (Trghd. 1931 a).

*Platynothrus quadristriatus* n. sp.; fig. 34.

Colour light brown-brown. Length 0.98 mm.

The rostral hairs are situated close together, almost touching at their broad bases. They are thick and strongly curved. The lamellar hairs are situated on large apophyses which have grown together at their bases. The distance between the apophyses is twice as long as the apophysis is broad at the end. The lamellar hairs are parallel, densely set with short hairs and about twice as long as the distance between

the ends of the apophyses. The interlamellar hairs are slightly curved, smooth and about two thirds as long as their mutual distance. The exopseudostigmatic hairs are fine. The pseudostigmatic organs are short, not much longer than the interlamellar hairs. They are slightly thicker at the end and provided with short spines or hairs (fig. 34a); they are directed slightly forwards. The structure of the propodosoma consists of deep light pits separated by brown meshes, which are indistinctly punctate. The posterior part of the propodosoma has three thick swellings, of which that in the middle has a deep hollow medially opening forwards. The hysterosoma has in the middle two longitudinal chitinous ridges, each consisting of a double undulating line the lateral part of which is the thickest. Between these ridges there are many scattered deep punctuations especially densely arranged along the medial lines. A few punctures can be seen also outside the ridges. Between the middle ridge and the lateral side of the hysterosoma there is a single undulating ridge and laterally to the latter a third very thin line. The hairs of the hysterosoma are smooth, stiff, almost straight spines arranged as shown in fig. 34. On all specimens examined C 1 is directed medially, C 2 a little forwards and medially. On the posterior border of the hysterosoma the hairs are situated on short apophyses. Apart from the punctuation between and along the double medial ridges no structure of the hysterosoma can be seen. The epimeres I and II from the left and the right side have grown together, while epimeres III and IV are separated by a slit. All epimeres have dark chitinous borders consisting of small knobs. The number of hairs on epimeres I-IV is 3:1:3:4 (5). The genital plates have a light transverse band and on its inner margin 22-23 pairs of hairs. Tarsus I is shown in fig. 34b. All tarsi have only one claw.

As mentioned under *P. skottsbergii*, the nymph has no dark glands on the posterior half of the hysterosoma. The hysterosoma is white throughout and the apophyses of the lamellar hairs are much bigger than in the case of the nymph of *P. skottsbergii*.

The Argentine: At Arroyo de la Cruz de Piedra numerous in wet thick green moss and a little *Juncus* between large tussocks of pricking grass.

*Platynothrus altimontanus* n. sp.; fig. 35.

Colour brown-dark brown. Length 1.22 mm.

The rostral hairs are thin, smooth, curved outwards and twice as long as their mutual distance. The lamellar hairs are placed on rather big apophyses, which are half as broad as their mutual distance. They are parallel and directed forwards, very finely hairy, and about twice as long as the distance between the distal ends of the apophyses. The interlamellar hairs are smooth, straight, and directed forwards; they are a little longer than two thirds of their mutual distance. The exopseudostigmatic hairs are very thin. The pseudostigmatic organ has a short clavate head, rounded at the end and set with short spines or hairs; the stalk is very thin and directed outwards. The structure of the propodosoma consists of deep light pits separated by brown meshes, which are distinctly punctate. Behind the pseudostigmata there are

strong swellings which are separated medially by a hollow or depression opening forwards. The hysterosoma is broadest a little behind the middle, the posterior end is rounded. Medially on the dorsum there are two broad ridges, which on either side have deep pits cutting into them. Anteriorly the ridges approach each other and almost meet between D1, after which they dissolve in scattered pits. Also posteriorly they incline, thus forming a large oval. Laterally to the latter there are two more chitinous lines, both very thin. The hairs of the hysterosoma are thin, smooth, slightly curved spines, arranged as shown in fig. 35. On the posterior border the hairs are placed on very short apophyses. The structure of the hysterosoma, apart from the two rows of deep pits along the dorsal medial ridges and irregularly scattered pits between and outside the ridges, consists of very finely striated integument (hardly visible) with scattered light punctures below, which likewise are very indistinct. In some specimens a brown line as a semicircle can be seen opening forwards between the hairs PN 2. The epimeres I and II have grown together, while III and IV are separated by a slit. The number of hairs on the epimers I–IV is 3:1:3:4. The genital plates have a light transverse band. All tarsi have 3 equally strong claws. Tarsus I is shown in fig. 35 a. The nymph has yellow-brown lateral glands on the posterior half of the hysterosoma.

Bolivia: East of Cumbre numerous specimens in vegetation of one cm. high Umbelliferae with a little grass, wet; also in some samples from moss. At Cumbre in dripping wet grass, moss, and a Composite near a brook. At Unduavi a few specimens in wet moss and grass on a vertical cliff, and in luxurious moss on the same place. At Chacaltaya about 5400 m. a.s.l. numerous specimens in the same kind of Umbelliferae as found east of Cumbre.

*Scapheremaeus clavifer* n. sp.; fig. 36.

Colour light brown. Length 0.47 mm.

The rostral hairs, which are situated on small apophyses connected by a broad chitinous ridge, are distinct, as long as their mutual distance, and directed slightly outwards. The lamellar hairs are very small—it there are any—only a light puncture on the transversal ridge indicates the place for them. The interlamellar hairs are very short and thin, but as they sit on apophyses or maybe in deep pores at an unusually short distance behind the translamella they can easily be seen. Two longitudinal lamellae run from the pseudostigmata forwards until they reach the lateral sides of the propodosoma; there they bend at right angles continuing as a translamella. The middle third of it is the real translamella. At each end it has a forward directed longitudinal ridge, which goes to a point just behind the rostral hairs. At the anterior end they are connected by a curve. Between the lamellae there are two oblique ridges, which end between the interlamellar hairs. The pseudostigmatic organ has a thin stalk and a dark globular head as long as the stalk. The organs are situated in deep cups, and only the head reaches beyond the border of the cup. The lateral parts of the propodosoma have regular pits. The dorsal side is covered by secretion and

scattered adhering dirt. The hysterosoma has on the shoulder edge a long curved chitinous hook, directed forwards and downwards. The hysterosoma is broadest behind the middle. The posterior border is flat or rather slightly impressed. The marginal zone is irregularly striated by weak chitinous folds. On the anterior border there is a light area, which continues to both sides though less distinct, bordered partly by ridges coming from the shoulder, partly by a strong ridge situated in front of the middle field. The latter is surrounded by two thick lines, which, however, are not complete all the way round, but in some places disappear more or less or are merged. The middle field is egg-shaped apart from a low round projection from the posterior end of the field into the marginal zone, caused by a long lobe-like "thing". Off the latter the marginal zone is somewhat narrower. The structure in the middle field consists of irregular indistinct knobs, perhaps due to the secretion; foreign particles adhere, but only in small degree. The hairs of the hysterosoma are very short, but rather stiff. Two pairs can be seen at the posterior end, one pair near the shoulder, and two also in the marginal zone behind the shoulder hair. None has been seen in the middle field. All hairs are situated in deep pores. There are two pairs of long chitinous slits, one a little behind the middle of the hysterosoma, the other farther backwards. The genital and the anal plates are separated by a distance as long as the breadth of the genital plates. All tarsi have one strong claw only. Tibia I has distally a big protuberance with a long curved hair and a short distance from this a thick hairy or rough brush-like spine (fig. 36 a), which has a cushion-like swelling at the tip. In the middle of the lateral side of Genu I there is a small round hole, which opens out to the surface by a narrow slit; the function may be the cleaning of a special hair. On the inside of Femur I there is a light area like a window or membrane surrounded by narrow ridges. Has it something to do with the spine on the tibia?

The Argentine: At Rio Caldera valley near Salta one specimen in a thin layer of moss, which was only slightly moist, on a cliff of chalk, sheltered by trees.

*Scapheremaeus trirugis* n. sp.; fig. 37.

Colour dirty brown. Length 0.41 mm.

The rostral hairs are thin, but distinct, as long as their mutual distance; they are curved slightly inwards. The lamellar hairs are tiny. They are situated on the end of a short translamella. The lamellae run from the pseudostigmata in a longitudinal direction anteriorly to the lateral sides of the propodosoma, where they bend inwards forming a sharp protruding edge; then they follow the sides of the rostrum until a little distance behind the tip of rostrum, where they are connected by a translamella as long as the two obliquely directed parts of the lamella. The space between the lamellae is wrinkled with many irregular chitinous folds. The lateral parts of the propodosoma have thick brown chitinous knobs. Tercp. II distinct. The interlamellar hairs are not visible. The pseudostigmatic organs are flat, oblong with longitudinal stripes. They are placed on a thin stalk which is about one and a half times longer than the head. The latter is turned backwards. The hysterosoma has pointed shoulders;

the anterior and posterior borders are rounded. The hysterosoma is broadest a little behind the middle. The broad marginal zone has radiating chitinous folds, which do not all reach the border of the middle field. The edge of the marginal zone is densely wrinkled, almost serrated by short chitinous folds. Immediately behind the anterior border of the hysterosoma there is a light area. The middle field has three undulating longitudinal folds or wrinkles, which are abrupt in several places. The middle one seems to be at a somewhat higher level. Between the wrinkles the integument is much lighter than outside the wrinkles, where some smaller wrinkles or folds can be seen. In the light field there are two pairs of tiny hairs, each in a small dark area. On the posterior border of the hysterosoma there are three pairs of thin short hairs, maybe more. Near the pointed shoulder edge there is a hair also in a slightly darker area. Tibia I has a big protuberance with a long hair. There is one strong claw on all legs. All tarsi have a number of long bent hairs with a knob at the end. The genital and the anal plates are separated by a distance almost as long as the genital plates are broad.

The Argentine: The Rio Caldera valley near Salta one specimen in mosses on a cliff with oozing water.

*Scapheremaeus glaber* n. sp.; fig. 38.

Colour dirty light brown. Length 0.56 mm.

The rostral hairs which sit on the anterior border of the rostrum are rather thin, stiff, almost parallel, and as long as their mutual distance. The lamellar hairs are slightly stronger, spine-like and a little more than half as long as the rostral hairs. They are situated on small apophyses on the translamella, the distance between them being twice as long as the hair. Interlamellar hairs have not been seen. The lamellae are almost parallel, strongly chitinized and equally thick throughout. At the anterior end they incline in an even curve and are connected by a translamella, which is a little broader than the lamellae and scarcely half as long. The space between the lamellae has a rough surface with irregular, low indistinct pits; posteriorly there are short chitinous ridges directed towards the pseudostigmata. The pseudostigmatic organ is dark globular on a stalk as long as the head. It is directed outwards and forwards. The sides of the propodosoma are densely set with brown knobs in parallel rows.

The hysterosoma is of almost equal breadth throughout; the anterior border has broad rounded shoulders, the posterior border is rounded. The middle field is surrounded by a narrow brown ridge. Outside the latter there is all the way round a narrow light zone not broader than the ridge. On the anterior part of the hysterosoma there is a light area. The whole dorsal surface of the hysterosoma is smooth; one specimen, however, has a slightly wrinkled integument with light spots surrounded by darker, dotted irregular winding bands (fig. 38a). The hairs which are dark and spinelike are situated as shown in fig. 38. On the posterior border is a pair of oblong chitinous slits, and laterally along the middle field two pairs of round openings. The genital and the anal plates are separated by a distance slightly longer than the genital plates are broad. The genital plates have 4 pairs of hairs, the anal plates two pairs.



All tarsi have three claws, a strong middle one and two very thin lateral claws. Tibia I has a big protuberance with a long hair. Fig. 38b shows a young nymph, the older ones are still more wrinkled.

Bolivia: Cumbre 2 specimens in wet thin *Polytrichum* on almost bare soil on cliffs; 3 adults and 5 nymphs in wet grass with a little moss on the same spot of soil, all at an altitude of about 4200 metres.

*Scapheremaeus stratus* n. sp.; fig. 39.

Colour dirty brown. Length 0.57 mm.

The rostral hairs, which are situated on small apophyses, are stiff, directed slightly outwards and about two thirds as long as their mutual distance. The lamellar hairs are thinner and only half as long. They are situated on big apophyses, which are longer than the hairs. The lamellae which do not reach the pseudostigmata, but start a little in front of the latter, are almost parallel and of equal thickness throughout; at the anterior end they are connected by a translamella of the same thickness, on either end of which is the lamellar apophysis. No interlamellar hairs can be seen. The space between the lamellae has irregular knobs which are more or less merged into transversal bands or windings forming a confusing pattern. Posteriorly this field is bordered by an almost complete transversal ridge, from the middle part of which two ridges run towards the pseudostigmata. On the lateral sides of the propodosoma the integument has small knobs arranged in rows. The pseudostigmatic organ is globular on a stalk as long as the head. The head is dark, almost black, and directed forwards and outwards.

The hysterosoma is a regular oval without shoulder edges. The whole surface is covered by brown flat round units which fit together completely as the stones in a pavement. Hence the name. The background is yellow light or translucent and each unit has at a certain level in the microscope as a darker spot in the middle. There are about 30–35 in a row across the middle of the middle field. In the marginal zone they are irregular and more or less confluent into radiating stripes. Along the border of the middle field they are slightly narrower and arranged in a broad arch following the contour of the middle field. A distinct light spot without any sculpture is seen on the anterior part of the hysterosoma. The hairs which are situated as shown in fig. 39 are grey and stiff, spinelike. The genital and the anal plates are separated by a distance as long as one genital plate is broad. Tibia I has a long protuberance with a long hair. All tarsi have 3 claws, a strong middle claw and two thin lateral ones.

Bolivia: At Cumbre one specimen at about 4200 m. a.s.l. in a thin layer of wet *Polytrichum* together with *S. glaber*, on almost bare soil among cliffs.

*Gymnodamaeus elegantulus* n. sp.; fig. 40.

Colour light brown. Length 0.48 mm.

The rostral hairs are thin and flexible, completely covered by secretion. They are situated almost off the lamellar hairs and reach the tip of the rostrum. The lamellar

hairs which are situated a little further back than the rostral hairs are also very thin, they are curved at the tip and about as long as their mutual distance. They reach a little beyond the tip of the rostrum. The interlamellar hairs are not visible, but there are on the lamellae two small "cups" with a light spot which might indicate the presence of a minute interlamellar hair. The pseudostigmatic organs which are one and a half times longer than their mutual distance are very thin, flexible threads, which in their outmost two thirds are set with rounded blades placed in such a way that it looks like a slender screw (fig. 40 a). The lamellae pass in front of the pseudostigmata, first almost transversally, then they turn slightly forwards, meeting in the middle in a low arch. In front of the latter is a transverse ridge and further anteriorly a square bordered by chitinous ridges. Laterally to the square and to the lamellae there are distinct light areas. The propodosoma is everywhere covered with a layer of secretion which in many places forms borders with parallel secretion threads, i. e. along the transverse part of the lamellae and along the transverse ridge in front of the lamellae. Tectp. I and II are well developed.

The hysterosoma is circular. Behind its anterior border there is a transverse ridge, which laterally turns backwards, forming a small arch, in the concave side of which there is a slit. Moreover, a long chitinous slit is seen almost in the middle of the hysterosoma laterally, and on the posterior border a pair of shorter slits. There are two very thin feathered hairs close together at the end of the hysterosoma. They are covered by secretion and are as long as or a little longer than the lamellar hairs. A pair of short thin hairs situated on the ventral side can be seen on either side of the longer hairs, close to them. Across the hysterosoma are two rows of small brown knobs forming an almost complete arch. They may be secreted by glands below or the whole appearance may be accidental. On the posterior part of the hysterosoma the secretion grains are placed in small groups which are arranged in rows. A little amount of dirt adheres to the secretion. The genital and the anal plates are separated by a distance half as long as the genital plates are broad at their posterior ends. The legs, as is typical of *Gymnodamaeus*, are very long and slender. The tarsi have three claws on a thin stalk, the one in the middle is the stronger. The hairs of the legs are feathered with the longest branches on the outside of the hair. The rostral and the lamellar hairs might be feathered also, but due to the thick layer of secretion it is impossible to decide.

The Argentine: In the Rio Caldera valley about 10 km. north of Salta one adult and two nymphs in a thin layer of almost dry moss on a chalk cliff shaded by trees.

*Pedrocortesia* n. gen.

This genus which belongs to the Eremaeidae has no real lamellae but a broad field in the middle of the propodosoma on all sides bordered by ridges. The pseudostigmatic organ is a short thick brush. Tectp. I is well developed. The hysterosoma, which is separated from the propodosoma, is oval. There are no depressions, keels, teeth, or the like on the transition between propodosoma and hysterosoma. The whole

animal is covered with secretion. The genital and anal plates are big, touching each other. The legs are rugged, strongly chitinized with 3 claws at the tip of a thin stalk. The joints of the legs are inserted deeply into each other. The mandibles are slender and have strong teeth.

*Pedrocortesia mirabilis* n. sp.; fig. 41.

The rostrum is rounded. The rostral hairs, which are situated on the lateral sides of the rostrum, are very thin and smooth. They reach in an arch a little beyond the tip of the rostrum. The lamellar hairs are situated near the lateral sides of the rostrum, halfway between the tip of the rostrum and the first leg. They are very thin, smooth and reach a little beyond the tip of the rostrum. The interlamellar hairs are very short spines, situated close to the pseudostigmata; at the base they are surrounded by a thick chitinous ring. They are situated on the posterior end of a faintly chitinized ridge or lamella; the two ridges form a low abrupted arch just in front of the anterior margin of the hysterosoma. In the middle of the propodosoma there is a big field with pits in regular rows, anteriorly marked by a thin transversal ridge which in the middle projects into a short point. Laterally on the posterior border there is on either side a strong tooth which corresponds to a similar tooth, though considerably bigger a little farther posteriorly. Between the posterior teeth there is a transversal ridge. On the lateral sides of the pitted middle field there is posteriorly a curved ridge which anteriorly is merged with the chitinized lateral sides of the propodosoma, thus not forming real lamellae. The pseudostigmatic organ, which is short, club-shaped, and covered with hairs or spines like a thick brush is directed outwards. The head and the stalk are of equal length. The organ is situated in a deep cup, which has a small tooth anteriorly, a larger one posteriorly. Tectp. I and II are well developed. The hysterosoma is an almost regular oval; on the posterior end there are two pairs of thin, smooth, and curved hairs, the two in the middle being placed close together. The hysterosoma has four pairs of chitinous slits: one pair anteriorly behind the pseudostigmata, two laterally in the middle and one laterally immediately in front of the anterior hair at the posterior end of the hysterosoma. The sculpture consists of regular round clear pits. The whole surface is covered by a layer of secretion which along the borders looks like an undulating veil. The genital and the anal plates are close together their frames touching in the middle (fig. 41 c). The genital plates have 7 pairs of hairs, the anal plates two pairs. The legs are inserted close to the lateral edge and there furnished with strong spines. The epimers from the left and the right side have grown together. A transversal slightly chitinized ridge separates the epimeres I and II from III and IV. The integument is wrinkled and pitted. All hairs on the ventral side are thin. The legs, which are short and thick are strongly chitinized and very rugged. The joints are as within the Decapoda (Crustacea) put into each other and by protuberances and depressions fitted nicely together. Tibia I has distally a broad protuberance with tactile hairs (fig. 41 d). All tarsi have three claws of which the middle is the stronger. They sit on the end of a thin stalk

as long as the claws. All legs are covered by secretion, which as a veil closely follows all outlines. Fig. 41 a shows the mandible, which has strong teeth. The mandibles are rather slender. Fig. 41 b shows the maxilla and the palp. The stomach contents from several specimens showed that this species feeds on fungus hyphae. The genus is named after Chief Engineer PEDRO CORTES, superintendente at Mina "Volcan Overo" and our most helpful host during our stay at El Sosneado.

The Argentine: In the Rio Atuel valley at El Angulo at an altitude of about 3400 metres 8 specimens in a dry low cushion in fell-field consisting of crumbling cliffs.

*Damaeolus saltaensis* n. sp.; fig. 42.

Colour slightly light brown. Length 0.25 mm.

The rostrum is pointed with a small protruding "nose". The rostral hairs, which are situated on the lateral side of the rostrum rather far back, are thin and slender, smooth, and reach only slightly beyond the tip of the rostrum. The lamellar hairs are likewise smooth and thin, and curved slightly inwards. They sit on either end of a translamella the ends of which continue backwards as a keel. The lamellar hairs are a little longer than their mutual distance. They reach beyond the tip of the rostrum by about one third. Behind the transversal ridge there are two curved ridges which continue round the anterior border of the pseudostigmata. There they meet the lamellae, which form a broad arch with a little projection in the middle, on either side of which there is an interlamellar hair. The distance between them is as long as the hairs. They are stiff, rather thick, and directed forwards. Between them is seen a faint chitinization. The exopseudostigmatic hairs cannot be seen with certainty, but there are short apophyses for their insertion. The pseudostigmatic organs are in their proximal half threadlike, then thickening towards the end into thin clubs, but pointed at the tip. They are directed outwards and are about one and a half times longer than their mutual distance. The propodosoma is covered with secretion.

The hysterosoma is almost oval, though a little pointed at the posterior end; the anterior border is rather strongly chitinized, faintest in the middle. On the dorsal surface are four low depressions separated by smooth, broad lists. The sculpture of the depressions is indistinctly reticulated, the meshes being situated in rows, more or less following the outlines of the depressions. The hairs are thin and smooth; they are situated as shown in fig. 42. The whole surface is covered by secretion, which along the borders of the hysterosoma is seen as an undulating veil. The genital and the anal plates are separated by a distance as long as the genital plate is broad. The genital plates have four pairs of hairs, 2 + 2, the anal plates two pairs. The legs are thick; all joints of Legs I and II except the genu are swelled, Legs III and IV slender. One claw on all tarsi.

The Argentine: At Quebrada de Gallinato near Salta 3 specimens in a thin layer of moist bryophytes sheltered by a big stone, shaded by bushes.

*Suctobelba bifoveolata* n. sp.; fig. 43.

Colour light brown. Length 0.27 mm.

The rostrum has three teeth, of which the anterior one is faintly chitinized, the other two of darker colour. The anterior tooth as seen from above (fig. 43a) is broad, almost triangular and directed outwards, the tip downwards and forwards. The second has a long narrow tip and projects beyond the anterior (fig. 43b). Behind it is a third tooth, which from above looks as long and pointed as the second (fig. 43); from below it cannot always be seen or it looks only like a knob on the second (fig. 43b). The second tooth is probably directed downwards on the living animal. The shape of the lamellar knob is greatly variable, but always open posteriorly. The anterior part is especially well developed and may be transformed into a big round lobe with two short posterior ridges on which the lamellar hairs are situated (fig. 43c). In front of the lamellar knob there are 2-3 small tubercles. Close to the lamellar knob there are several similar tubercles: 1 on the anterior corner, 2 on each of the lateral sides and off the posterior half 2 on each side, moreover, a few which are placed more or less on the proximal part of the lamellae. The latter are except for a short proximal part in front of the pseudostigmata faintly developed; only a dark shadow as a transverse band is seen. The interpseudostigmatic ridges are also faintly developed, the anterior and posterior parts are, however, more darkly chitinized than the middle. The posterior end, which usually forms a tooth or a knob is also round here, but indistinct and faint. Below the interpseudostigmatic ridges is on either side a large light area across which the ridge lies as a bridge over a hollow. The medial part of these areas is oval and seems to be separated from the rest, which goes right up to and halfway round the pseudostigmata. On the posterior margin of the pseudostigmatic cup there are two projections of which the biggest, a round lobe corresponds to a long tooth opposite the lobe on the anterior border of the hysterosoma. Laterally to the pseudostigmata there is a broad rough ridge. The pseudostigmatic organ, which is directed upwards and forwards, consists of a long stalk and of a short and thin club-shaped head, which is slightly pointed at the tip.

The anterior border of the hysterosoma is straight. In the middle the chitinization is faint. On either side of this faintly chitinized part there is a short, broad tooth and further laterally a much longer and more pointed tooth. The hairs of the hysterosoma are long and very thin at the tip. They are situated as shown in fig. 43.

Bolivia: East of Cumbre 8 specimens in bryophytes, grass, and low moist-wet cushions.

*Suctobelba quadricarina* n. sp.; fig. 44.

Colour light brown. Length 0.23 mm.

The rostrum is long and narrow, projecting as a nose beyond the rostral teeth. Anteriorly, immediately behind the rostral hair, there is a short pointed tooth directed outwards at right angles to the lateral side of the rostrum. A twice as long and also

pointed tooth follows and then a third, which is a little broader, its tip almost meeting the tip of the second (fig. 44 a, b). The lamellar knob is usually closed and the hole in the middle very small. The posterior border may be very narrow and the chitinization faint so that it looks as if the knob is more or less open (fig. 44 c). In front of the lamellar knob there are 6–7 small tubercles. Posteriorly the lamellar knob is connected with the lamellae, which are distinct near the pseudostigmata, sometimes in their whole length (fig. 44 c). Behind the lamellar knob the pattern is often very indistinct, disturbed by more deeply lying dark “shadows”. The lamellae and the interpseudostigmatic ridges are merged more or less and overlapping. Posteriorly the interpseudostigmatic ridges are distinct, each of them ending in a lobe corresponding to a keel on the anterior margin of the hysterosoma. The pseudostigmatic organ has a long flat semilunar head, the distal part of which is drawn out into a long seta, the outer margin set with stiff bristles. The hysterosoma has on its anterior border four keels, the two medial ones being broad and blunt, the two lateral ones sharp and pointed. The hairs of the hysterosoma are thin and short and situated as shown in fig. 44.

The Argentine: In the Rio Atuel valley at Puente Angosto 5 specimens in bryophytes on a bluff down to the river bed, about one and a half metre above the water, and shadowed by big grass tussocks, moist peatlike soil.

*Suctobelba microclava* n. sp.; fig. 45.

Colour light brown. Length 0.25 mm.

The rostrum is short and broad. There are two rostral teeth (fig. 45 a), which are very pointed and directed downwards, so that they cannot be seen from above. The anterior one is long and rather narrow with a slightly convex posterior side, which is separated from the following tooth by a long narrow fissure rounded innermost. The posterior tooth has a very broad base, of almost triangular shape, the distal point is, however, very sharp. The upper side of the rostrum has very small chitinous tubercles more or less arranged in transversal rows. A few can be seen farther back between the tectopedial fields. The lamellar knob is almost circular, the posterior border behind the hole, however, being very narrow, but closed. The lamellae are very indistinct; they exist only as shadows and are connected behind the lamellar knob. The interpseudostigmatic ridges are also indistinct, only the posterior part, a blunt tooth, is well developed. Between them there is a transverse ridge, however, very indistinct and abrupted in the middle. The pseudostigmata have posteriorly two slightly dentate protuberances of which the medial one is situated opposite the lateral tooth on the anterior margin of the hysterosoma (fig. 45 b). Laterally to the pseudostigmata there is a strong serrated ridge. In the posterior part of the tectopedial field there are three light areas. The pseudostigmatic organ has a very long and thin stalk, directed upwards and forwards and a very small short clavate head, which is rounded at the tip. The anterior border of the hysterosoma is broad and strongly chitinized, abrupted in the middle and thus forming here two walls

which may be pointed with a minute tooth at the top or may be rounded without a tooth. This minute tooth is placed opposite the blunt tooth on the posterior part of the interpseudostigmatic ridges. Laterally to the minute tooth there is on either side a sharp pointed long tooth, which as a faint shadow continues backwards on the hysterosoma for a short distance. The hairs which are situated as shown in fig. 45 are thin and flexible.

Bolivia: At Chulumani 22 specimens in 5 cm. high luxurious bryophytes on a vertical hang above a ditch with water.

*Suctobelba transversalis* n. sp.; fig. 46.

Colour light brown. Length 0.25 mm.

The rostrum is narrow between the rostral hairs. There are two strong blunt rostral teeth, which sit close together, the anterior one pointing outwards, the posterior one forwards (fig. 46a seen obliquely from below). The lamellar knob is almost triangular, the posterior side very narrow, usually closed, but may be abruptly in the middle (fig. 46b). In front of the lamellar knob there are 1-3 tubercles or none. The lamellae are very indistinct. Two indistinct ridges more or less merged can be seen on either side between the pseudostigmata and the posterior border of the lamellar knob. The interpseudostigmatic ridges are likewise very indistinct. Only the posterior part is well developed as a blunt tooth which fits completely to the space between the tooth like projections on the anterior margin of the hysterosoma. Between the teeth on the interpseudostigmatic ridges a pattern of dark shadows which shows great variation, can be seen. Interlamellar hairs cannot be seen, only a clear puncture in the integument. The pseudostigmatic organ has a long slender stalk and a short club, which is slightly pointed at the end. It is directed upwards and then at almost right angles forwards. The anterior border of the hysterosoma has a broad chitinous band, abruptly in the middle, thus forming here a low round projection laterally to which there is a minute tooth or projection. The hairs, which are rather long, are in the middle of the hysterosoma arranged transversally (hence the name); the posterior ones are radiating. The integument is finely punctate.

Bolivia: At Puente Villa 5 specimens in wet coarse *Polytrichum* on a vertical cliff in a narrow cleft a few metres above a river.

*Suctobelba longiclava* n. sp.; fig. 47.

Colour yellow-greyish. Length 0.24 mm.

The rostrum is pointed. The rostral hairs are placed close together. There are two strong rostral teeth. The anterior one, which is directed outwards, is broad at the base, pointed at the tip. The posterior one, which is directed forwards, is blunt and strong (fig. 47a). The lamellar knob is round, though slightly flat on the posterior border. The space in the middle is large and the ridge equally thick throughout, except posteriorly, where the ring is open. The lamellar hairs are situated on the anterior border. In front of the lamellar knob there are 5 chitinous tubercles and farther

forward a somewhat bigger one. Between the tubercles there are some much smaller tubercles. Laterally to the lamellar knob there is on either side a small group of 3-4 tubercles. The lamellae are well developed. They run as narrow ridges, which are of equal thickness throughout, from the pseudostigmata to the posterior end of the lamellar knob, which, however, they do not reach. The lamellae continue round the pseudostigmata. Behind the pseudostigmata there is a big lobe, which corresponds to the lateral tooth on the anterior margin of the hysterosoma. The interpseudostigmatic ridges are also well developed, though faintly chitinized. The posterior end is a round lobe corresponding to a minute tooth, which hardly projects beyond the anterior chitinous margin of the hysterosoma. The chitinous border of the hysterosoma is abruptly between these small median teeth. The pseudostigmatic organ has a very long and slender club, which is directed upwards and forwards. It is rounded at the tip. The hysterosoma is round; the anterior border is an almost straight line with two pairs of teeth, of which the lateral ones are the longest, the median ones hardly discernible. The hairs which are very thin at the tip, are situated as shown in fig. 47. The integument on the legs has numerous small chitinous tubercles or scales.

The Argentine: At Quebrada de Gallinato 1 specimen in *Selaginella* vegetation below bushes on a slope down to a dry arroyo bed.

*Suctobelba complexa* n. sp.; fig. 48.

Colour greyish-light brown. Length 0.165 mm.

The rostrum is rather broad, pointed at the tip. Rostral teeth have not been seen. The lamellar knob is very narrow and only the anterior part exists. It is pointed, in the middle there is a swelling, and posteriorly it is concave with a broad base. The lamellar hairs are situated on the basal part. In front of the lamellar knob there are a few chitinizations, which more or less are merged with the strong tubercles on the inner ridge of the tectopedial field. A short distance behind the rostrum there is in the middle an oblong short ridge, the posterior end of which is situated off two short, but strong transversal ridges. The lamellae are very strong and thick ridges running from the medial side of the pseudostigmata in an oblique direction forwards and inwards. At the anterior tip the lamella is turned outwards and round in a ring. They reach a short distance beyond the base of the lamellar knob. The interpseudostigmatic ridges are also well developed. The anterior end is turned round as in the case of the lamella, enclosing here the interlamellar hair. The posterior end has a tooth opposite a corresponding tooth or keel on the anterior margin of the hysterosoma. Between the interpseudostigmatic ridges there is a faint pattern of transversal and longitudinal lines. The pseudostigmatic organ has a slender stalk, which is bent upwards and forwards, and a club shaped-lanceolate head pointed at the tip (fig. 48 a). The hysterosoma is short and round, broadest a little behind the middle. The posterior end is round, the anterior margin is straight. On the anterior third of the hysterosoma there is a complicated network of chitinous ridges with two strong teeth in the middle



opposite the teeth on the posterior end of the interpseudostigmatic ridges. Further laterally there is on either side another tooth, broad and low, which corresponds to the lobe on the posterior border of the pseudostigmata. The hairs are long and thin and are situated as shown in fig. 48.

The Argentine: At Quebrada de Gallinato 1 specimen in vegetation of moist *Selaginella* on a slope down to a dry arroyo, below bushes.

Bolivia: At Chulumani 2 specimens in 5 cm. thick luxurious moss on a vertical hang above a ditch with water.

*Suctobella ornatissima* n. sp.; fig. 49.

Colour light brown-greyish. Length 0.20 mm.

The rostrum is slightly pointed. One rather strong tooth, which is directed forwards, can be seen from above; from the lateral side it is not possible to see any tooth. The lamellar knob is as in *S. complexa* very narrow, pointed anteriorly, has a swelling in the middle; the base or posterior part is concave. The lamellar hairs are situated behind the lamellar knob in the concave space. In front of the lamellar knob there are 6 transversal oblong tubercles placed zig-zag and more or less coalescing with the unusually strong and irregular projections on the medial side of the inner tectopedial ridge. Immediately behind the tip of the rostrum there is an oblong longitudinal zig-zag ridge. The lamellae are well developed, passing from the medial side of the pseudostigmata obliquely forwards and medially. They reach to the middle of the lamellar knob. Two thirds from their origin a small part bends medially round the interlamellar hair and continues as the anterior part of the interpseudostigmatic ridge. The latter is very indistinct; only the posterior lobe opposite a tooth on the anterior margin of the hysterosoma is well chitinized. On the posterior border of the pseudostigmata there is a corresponding lobe or tooth, which is situated opposite the lateral tooth on the hysterosoma. The pseudostigmatic organ is directed upwards and forwards. It has on a short stalk a broad club-shaped head, rounded at the tip (fig. 49a).

The hysterosoma is broadest across the middle; the posterior end is rounded, the anterior border a straight line with four very strong teeth or keels. The medial ones continue as double ridges backwards. The lateral ones are narrower. The two teeth on either side are connected a little behind their tips by a thin chitinous ridge forming an arch, which opens posteriorly. The whole structure gives the animal a very nice appearance. In front of the arch just mentioned and between the teeth there is on either side a long thin hair. Fig. 49 shows the position of the hairs, which are thin and rather long. The integument is extremely finely punctate.

The Argentine: At Quebrada de Gallinato near Salta 3 specimens in a luxurious meadow with moist grass; in the Rio Caldera valley 2 specimens in low, slightly moist bryophytes on a chalk slope shaded by trees.

Bolivia: At Puente Villa 1 specimen in wet coarse *Polytrichum* on a vertical cliff in a narrow cleft, a few metres above a river.

*Suctobelba elegantula* n. sp.; fig. 50.

Colour light brown. Length 0.20 mm.

The rostrum is narrow. There are three rostral teeth (fig. 50 a). Immediately behind the rostral hair there is a very little tooth, which is pointed and directed downwards. After it follows a long narrow and pointed tooth, directed a little more forwards and then comes a big rounded lobe, which is pointed at the tip and separated from the second by a rather great distance (fig. 50 a). The lamellar knob is almost triangular. It is closed posteriorly, but only by a thin line (fig. 50 b). The lamellar hairs are situated laterally in the middle. 1–3 small tubercles can be seen in front of the lamellar knob. Laterally there are also 2–3 tubercles, and on the rostrum many small tubercles. The lamellae are indistinct. The proximal part has two tubercles. The distal or medial part is very thin and connected with the diffuse posterior border of the lamellar knob (fig. 50 b). The interpseudostigmatic ridges are well developed, ending posteriorly in a big chitinous lobe opposite a tooth on the anterior border of the hysterosoma. Anteriorly the interpseudostigmatic ridges are connected with the medial parts of the lamellae. On this spot the interlamellar hair is situated. Behind the lamellar knob there is an oblong area bordered posteriorly by a thin line between the interpseudostigmatic ridges. The pseudostigmata have on the posterior border a lobe which is situated opposite the lateral tooth on the anterior border of the hysterosoma. The pseudostigmatic organ is long and slender and consists of a thin stalk and at right angles to the stalk of a slender sickle-shaped head, which ends in a thin thread and is densely set with long bristles on the posterior border. The bristles are all glued together with adhering dirt. It is directed upwards, forwards, and the tip inwards.

The hysterosoma has 4 teeth, the medial ones big and broad, more like keels. The lateral teeth are conical; they continue for a short distance backwards. The integument is finely punctate. The hairs, which are situated as shown in fig. 50, are short and rather thick. The animal is more or less covered with dirt.

The Argentine: At Quebrada de Gallinato near Salta 1 specimen in *Selaginella* vegetation on a slope down to a dry arroyo, below bushes, moist: 1 specimen in thin bryophytes sheltered by a big stone, under bushes, moist. In the Rio Caldera valley 4 specimens in bryophytes on a chalk slope shaded by trees, very little moist.

Bolivia: At Chulumani 3 specimens in 5 cm. thick luxurious bryophytes on a vertical slope above a ditch with water.

*Oppia suramericana* n. sp.; fig. 51.

Colour light brown. Length 0.25 mm.

The propodosoma is slender, the rostrum pointed. The rostral hairs are situated a short distance behind the tip of the rostrum and reach only by half their length beyond it. They are smooth and a little longer than their mutual distance. The lamellar hairs which are situated on either end of the translamella, are thin, directed forwards and inwards and are about half as long as the translamella. The lamellae are almost

parallel, narrow chitinous ridges connected at their anterior end at almost right angles with the translamella. At this place there is a small tip pointing slightly outwards and forwards and there the lamellar hair is situated. The interlamellar hair, which is thin and short is situated a little in front of a V-shaped ridge, the posterior end of which reaches the anterior margin of the hysterosoma. The latter is narrow between these ridges and overlaps the posterior part of the propodosoma as a low arch. In front of the arch there is a rather indistinct curved transversal ridge. Between the interlamellar hairs there are two light areas. On the sides of the propodosoma there is on either side a ridge, which passes farther forwards than the lamellae. From its anterior end it bends as a thin line backwards and inwards towards the tip of the lamellae. Some light spots are seen between the lateral ridge and the lamella. The pseudostigmatic organ has a long, broad, flat head, the medial border of which is straight, the lateral rounded and furnished with 7–8 stiff bristles or hairs (fig. 51 a). The head is a little longer than the stalk. In profile it is shown in fig. 51 b. Usually the organs are directed forwards and inwards. On the posterior border of the pseudostigmata there is a tooth, which is situated opposite a corresponding tooth on the anterior margin of the hysterosoma. The latter tooth continues as a faint longitudinal keel a short distance backwards on the hysterosoma. The posterior end of the hysterosoma is rounded. The hairs are thin, moderately long and placed as shown in fig. 51.

The Argentine and Bolivia: Very common everywhere and found in almost all localities examined, but in great numbers only in dry biotopes. In the Argentine it was abundant—up to 335 pr. 1/1000 square metre at the Arroyo Blanco in the Rio Atuel valley in a dry cushion (Yaretiya). In Bolivia 1510 specimens were found on 1/1000 square metre at Chacaltaya about 5400 m. a.s.l. in a dry cushion much like the one from the Arroyo Blanco.

*Oppia tenuis* n. sp.; fig. 52.

Colour pale yellowish grey. Length 0.25 mm.

This species is rather narrow, especially as regards the hysterosoma. The rostral hairs which are situated on the upper side of the rostrum rather close together, are parallel, directed forwards and about twice as long as their mutual distance. The lamellar hairs are situated far backwards; they are thin, directed inwards and forwards and are between half and one third as long as their mutual distance. As they are half upright, their exact length is difficult to see. A very fine line or lamella is seen between the lamellar hair and the pseudostigmata. The interlamellar hairs are upright, thin and fine as the lamellar hairs and of the same length as the latter. They sit close to the anterior margin of the hysterosoma, which as a low arch overlaps the posterior part of the propodosoma. Between the interlamellar hairs there are two pairs of light areas. The pseudostigmatic organ has a short clavate head set with minute hairs (fig. 52 a) and a stalk which is only a little longer than the head. The organs are directed outwards and then the head inwards. The anterior margin of the hysterosoma is strongly chitinized. The posterior end of the hysterosoma is rounded,

the anterior one a little narrower. All hairs are short and thin, more or less upright, especially the first and second dorsal pairs.

The Argentine: In the Rio Atuel valley near the Arroyo Las Chircas 10 specimens in wet bryophytes from a small stream or spring on a mountain side. At San Antonio de los Cobres one specimen in wet Umbelliferae vegetation and green algae.

*Oppia neerlandica* (Oudms.) sensu Willmann 1931; fig. 53.

The Argentine: In the Rio Atuel valley at the estancia El Sosneado 4 specimens in wet bryophytes in the drinking water canal; at Puesto de Los Arroyos one specimen in a moist cushion near the arroyo; at Puente Angosto 7 specimens in moist bryophytes on a vertical hang down to the river bed.

Bolivia: At Chulumani one specimen in luxurious bryophytes on a vertical hang over a ditch with water. Common almost everywhere in Europa and the Eastern United States; recorded from many places in Greenland.

*Oppia breviclava* n. sp.; fig. 54.

Colour light brown. Length 0.38 mm.

The rostral hairs are situated on the upper side of the rostrum and reach by about half their length beyond the tip of rostrum. They are strong, unilaterally hairy, directed forwards, in a slight curve inwards and about one and a half times longer than their mutual distance. The lamellar hairs which are situated in the inner corner where the lamella and the translamella join, are very thin, directed forwards and a little longer than half the translamella. The lamellae are almost parallel and of equal thickness throughout. They are indistinct or abrupted in their posterior part. The translamella, which is as thick as the lamellae, joins the latter at right angles. The interlamellar hairs which are situated off the anterior border of the pseudostigmata are upright and very thin; they are at least as long as the lamellar hairs, but due to their vertical position it is difficult to see them in full length. Between them there are 4–6 light areas in an arch. The pseudostigmatic organ is a short-stalked club which is rounded at the tip and set with minute bristles. The stalk is about twice as long as the head. It is directed outwards and then the head inwards. The whole organ is no longer than the translamella (fig. 54a). On the sides of the propodosoma there are several light areas laterally bordered by a strong chitinous ridge. A big light spot is also seen on the posterior part of the propodosoma medially and close to the pseudostigmata.

The hysterosoma is a regular oval, being broadest across the middle. The anterior margin has a strongly chitinous band in which are seen two slits and two pores. The hairs, which are situated as shown in fig. 54, are of moderate length, strong and apparently smooth, but perhaps extremely finely feathered.

The Argentine: In the Rio Atuel valley at the estancia El Sosneado 6 specimens in wet bryophytes taken below a waterfall one and a half metre high in the drinking water canal, the bryophytes sprayed by the water.

*Oppia dispariseta* n. sp.; fig. 55.

Colour pale yellowish-grey. Length 0.22 mm.

The rostrum is rounded. The rostral hairs are situated close together on the upperside of the rostrum and are connected at their base by a thin chitinous line. They are thin, almost parallel, directed forwards and about one and a half times longer than their mutual distance. The lamellar hairs are very thin, directed inwards and half as long as their mutual distance. The place for their insertion is very distinct. A very fine line can in some cases be seen connecting the lamellar hairs. There are no lamellae, but a thin longitudinal line is seen between the pseudostigmata and the lamellar hairs ending a little laterally to the latter. On the sides of the propodosoma there are several light areas bordered by chitinous ridges. The interlamellar hairs are situated on a narrow, slightly curved ridge, which is situated a short distance in front of the anterior margin of the hysterosoma; it is parallel to the latter. The hairs, which are thin, are directed backwards and upwards. They are almost half as long as their mutual distance. In front of them and between them there are 6 light areas in two longitudinal rows. The pseudostigmatic organ has on a short stalk a round head, which on its upper side has a circle of about 10 stiff radiating, half upright bristles of unequal length, being longer on the outer or posterior margin (fig. 55 a-b).

The hysterosoma is oval, broadest across the middle. The hairs are thin and smooth, of moderate length. They are situated as shown in fig. 55. The insertion for the hairs are very distinctly seen as dark round spots on the pale integument.

The Argentine: In the Rio Atuel valley at El Angulo about 3400 m. a.s.l. 9 specimens in a dry cushion in fell-field, among crumbling cliffs.

*Oppia arcuata* n. sp.; fig. 56.

Colour light brown. Length 0.43 mm.

This species is very slender, broadest across the middle of the hysterosoma. The rostrum is slightly pointed. The rostral hairs are situated rather far back on the upper side of the rostrum. They are about one and a half times longer than their mutual distance, slightly curved, so that their tips almost meet; they are distinctly unilaterally feathered and they reach with about half their length beyond the tip of the rostrum. The lamellar hairs are also feathered, inclining and three fourths as long as their mutual distance. They are situated on the outer border of the lamellae which together with the translamella form a broad even arch. The latter is, however, in some specimens indistinct or may be abruptly between the lamellar hairs. The posterior half of the lamellae is very faintly developed. The interlamellar hairs, which are turned upwards and backwards and then outwards, are finely feathered and about two thirds as long as their mutual distance. They are situated off the anterior border of the pseudostigmata. Two pairs of large light areas can be seen between them. The pseudostigmatic organs are short and flat clubs provided with fine bristles on their posterior border (fig. 56 a). Leaving the pseudostigmatic cup they bend

slightly outwards and then forwards. The part outside the cup is not more than half as long as their mutual distance. The anterior border of the hysterosoma, which in the middle projects as a small tongue in between the light areas as far as off the interlamellar hairs, is strongly chitinized. The hairs of the hysterosoma, which are placed as shown in fig. 56, are rather long, stiff, and pointed, set with few secondary bristles, which are hardly discernible. The hairs of the legs are feathered. Tibiae II, III, and IV have a long serrated spine.

The Argentine: In the Rio Atuel valley at the Arroyo de Los Pajaritos about 2400 m. a.s.l. one specimen in moist *Luzula* vegetation near the arroyo. At the Arroyo de la Cruz de Piedra 2 specimens in wet bryophytes and *Calceolaria* on the vertical riverhang, below tussocks of stiff *Juncus*.

*Oppia spinosa* n. sp.; fig. 57.

Colour light brown. Length 0.35 mm.

The rostrum is slightly pointed. The rostral hairs, which are situated near the lateral borders of the rostrum, reach beyond the tip of the rostrum by about half their length. They are bent inwards, and they are strong and unilaterally feathered. The lamellar hairs are thin and short, only a little longer than half their mutual distance. They are placed on the inner side of the lamellae, one fourth from the anterior end of the latter. They are directed forwards and are parallel. The interlamellar hairs are also directed forwards; they are as long as the lamellar hairs and equally thick throughout. Between them there are four light areas. The interlamellar hairs are placed off the posterior border of the anterior pair of light areas. The lamellae are faintly S-shaped, the outer edge is sharp and distinct, the inner edge indistinct. Between their posterior ends the chitinization is darker than between the anterior ends. The lamellae, which are a little longer than their mutual distance do not reach the pseudostigmata. On the sides of the propodosoma there are big light areas. The pseudostigmatic organs are thin, slender clubs, almost equally thick throughout, slightly pointed at the end and directed outwards. They are as long as the distance between the inner borders of the pseudostigmata. Laterally to the pseudostigmata there is an area which is finely punctate. A curved line connects the posterior border of the pseudostigmata. This line is parallel to the anterior projecting margin of the hysterosoma. The hysterosoma has on either side a strong tooth on the anterior border. It corresponds to a little lobe on the posterior part of the pseudostigmata. Near the inner side of the tooth there is a minute hair. The remaining hairs of the hysterosoma are long, stiff, slightly curved, serrated spines, which are almost equally thick throughout (fig. 57a). They are situated as shown in fig. 57.

Bolivia: At Cumbre 23 specimens in thick luxurious moist moss. Chacaltaya about 5400 m. a.s.l. 44 specimens in low Umbelliferae vegetation; 1 specimen in a dry cushion; about 4900 m. a.s.l. 1 specimen also in a dry cushion with grass on stones and 5 specimens in low bryophytes with a little grass and Umbelliferae.

*Oppia notata* n. sp.; fig. 58.

Colour light brown. Length 0.33 mm.

The rostrum is slightly pointed. The rostral hairs are placed close together; they are about twice as long as their mutual distance and reach beyond the tip of the rostrum by more than half their length. They are rough, parallel and directed forwards and downwards. Behind them there is a transversal chitinous band with a small tooth. The lamellar hairs, which are situated in the middle of the propodosoma, are as long as their mutual distance; they are directed forwards and are much thinner than the rostral hairs. Interlamellar hairs are lacking. Lamellae are also absent. 3 pairs of light areas can be seen between the pseudostigmata. On the sides of the propodosoma there is a row of very distinct light areas. Moreover 2 more indistinct areas medially to the pseudostigmata.

The pseudostigmatic organ is a slender club, pointed at the tip and set with minute bristles. The stalk is bent backwards and outwards. The organ is no longer than two thirds of the distance between the inner border of the pseudostigmata. The hysterosoma is pointed at the posterior end. The anterior margin has a broad chitinous band. The hairs of the hysterosoma are slightly bent, approximately as long as the pseudostigmatic organ distally to its bend. They are slightly serrated and of almost equal length, the two posterior dorsal ones being a bit shorter. Laterally to the third dorsal pair there is on either side a round light spot, from which the name originates.

Bolivia: East of Cumbre 15 specimens in low brown-green bryophytes with a little grass and low cushions, moist-wet.

*Oppia scalifera* n. sp.; fig. 59.

Colour brown-light brown. Length 0.28 mm.

The rostrum is slightly pointed. The rostral hairs sit on the lateral or near the lateral sides of the rostrum. They are almost parallel, finely hairy, about one and a half times longer than their mutual distance and reach beyond the tip of the rostrum by about two thirds of their length. The lamellar hairs are thin and about two thirds as long as their mutual distance; they are placed a short distance behind the anterior end of the lamellae and are directed forwards and inwards. The lamellae are slightly S-shaped with a sharp outer margin and a more indistinct inner margin. The anterior end is straight and rather broad, posteriorly the lamella tapers towards the pseudostigmata. Between the anterior half of the lamellae there are two more or less indistinct transversal ridges, the whole forming a figure like a ladder. The interlamellar hairs, which are situated off the anterior border of the pseudostigmata, are short and thick; they are directed upwards and forwards. Between them there are two pairs of round light areas separated by rather a great distance. The pseudostigmatic organs, which are directed outwards and forwards, are long and have a flat semilunar head the outer border of which is set with fine bristles. The pseudostigmatic organs are longer than their mutual distance. On the sides of the propodosoma there are light areas bordered by a ridge, the anterior end of which bends backwards, ending near the

anterior end of the lamella. A distinct curved line connects the pseudostigmata. The middle part of the propodosoma seems to be at a lower level than the lateral parts. The anterior part of the hysterosoma is projecting and forms an arch which is parallel to the curved line that connects the posterior borders of the pseudostigmata. On either side of the arch there is a sharp tooth, the medial side of which continues backwards as a thin line. On the inner side of the tooth there is a minute hair. The hysterosoma is oval, broadest across the middle. The hairs are situated as shown in fig. 59. They are almost equally thick throughout, slightly bent, smooth, and stiff. The two lateral posterior pairs are a little longer than the rest.

The Argentine: At Quebrada de Gallinato near Salta 9 specimens in a luxurious meadow with soft grass bitten off by cows, moreover *Zinnia*, *Tradescantia*, *Ampelopsis*, etc., a little moist; 4 specimens in the same locality in a meadow with grass, near a small brook, moist.

*Oppia nodosa* n. sp.; fig. 60.

Colour light brown-brown. Length 0.57 mm.

The propodosoma is narrow and the rostrum pointed. The rostral hairs are situated rather far back and reach beyond the tip of the rostrum by only half their length. They are parallel, straight, and rough, about two and a half times longer than their mutual distance. The lamellar hairs, which are directed forwards, are parallel and almost reach the tip of the rostrum. They are a little thinner than the rostral hairs, rough or finely feathered, about twice as long as their mutual distance. They are situated in the middle of the propodosoma. The interlamellar hairs are also rough, directed forwards. They almost reach the base of the lamellar hairs. Between the interlamellar hairs there are two pairs of light areas and on the sides of the propodosoma a longitudinal row of light areas. Lamellae are absent; a short distance in front of the lamellar hairs is an indistinct transversal ridge. The pseudostigmatic organ is thin, almost spear-shaped at the tip and the borders slightly serrated (fig. 60 a). It is as long as the distance between the inner border of the pseudostigmata. It is directed outwards and slightly forwards. Numerous small round chitinous knobs are seen in the "armpit" of leg I (fig. 60 b) (hence the name). The hysterosoma is oval, broadest across the middle. The hairs are situated as shown in fig. 60. They are thin, slightly bent, finely serrated, and rather long. All legs have unusually long and stiff feathered hairs.

The Argentine: In the Rio Atuel valley at the estancia El Sosneado one specimen in wet bryophytes; near the Arroyo Las Chircas 3 specimens in dripping bryophytes and *Mimulus*; at the Arroyo de Los Pajaritos about 2400 m. a.s.l. 5 specimens in wet bryophytes; near Laguna Atuel one specimen in wet bryophytes.

*Oppia rotunda* n. sp.; fig. 61.

Colour light brown. Length 0.35 mm.

The rostrum is rounded. The rostral hairs are situated close together; they are twice as long as their mutual distance, parallel, strong, and feathered. They reach



beyond the tip of the rostrum by half their length. The lamellar hairs are thin, smooth, parallel, and a little longer than their mutual distance. Interlamellar hairs cannot be seen. Lamellae absent. In the posterior part of the propodosoma there are in the middle 3 pairs of light areas; medially to the pseudostigmata there are on each side two indistinct areas, and on the sides of the propodosoma a row of 4 light areas bordered by a chitinous ridge. The pseudostigmatic organ is a slender club, pointed at the tip and set with minute bristles. It is as long as the distance between the inner border of the pseudostigmata.

The hysterosoma is almost as broad as it is long and rather arched. The anterior end has a broad, strongly chitinized band divided into an anterior broader and a posterior narrower part. The hairs are situated as shown in fig. 61. The anterior ones are finely feathered with few branches; they are much longer than the posterior ones, which are very thin.

Bolivia: At Unduavi 10 specimens in wet luxurious bryophytes with a little grass on a vertical hang.

*Oppia tenuicoma* n. sp.; fig. 62.

Colour light brown. Length 0.52 mm.

This species is very slender. The rostrum is rounded; the rostral hairs, which are situated near the lateral border of the rostrum, are curved inwards and reach beyond the tip of the rostrum by about half their length. They are a little rough and about one and a half times longer than their mutual distance. The lamellar hairs, which are situated in the middle of the propodosoma, are directed forwards and upwards. They are rough and as long as their mutual distance, which is only two thirds of the distance between the rostral hairs. The interlamellar hairs are very long, about three times longer than their mutual distance. They are bent backwards, but it is doubtful whether this is their original position. They are smooth and very thin at the tip. Lamellae are absent. In front of and between the interlamellar hairs there are three pairs of irregular light areas and in front of the pseudostigmata there is a row of light areas. Laterally on the posterior part of the propodosoma the integument is set with numerous small round chitinous knobs. Small dots, maybe secretion grains, can be seen laterally farther forwards. The pseudostigmatic organs when they leave the pseudostigmatic cup bend backwards at almost right angles, then outwards. The head is a short rounded club, which on its end has 3 long setae, of which the one in the middle is the shortest (fig. 62a). The transition between the propodosoma and the hysterosoma is very narrow. The hysterosoma is egg-shaped, broadest a little in front of the middle and pointed posteriorly. On the anterior border of the hysterosoma there are two small lobes, which reach beyond the posterior border of the pseudostigmata. Fig. 62 shows the position of the hairs, which are smooth, very long, and very slender.

Bolivia: At Unduavi one specimens in wet green-brown mosses on a cliffwall.

*Oppia longicoma* n. sp.; fig. 63.

Colour light brown. Length 0.52 mm.

The rostrum is rounded. The rostral hairs are placed close together and reach beyond the tip of the rostrum by more than half their length. They are parallel, rough and about 4–5 times longer than their mutual distance. The lamellar hairs, which are situated in the middle of the propodosoma with a mutual distance 2–3 times longer than the distance between the rostral hairs, reach the base of the latter. They are thinner than the rostral hairs and set with fine bristles. Interlamellar hairs are lacking. Lamellae are absent. Between the pseudostigmata there are indistinct light areas and on the sides of the propodosoma is a row of more or less distinct light areas. The pseudostigmatic organs are slender clubs, slightly pointed at the tip and directed outwards. They are no more than two thirds as long as the distance between the inner border of the pseudostigmata. Laterally to the exopseudostigmatic hair the integument is finely dotted by very small knobs; it looks more as if it is punctate. The hysterosoma is pointed at the posterior end, at the anterior end it has a broad chitinous band. The hairs are situated as shown in fig. 63. They are very long, slightly curved and unilaterally feathered. The posterior dorsal pair is considerably shorter than the others, not much more than half as long. The first and second dorsal hairs are a little longer than the lateral hairs (in the drawing the hairs, especially the anterior ones, are a little too thick).

This species bears great resemblance to *O. trichosa* (see below), but can easily be distinguished from the latter by its short dorsal posterior hairs.

Bolivia: At Chacaltaya about 5400 m. a.s.l. 30 specimens in low thick bryophytes under big overhanging stones.

*Oppia lanceolata* n. sp.; fig. 64.

Colour light brown. Length 0.35 mm.

The rostrum is rounded. The rostral hairs are situated close together; they are about four times longer than their mutual distance; they are rough or slightly serrated, parallel, and reach beyond the tip of the rostrum by about half their length. The lamellar hairs are situated in the middle of the propodosoma. They are thin, directed forwards, and a little longer than their mutual distance. Interlamellar hairs are absent. Lamellae absent. Between the pseudostigmata there are three pairs of light areas and in front of the pseudostigmata there is a row of very distinct light areas. On the posterior lateral part of the propodosoma the integument has numerous very small chitinous knobs. The pseudostigmatic organs are very slender, lanceolate, and set with minute bristles along the distal two thirds. They are directed outwards and are about one and a half times longer than the distance between the inner border of the pseudostigmata. On the outer posterior border of the pseudostigmata there is a triangular lobe. The hysterosoma is not much longer than broad; it is slightly pointed at the posterior end (more than in the figure in which the animal is drawn a little from above). The anterior margin has a strongly chitinized band. The hairs are situated

as shown in fig. 64. They are rather long and thin, slightly curved and unilaterally feathered or serrated. They are almost equally long.

The Argentine: In the Rio Caldera valley 3 specimens in very little moist moss on a cliff of chalk, shaded by trees.

*Oppia trichosa* n. sp.; fig. 65.

Colour light brown. Length 0.45 mm.

The propodosoma is rather long and narrow, the rostrum rounded. The rostral hairs are placed close together and a good distance behind the tip of the rostrum. They reach beyond the tip of the latter by half their length. They are parallel, unilaterally feathered and about 4–5 times longer than their mutual distance. The lamellar hairs are situated in the middle of the propodosoma and are twice as long as their mutual distance. They are much thinner than the rostral hairs, set with minute hairs, parallel, and they almost reach the base of the rostral hairs. Interlamellar hairs cannot be seen. Lamellae absent. Between the pseudostigmata there are several light areas, viz. 3 pairs in the middle and one near the pseudostigmata. On the lateral sides of the propodosoma there is a row of 4–5 light areas. The pseudostigmatic organ is a slender club, which is a little pointed at the tip and set with minute bristles (fig. 65 a). The stalk is inside the pseudostigmatic cup directed obliquely forwards, but leaving the cup it bends backwards at an almost right angle; this distal part is 3 times longer than the proximal part. This species like *O. nodosa* has small knobs in the "armpit" of Leg I, but much smaller. The hysterosoma is slightly pointed at the posterior end and is broadest across the middle. The anterior end has a broad, strongly chitinized border, the part of which just behind the pseudostigmata is separated from the rest by a transverse faint line. All hairs are very long, slightly bent, thin, and feathered. Fig. 65 shows their position.

Bolivia: At Cumbre 4658 m. a.s.l. 8 specimens in bryophytes, grass, low cushions and Cyperaceae, moist-wet. East of Cumbre 4000 m. a.s.l. 2 specimens in bryophytes, grass, and, low cushions, moist-wet.

*Oppia chulumaniensis* n. sp.; fig. 66.

Colour light brown. Length 0.22 mm.

The rostrum is short and rounded. The rostral hairs sit close together and reach beyond the tip of the rostrum by half their length. They are bent; the proximal half is thick and set with bristles, while the distal half is long and thin. The lamellar hairs are stiff, thin setae, directed forwards and inwards. They are about half as long as their mutual distance and situated on the anterior end of short lamellae, which are no longer than the lamellar hairs, but continue obliquely backwards and outwards as a thin line to the inner border of the pseudostigmata. The interlamellar hairs are like stiff spines, considerably thicker and also somewhat longer than the lamellar hairs. They are directed outwards. Between them there are 3 pairs of light spots and laterally a very big light area. Laterally to the lamellae there is a big field with many

light areas. Laterally to the exopseudostigmatic hair the integument has very small chitinous knobs. The pseudostigmatic organs are strongly branched. There are from 7–10 branches of different length on the outer or posterior border of the flat and almost semilunar head (fig. 66a). The proximal branches are usually the shortest, the ones in the middle the longest. The whole organ is approximately as long as the distance between the pseudostigmata. The organs are directed outwards.

The hysterosoma is rounded, not much longer than it is broad. The posterior end is round, the anterior end has a broad chitinous border. In front of the latter or on the anterior border there are 3 small chitinous knobs, of which the one in the middle, which is much longer and pointed, proceeds as far anteriorly as to the posterior margin of the foremost light area. Fig. 66 shows the position of the hairs, which are of almost equal length, the third lateral pair, however, a little shorter. They are stiff, slightly curved, and of almost equal thickness throughout.

Bolivia: At Chulumani 7 specimens in 5 cm. high luxurious bryophytes on a vertical hang above a ditch with water.

*Oribella spinifera* Hammer (1952, p. 36, fig. 50) var. *fissurata* n. var., fig. 67.  
Colour light brown. Length 0.37 mm.

The specimens have at the tip of the rostrum two short slits or incisures between which there is a triangular lobe. This cannot be seen on the specimens from Canada. The head of the pseudostigmatic organ is moreover a little thicker and the hair at the tip of the head slightly longer. The interlamellar hairs, which stand up vertically are shorter and do not reach further than the base of the lamellar hairs, but as there are always small variations in the length of the hairs this last disagreement is not important.

On the ventral side the Canadian specimens, however, are different from most of the South American specimens, having the epimeres from the right and the left side separated by a longitudinal thin chitinization. It is not, however, equally well developed in both Canadian specimens, being very narrow almost lacking between the epimeres II in the one specimen. Also some of the South American specimens show a faint longitudinal chitinous band separating all epimeres from the left and right side. In some strongly chitinized specimens from Cumbre there is a faint longitudinal chitinization separating the epimeres I and II. Thus even these characters usually considered invariable are subject to great variations. The last-mentioned specimens from Cumbre moreover differ in the following: apart from being more strongly chitinized, they are a little bigger, the pseudostigmatic organ is not drawn out into a thin spine or hair, but is round at the end, the hairs of the hysterosoma are slightly thinner and longer.

The lateral hair behind the shoulder spine is on all specimens a little stronger than the others and unilaterally feathered. Whether this is also the case with the other hairs I am unable to see. The nymph is shown in fig. 67a.

Bolivia: At Cumbre 4658 m. a.s.l. 22 specimens in a continuous carpet of

bryophytes, grass, low cushions, i. e. Compositae and Caryophyllaceae, moist-wet. East of Cumbre one specimen in low wet vegetation of Umbelliferae and a little grass. 14 adults and 16 nymphs in wet low moss mixed with grass and low cushions. Previously recorded from Churchill, Northern Canada, and from New Mexico (HAMMER 1952).

*Oribella arcuata* n. sp.; fig. 68.

Colour pale greyish-yellow. Length 0.34 mm.

The whole animal is slender, the propodosoma has straight, strongly chitinized lateral sides, while the anterior border of the rostrum is a little pointed and slightly chitinized. The rostral hairs, which are placed close together, a short distance behind the tip of the rostrum, are smooth, parallel and about 4–5 times longer than their mutual distance. The lamellar hairs are also situated close together, on the anterior border of a broad arch formed by the lamellae. They are smooth, parallel and about 3 times longer than their mutual distance. The transversal part of the lamellar arch is only a little shorter than the longitudinal parts. It has two rows of short spines between the lamellar hairs. A few spines are situated laterally to the lamellar hair on the rounded anterior part of the lamella. These spines sit on the innermost more strongly chitinized part of the arch. The interlamellar hairs, which are much thinner than the lamellar hairs and feathered, as seen from above reach beyond the anterior part of the arch by about one fourth. They are only a little longer than their mutual distance. The exopseudostigmatic hairs are rather long. The pseudostigmata has on the anterior edge close to the lamella and leaning against it a spine, which is half as long as the diameter of the pseudostigmatic cup. The pseudostigmatic organ is a long slender club slightly pointed at the tip and set with minute hairs. It is directed forwards and outwards. Between the interlamellar hairs can be seen a circular round light spot subdivided into smaller ones. On the lateral parts of the propodosoma there are many big light areas.

The anterior border of the hysterosoma has a broad chitinous margin, which overlaps the posterior part of the propodosoma concealing half the pseudostigmata. The posterior end of the hysterosoma is pointed. The hairs, which are situated as shown in fig. 68, are rather long, thin, curved, and unilaterally feathered. On the anterior margin of the hysterosoma a little behind the pseudostigmata there is a stiff, unilaterally feathered hair about half as long as the dorsal hairs. The genital plates have 6 pairs of hairs, 4 along the opening in the anterior part, one laterally in the middle and one on the posterior border. The anal plates have 2 pairs of hairs. All epimeres from the left and right side are merged. A thick transversal ridge separates the epimeres I and II from III and IV (fig. 68a). All tarsi have one claw.

The Argentine: In the Rio Atuel valley near the Arroyo Las Chircas one specimen in wet bryophytes in oozing water on a mountain side. Above El Angulo at 3700 metres' altitude 7 specimens in a dry grass tussock in fell field without any other vegetation than very scattered grass tussocks on sand and stone.

*Eremobelba foliata* n. sp.; fig. 69.

Colour light brown-brown. Length 0.50 mm.

The rostrum is strongly pointed; the rostral hairs are situated on either side of a nose-like protuberance. They are thin and directed towards the tip of the rostrum, which they just reach. The lamellar hairs, which reach beyond the tip of the rostrum by about half their length, sit on broad apophyses which laterally end in a short prolongation or keel. The apophyses are about two thirds as broad as the connecting ridge. The lamellar hairs are a little longer than the distance between their bases; they are broad, a little rough, and almost parallel, slightly curved inwards. The lamellae are merged into a broad arch, which is a little pointed in the middle. The interlamellar hairs are situated immediately behind the anterior border of the lamellar arch, which does not reach the pseudostigmata. The interlamellar hairs are broad blades, slightly concave and setaceous on the upper side; they are as long as their mutual distance. Behind the lamellar arch another arch is opening forwards so that the two arches almost form a circle. The posterior arch is abruptly in the middle. Between the interlamellar hairs 3 very small knobs can be seen. Between the lamellar and the interlamellar hairs there are two narrow semilunar ridges with the concave side posteriorly. A long S-shaped border of secretion threads connects these ridges with the pseudostigmata. The surface of the propodosoma is covered by secretion and dirt. Tectp. I and II are well developed. The pseudostigmatic organs are thread-like, though slightly thinner at the tip; they are situated in deep brown cups, directed outwards, and a little longer than their mutual distance.

The anterior border of the hysterosoma is a straight line; apart from this the hysterosoma is egg-shaped. All hairs, as seen from above, are spear-shaped with a broad blade and a short handle (fig. 69a); as seen in profile, they are concave blades. They are situated as shown in fig. 69, which, however, shows an irregularity, having an extra hair on the right side. The secretion grains are arranged regularly in undulating stripes adding greatly to the nice appearance of this species. All legs are short and thick, strongly chitinized and covered by secretion. Many of the hairs on the legs are also blade-shaped, especially on the proximal joints. All tarsi have one slender claw. Between the genital and the anal plates, which are separated by a distance as long as the genital plate is broad, is a chitinous fold. The genital plates have 5 pairs of long, thin hairs, the anal plates two pairs of thin hairs.

The Argentine: At Quebrada de Gallinato near Salta 4 specimens in moist vegetation of *Selaginella* on a slope above a deep, dried-out arroyo shaded by bushes.

*Eremulus nigrisetosus* n. sp.; fig. 70.

Colour light brown. Length 0.50 mm.

The rostrum is pointed, almost conical. The rostral hairs are slender, a little rough, curved inwards. They reach beyond the tip of the rostrum by about half their length, and they are about as long as their mutual distance. The lamellar hairs,

which are situated on small apophyses on the anterior end of the lamellae, are stiff, at the tip bent downwards; they are parallel and a little longer than their mutual distance. The lamella, which is slightly S-shaped, consists of an undulating ridge with many small pits cutting into it from the medial side. The lamellae stop a short distance in front of the interlamellar hairs, but a faint keel continues towards the pseudostigmata. The interlamellar hairs, which are situated close together, are also stiff; they are twice as long as their mutual distance. Laterally to the lamella there is another and stronger chitinous ridge. The exopseudostigmatic hair is thin and more than half as long as the interlamellar hair. The pseudostigmatic organ is lash-shaped, bent at the tip and provided unilaterally on the anterior edge with black hairs or spines all the way to the tip. The organs are directed outwards. Tectp. I is well developed. The surface of the propodosoma is covered by secretion and adhering dirt.

The hysterosoma is egg-shaped apart from the anterior border which is straight and strongly chitinized. The chitinization continues backwards as a keel near the shoulder. All hairs are dark, curved irregularly, spinelike, but extremely thin at the tip, which, however, is often broken off. The hairs are clear at the base. They are situated as shown in fig. 70. One hair from the anterior border is shown where it was found on the propodosoma, as its correct position or direction is not known due to the corresponding one is lacking. Between the hairs of the second dorsal pair there is a transversal row of small chitinous knobs arranged by threes in oblique rows. The hysterosoma is covered by secretion and foreign matter. The genital and the anal plates are separated by a distance which is between one third and half as long as the genital plates are long. The latter have 3 pairs of hairs, the anal plates 2 pairs. All legs are rather thick and swollen; the tarsi have one long and slender claw.

The Argentine: In the Rio Caldera valley near Salta one specimen in wet bryophytes on a cliff with oozing water.

*Eremulus crispus* n. sp.; fig. 71.

Colour light brown. Length 0.37 mm.

The rostrum is pointed; on the tip it has a very low protuberance. The rostral hairs, which are thin, are inserted on the lateral sides of the rostrum and reach beyond the tip of the latter by about one third of their length. The lamellar hairs, which likewise are very thin, are a little longer than the rostral hairs and about twice as long as their mutual distance. They reach beyond the tip of the rostrum by about one fourth. They are situated on short apophyses on the anterior end of slender S-shaped ridges consisting in chitinous knobs. They do not reach the pseudostigmata, but stop a short distance in front of the interlamellar hairs, from where they continue for a short distance as a faint keel towards the pseudostigmata. The interlamellar hairs are thin, about half as long as the lamellar hairs and a little longer than their mutual distance. Laterally to the lamella there is another ridge, parallel to the lamella and covered by a trim of secretion threads. This trim continues round the exopseudostigmatic hair. On the lateral sides of the propodosoma there are several light areas.

The pseudostigmatic organs, which are turned first backwards, then forwards in a large curve, are threadlike, though slightly thinner at the tip and unilaterally feathered almost in their whole length. The secondary hairs are longest on the distal half and there of almost equal length. The pseudostigmatic organs are about one and a half times longer than their mutual distance. Tectp. I is well developed.

The hysterosoma, apart from the anterior border, which is a straight line, is almost circular, only a very little longer than broad. The posterior end is rounded. All the hairs are thin, bent, or coiled, and extremely thin at the tip, which is often broken off. They are situated as shown in fig. 71. Both the propodosoma and the hysterosoma are covered by a layer of round secretion grains, which are often merged in winding bands. Along the border the grains are arranged radially. The genital and the anal plates are separated by a distance which is almost as long as the length of the genital plates. The latter have 5 pairs of hairs, the anal plates two pairs. The legs are rather thick, especially Legs I and II, which have almost globular tibiae. The tarsi have one claw.

The Argentine: At Quebrada de Gallinato near Salta 3 adults and one nymph in *Selaginella* vegetation on a slope down to a deep, dried-out arroyo shaded by bushes; in the Rio Caldera valley near Salta 4 specimens in thin, slightly moist bryophytes on a chalk cliff shaded by trees.

*Anderemaeus* n. gen.

The propodosoma and the hysterosoma are separated by a straight line. At the transition the propodosoma is as broad as the hysterosoma. The lamellae are vertical blades, which are almost as long as the propodosoma and in almost their whole length merged with the latter, only leaving a very short tip free. On either side of the propodosoma there is a longitudinal vertical blade-shaped ridge of the same appearance as the lamella. The pseudostigmatic organs sit in deep cups. The shoulder of the hysterosoma has a rough chitinous crest or protuberance. The hairs are stiff and rough. The genital and the anal plates rather close together and connected by a short ridge. The surface covered by secretion.

*Anderemaeus monticola* n. sp.; fig. 72.

Colour chestnut brown. Length 0.65 mm.

The anterior part of the propodosoma is rather narrow, the posterior part very broad. The rostral hairs are situated on the upper side of the rostrum, but far laterally and reach beyond the tip of the rostrum by more than half their length. They are turned first outwards then inwards, are about equally thick throughout and slightly rough; they are a little longer than their mutual distance. The lamellar hairs, which are situated on the short blunt free end of the lamellae, reach further beyond the tip of the rostrum than the rostral hairs. They are bent, are rough and as thick as the rostral hairs. The lamellae are sharp, erect, reticulated blades passing in a long curve from the anterior border of the pseudostigmata, immediately in front of which



they have a big protuberance, to a short distance behind the rostral hairs, where they end in a blunt cusp, which is half as long as the distance between the anterior end of the lamellae. The medial margin of the lamellae continues a little farther forwards. Similar chitinous blades are seen on the sides of the propodosoma. They proceed as far as the border of the lateral side of the rostrum, from where they continue along the side of the rostrum. Posteriorly they reach the protuberance on the lamellae. The integument between the lamellae and the lateral ridges is coarsely reticulated. The interlamellar hairs are thick and rough, a little longer than their mutual distance; they are directed upwards and forwards. Behind them and partly round them there is a triangular, strong chitinous tooth-like plate connected by a ridge, which is not always equally distinct. The pseudostigmatic organs are situated in deep cups of which the posterior border is longer than the anterior. The opening is lateral. The organ is a slender club, only slightly thicker towards the end which is very faintly pointed. It is set with minute bristles. It is about as long as the distance between the interlamellar hairs.

The hysterosoma is almost as broad as long. The anterior border is straight, the posterior end rounded. On the shoulder there is a thick chitinous crest with a rough hair, which is slightly thinner than the other hairs. The hairs are situated as shown in fig. 72. All are equally long, stiff as spines and rough. The dorsal ones are a little more pointed than the posterior ones. Below the surface, which is covered by secretion grains, the integument has very small and indistinct light spots as pits between which it is extremely finely punctate. The ventral side is shown in fig. 72a; the genital and the anal plates are very big and approximately equally large. The former have 4 pairs of hairs, the latter 2 pairs. Fig. 72b shows Leg I which distally on the tibia has a big protuberance with two long tactile hairs. All tarsi have 3 claws, of which the one in the middle is only slightly stronger.

The name *Andermaeus monticola* originates in its living-place high up in the Andes Mountains.

Bolivia: East of Cumbre 2 specimens in low vegetation of brown-green bryophytes, a little grass and cushions of different plants, moist. At Chacaltaya about 4900 m. a.s.l. 3 specimens in a very low cushion and a little grass on a pile of stones.

*Hydrozetes mollicoma* n. sp.; fig. 73.

Colour light brown. Length 0.49 mm.

The rostral hairs are bent outwards; they are at least one and a half times longer than their mutual distance. The lamellar hairs, which are situated on the end of the lamellae are thick and directed medially at a right angle; they are considerably longer than their mutual distance. The lamellae are straight ridges, which are almost equally thick throughout. The interlamellar hairs at the base of the lamellae are short and very thin. The pseudostigmatic organs are thin clubs which are almost as long as the lamellar hairs or as long as the distance between the latter. They are situated

in well-developed cups, which have a spine leaning to the base of the lamellae. Between the lamellae something like a veil is seen, which proceeds forwards almost to the tip of the rostrum, where its end is turned over or rolled up. On the anterior half of the propodosoma there are on either side a longitudinal and a transversal ridge, "Tectp. I", which together form a right angle with a short blunt tooth where the ridges meet. The transversal ridge continues backwards along the lateral side of the propodosoma. On the anterior border of the hysterosoma there is a big light area which is concave anteriorly. The integument has small chitinous tubercles, especially on the anterior lateral part of the hysterosoma. The hairs of the hysterosoma are very thin at the tip, smooth and undulating, and almost as long as the lamellae. On the posterior end of the hysterosoma there is a slight incurvation, and along the border of the hysterosoma there is an undulating veil from a secretion layer. The legs are finely punctate. The tibia of all legs has dorsally a small spine at the distal end. The tarsus has on either side of the claw a short thick rugged spine (fig. 73 a). Fig. 73 b shows a nymph with the 6 characteristic threads on the posterior end of the hysterosoma, half of them are, however, broken off.

The Argentine: In the Rio Atuel valley 92 specimens in a small lake at the Arroyo Blanco; near Laguna Atuel 5 specimens in very wet vegetation of bryophytes; in bryophytes and green algae, and in *Mimulus*. In the Rio Salado valley 41 specimens in a water ditch from Niña encantada, a small lake in a lava stream, smelling of sulphur and containing lime and siliceous incrustations. In the Rio Grande valley at Manzano 63 specimens in aquatic plants in a swamp, strongly smelling of sulphur and with lime or siliceous incrustations.

*Tectocephus* sp.; fig. 74.

Having dissected and drawn a great number of specimens from South America as well as from Denmark and Lapland (Sweden) I have come to the result that I am unable at present to separate the species, neither by outer appearance nor by details of the rostrum with its surroundings, etc. There seems to be all possible combinations and the variations are so multitudinous as regards size, width, length, and shape of cusps, the proportion between propodosoma and hysterosoma, the length and width of the pseudostigmatic organ, how it is directed, the shape of the rostrum, the number of the small teeth on the posterior margin of the triangular light area on the rostrum (fig. 74 a) etc., that there must be several species, even if we have not yet found the way to separate them. So far I have left the problem open until I have got more material.

*Tectocephus* is found almost everywhere in the Argentine and Bolivia when the biotope is not too wet (see Tables 1-7).

*Nodocephus* n. gen.

The lamellae are broad; they reach the tip of the rostrum. Cusps very long, ending in a large tooth. The propodosoma and hysterosoma well separated.

The whole animal short and broad. The hysterosoma has on its anterior border two very large protuberances. The hairs of the hysterosoma are situated along the margin. Tectp. I has a long free tip furnished with teeth. The integument without sculpture.

*Nodocepheus dentatus* n. sp.; fig. 75.

Colour light brown. Length 0.25 mm.

The rostrum, as seen from above, has 3 small protuberances: one which is a little pointed, in the middle, and on either side of this, one on which the rostral hair is situated. When dissected (fig. 75 a), it is seen that the rostral hairs, which are very short, straight and smooth, are placed on a rather long apophysis, and that the rostrum is rounded. The lamellar hairs are situated on the end of the very long cusps, which end in a strong tooth directed medially. The hairs are not much longer than the anterior transversal side of the tooth. They are straight and directed forwards and inwards. The lamellae are well developed, broad, and, as seen from above, reach the tip of the rostrum. Along the medial margin there is a strong chitinous ridge, which proceeds to the tip of the cusps. They form the translamella, which is not thicker than the medial ridge. The well developed cusps are half as long as the lamella from the translamella to the pseudostigmata. The lateral part of the lamella is a broad furrowed plate, which posteriorly is connected only laterally with the medial ridge, the posterior end being free (fig. 75). Tectp. I has a long free tip with 5-6 strong teeth. As seen from above, it almost reaches the tip of the rostrum. The interlamellar hairs, which are situated off the anterior margin of the pseudostigmata, are short and thin and hardly discernible. The pseudostigmatic organs are placed in very broad and deep cups opening outwards. The organ is like a flat brush with many hairs; the stalk is getting evenly broader towards the head.

The hysterosoma is broader than it is long in the medianline. At the posterior end it is rounded, while the anterior border is a straight line with a very large protuberance on either side. The medial side of the protuberances continues backwards, forming an abrupted low arch across the anterior part of the hysterosoma. The protuberance is like a broad tooth with two blunt points the space between which corresponds to a lobe or tooth on the posterior border of the pseudostigmata. Laterally to the protuberance there is a broad rounded blade or ridge. The hairs of the hysterosoma are situated along the border; they are short and rather stiff. The two anterior pairs are thinner and slightly longer. The integument without any sculpture, but with a little adhering dirt. The ventral side is shown in fig. 75 b. All tarsi have one claw. Femurs III and IV have on the ventral side a crest, which ends in a tooth.

The Argentine: In the Rio Atuel valley at the estancia El Sosneado 3 specimens in luxurious dripping wet moss from the drinking water canal; near the Arroyo Las Chircas 12 specimens in wet moss in oozing water on a mountain side.

*Carabodes* sp.; fig. 76.

Colour pale greyish-brown. Length 0.33 mm.

As this species is very little characteristic and as I, moreover, have found only one specimen which has cracked, I shall not establish it as a new species, but only mention the most characteristic features.

The rostral hairs meet in front of the rostrum. The lamellar hairs are directed inwards. Interlamellar hairs cannot be seen. The pseudostigmatic organ is slender, club-shaped, set with minute bristles along the anterior and outer border of the stalk and along the margin of the head, a few also on the surface of the head. The pseudostigmatic organs are turned outwards and backwards, the head almost inwards. The middle field of the hysterosoma is apparently smooth, only by rather great magnification the sculpture can be seen; it consists of a very fine dendrite pattern. There are no hairs on the dorsal side of the hysterosoma, nor along its border.

The Argentine: At Quebrada de Gallinato near Salta one specimen in thin moist moss sheltered by a big stone.

*Mikizetes* n. gen.

The propodosoma and hysterosoma are not separated. On the shoulder there is a long thick spine and behind it a long and broad chitinous slit or pore. The rostrum has a long row of teeth which continues along the sides of the propodosoma. Arcae porosae absent, instead there are very long chitinous slits. The legs are long and thin. The tarsi have 3 claws on the end of a thin stalk.

*Mikizetes diamantensis* n. sp.; fig. 77.

The propodosoma is very narrow, the rostrum rounded. The anterior border of the rostrum is a thin plate, which has 4 teeth in the middle and along the lateral side 10 smaller ones getting shorter posteriorly (fig. 77 a). The rostral hairs, which are situated on the upper side of the rostrum are strong and unilaterally hairy. They reach beyond the tip of the rostrum by more than half their length, meeting in front of the latter. The lamellar hairs, which are situated near the middle of the propodosoma, are crossed a short distance in front of the tip of the rostrum. They are very long, more than twice as long as their mutual distance, and slightly rough. The distance between them is a little shorter than the distance between the interlamellar hairs. The latter are situated near the anterior border of the pseudostigmata; they are a little thinner than the lamellar hairs, rough, and shorter than their mutual distance. They reach the base of the lamellar hairs. There are no lamellae. In front of the pseudostigmata there is a chitinous ridge with reticulations medially. An indistinct line runs in a curve from this reticulation to the base of the lamellar hairs. The pseudostigmatic organ, which is situated in an open, not very deep cup is a slender bent thread, on its anterior border having a row of fine bristles (fig. 77 b). Refracting punctures are seen in the middle of the propodosoma.

The hysterosoma is broadest in front of the middle. The posterior end is pointed, the anterior border has distinct shoulders, which are directed obliquely forwards. The anterior border of the latter is straight, the tip rounded and here there is a long stiff and strong spine, directed outwards and forwards. Immediately behind the spine there is a large oblong chitinous slit or pore. Behind the rounded tip with the spine there is on the lateral border of the hysterosoma a little incurvation with very thin chitinization. In addition to the large pore just mentioned there are two pairs of long narrow pores of which the anterior ones are especially long and narrow; the first pair is situated in the anterior third of the hysterosoma, the second in the posterior third. The hairs are short and thin. They are situated as shown in fig. 77. There are numerous refracting punctures or pores arranged irregularly in an oval a short distance from the border of the hysterosoma.

On the ventral side (fig. 77c) there is a short chitinous ridge between the epimeres II and III and in front of this a round chitinous knob, which is the only separation between the epimeres I and II. Between these round knobs there are 6 very long and strong, hairy setae. The remaining hairs are also long, but considerably thinner. The genital plates have 5 pairs of short thin hairs, the anal plates 2 pairs. The legs are rather thin. Fig. 77d shows Leg I. The tibia is almost triangular, having a large, broad projection with a very long tactile hair and a shorter one. All tarsi have on a long thin stalk 3 claws of which the middle one is stronger and also shorter than the two lateral ones. Fig. 77e shows the mandible, which has strong teeth. This species has a great resemblance to *Zetomotrichus lacrimans* Grandj. from North Africa (1934, p. 243, figs. 2-3), which among other things is characteristic by having a long thick spine on the Genu IV and Tarsus IV, which in GRANDJEAN'S opinion makes it able to jump. Moreover, *Zetomotrichus* has only the posterior pore on the hysterosoma, and the genital plates have only 4 pairs of hairs, but what makes the difference is the absence in *Mikizetes* of the spine on the Genu IV and Tarsus IV. This species is named after Captain EJNAR MIKKELSEN, Ph. D. h. c., who has been very active in the founding of the laboratory in the Andes Mountains, the Argentine.

The Argentine: At the Arroyo de la Cruz de Piedra near Laguna Diamante 3650 m. a.s.l. 3 specimens in fell-field in a very dry cushion.

*Eporibatula bicuspidata* n. sp.; fig. 78.

Colour pale greyish-yellow. Length 0.27 mm.

The rostrum is rounded. The rostral hairs, which are situated on the lateral border, are as long as their mutual distance, slightly curved and unilaterally feathered. The lamellar hairs, which are situated on the end of the lamellae, are likewise set with tiny bristles and about two thirds as long as their mutual distance. They reach forwards as far as the base of the rostral hairs. The lamellae are of equal thickness throughout. On the anterior end there is a tiny tooth. Posteriorly they continue in a big curve to the pseudostigmata and round the latter. A thin chitinous connection

is seen between the rostral and the lamellar hairs. The interlamellar hairs, which are situated off the middle of the lamella, are almost as long as their mutual distance and finely serrated. The pseudostigmata are halfway hidden by the anterior margin of the shoulders. The pseudostigmatic organ has an oblong thick head on a stalk, which is not much longer than the head. The head and the stalk form an almost right angle. The head is set with minute bristles. The stalk seems to join the head on the side and not on the end. The hysterosoma is very narrow with almost parallel sides, the posterior end is rounded; the anterior chitinous border is abrupted and the lateral side projects on either side as a long pointed cusp as far anteriorly as off the interlamellar hairs. The hairs of the hysterosoma are thin and slightly curved, apparently smooth. The areae porosae are very indistinct.

The Argentine: In the Rio Atuel valley at El Angulo one specimen in a very dry cushion in fell-field.

*Eporibatula* (? *Oribatula*) *gracilis* n. sp.; fig. 79.

Colour yellow brown. Length 0.33 mm.

The rostrum a little pointed between the rostral hairs. The latter are thin, straight, directed forwards and about one and a half times longer than their mutual distance. The lamellar hairs, which are situated on the end of the lamellae, are likewise thin, parallel, directed forwards and a little longer than their mutual distance. They reach beyond the tip of the rostrum. The lamellae are narrow, erect blades, thinnest at the anterior end. At the posterior end there is a fissure, which cuts almost through the lamella; this is also seen in *Oribatula altimontanooides* (see fig. 83a). Between the anterior end of the lamellae there is a transversal indistinct ridge or line, which, however, does not seem to have anything to do with a translamella, as it is placed at a deeper level and a little further anteriorly. The interlamellar hairs are thin and slightly uneven, which may be the case also with the lamellar hairs, but which is only very difficult to see. They are directed upwards and forwards and are no longer than their mutual distance. The pseudostigmatic organ has an oblong disk-shaped head set with minute bristles. It is at almost right angles to the stalk, which is a little longer than the head. The hysterosoma is long and narrow, broadest a little behind the middle. The anterior margin projects in an even round arch as far as off the base of the interlamellar hairs. The shoulders do not reach beyond the outlines of the hysterosoma. They are well chitinized in contrast to the anterior rounded part of the hysterosoma. On the shoulder there is a stiff and rough hair. The remaining hairs, which are situated as shown in fig. 79, are thin, curved, and uneven, at least the one behind the shoulder hair. On the posterior end of the hysterosoma the hairs are finer. Areae porosae are distinct; the area porosa adalaris is the biggest. The legs are short; all tarsi have three claws, of which the middle one is the strongest.

Bolivia: At Chacaltaya about 5400 m. a.s.l., just below the snow, one specimen in coarse *Polytrichum* among stones.

*Oribatula* (? *Hemileius*) *suramericana* n. sp.; fig. 80.

Colour brown-light brown. Length 0.38 mm.

The rostrum is slightly pointed. The rostral hairs, which reach beyond the tip of the rostrum by half their length, are thin and unilaterally feathered. The lamellar hairs are likewise thin, unilaterally feathered; they are a little longer than the rostral hairs, i. e. a little longer than their mutual distance. They are situated on the tip of the lamellae, which are almost equally thick throughout. The latter consist of two crossing ridges, thus getting a slightly undulating appearance. They are rounded at the anterior end, without tooth or cusp. The interlamellar hairs, which are directed upwards, are as long as the lamellar hairs or about one and a half times longer than their mutual distance; they are slightly thicker than the lamellar hairs. The pseudostigmatic organ has a short club-shaped head on a stalk not much longer than the head. The head is set with tiny hairs; it is directed outwards and forwards.

The hysterosoma is broadest behind the middle. The posterior end is slightly pointed; the anterior end is much narrower and projects in a broad flat arch beyond the anterior border of the pseudostigmata. The arch has a double contour. The shoulders do not reach beyond the outlines of the hysterosoma. The hairs, which are situated as shown in fig. 80, are very short and thin. Instead of areae porosae there are chitinous pores. All tarsi have 3 claws, of which the middle one is the stronger.

The Argentine and Bolivia: This species has a wide distribution, being found almost everywhere both in the mountains and in the subtropical localities, but seldom in great numbers, usually a single or a few in the samples.

In the Argentine it is found in the Rio Atuel valley in many localities; in the Rio Salado valley; at the Arroyo Plomo near Malargüe; at San Antonio de la Cobres it was rather numerous in a moist meadow with *Juncus* and a *Taraxacum*-like plant on a slope almost 3800 m. a.s.l.; at Quebrada de Gallinato near Salta a few specimens in a moist meadow with luxurious moss.

Bolivia: At Chulumani 4 specimens in thick luxurious moss on a vertical hang over a ditch with water.

*Oribatula magniporosa* n. sp.; fig. 81.

Colour light brown-brown. Length 0.43 mm.

The rostrum is rounded. The rostral hairs reach beyond the tip of the rostrum by three fourths of their length. They are about one and a half times longer than their mutual distance, and unilaterally feathered. The lamellar hairs, which are situated on the tip of the lamellae, are also feathered; they are strong and dark of colour, about one and a half times longer than their mutual distance; they are situated almost in the middle of the propodosoma. The lamellae are sharp-edged, erect blades, as long as the lamellar hairs. Where they touch the anterior border of the pseudostigmatic cups, there is a keel on the cups. The anterior end of the lamellae enclose the lamellar hair. There is no tooth nor cusp. The interlamellar hairs, which are stronger than the lamellar hairs and rougher, are only a little longer than their mutual

distance. They are directed upwards and situated almost off the keel on the pseudostigmatic cups. The pseudostigmatic organs are short, hairy clubs, rounded at the tip. They are placed on a short stalk, which is about one and a half times longer than the head. The pseudostigmatic cups have also posteriorly a keel, though much smaller than the anterior one. The hysterosoma is egg-shaped apart from the small slightly pointed shoulders. The anterior border is a broad round arch. The shoulders project only a little beyond the outlines of the hysterosoma. The hairs are dark, very rough, stiff and feathered especially on the anterior half of the hysterosoma. Towards the posterior end they get less rough and thinner, and on the posterior border they are thin and almost smooth, but stiff. The areae porosae are very distinct, especially the area porosa adalaris, which is very large. The legs are unusually long for an *Oribatula*. All tarsi have 3 claws, the strongest in the middle.

The Argentine: In the Rio Atuel valley at the Arroyo de Los Pajaritos one specimen in dripping wet *Mimulus* vegetation on the border of the arroyo; at Arroyo El obscuro one specimen in a carpet-like, moist cushion half a metre from the arroyo; and two specimens in the same locality in a moist cushion, only a few mm. high.

*Oribatula altimontana* n. sp.; fig. 82.

Colour light brown-brown. Length 0.65 mm.

The rostrum is flatly rounded, the rostral hairs strong and unilaterally feathered. They are situated near the anterior border. The lamellar hairs, which are situated on the end of the lamellae, are twice as long as their mutual distance, strong and set with rather long fine bristles. The lamellae are at least as long as the lamellar hairs and of almost equal thickness throughout. The ridge upon which the exopseudostigmatic hair is situated, continues backwards for a good distance below the anterior border of the hysterosoma and on its posterior end is the very strong exopseudostigmatic hair. Between the anterior end of the lamellae there is a thin translamella, abruptly in the middle. In front of it there are several transversal low ridges, though indistinct. The distance between the interlamellar hairs is one and a half times longer than between the lamellar hairs. The interlamellar hairs are considerably longer than the lamellar hairs, slightly thicker and more densely feathered. Between them there is a low broad chitinous arch, which is parallel with the anterior border of the hysterosoma. The pseudostigmatic organ has a round flat disk-shaped head set with dark bristles and a stalk, which is almost twice as long as the head. The hysterosoma is very long as compared with the propodosoma, which is partly due to the anterior border, which projects as far as the base of the interlamellar hairs and beyond the pseudostigmata. Immediately behind the anterior border of the hysterosoma there is a light area on either side of which the stronger chitinizations from the shoulder end in sharp narrow points hardly connected medially. The shoulders hardly project beyond the outlines of the hysterosoma. Far laterally on the shoulder there is a strong and hairy bristle of the same appearance as the remaining hairs of the hysterosoma



(fig. 82 a). The areae porosae are distinct, all round, the largest being the area porosa adalaris and the anterior area porosa mesonotica, which are almost equally large. All tarsi have 3 claws of which the middle one is the strongest. The legs are short and thin. Fig. 82 b shows a nymph the integument of which is covered by numerous papillae, which in profile are pointed (fig. 82 c), and rounded as seen from above (fig. 82 d). Between the papillae the integument is punctate.

The Argentine: At the Arroyo de la Cruz de Piedra 11 specimens about 3650 m. a.s.l. in a very dry cushion in fell-field.

Bolivia: At Cumbre 4658 m. a.s.l. about 100 specimens including nymphs in a thick carpet of bryophytes, grass, low cushion plants, and Cyperaceae, moist-wet.

*Oribatula altimontanoides* n. sp.; fig. 83.

Colour light brown. Length 0.59 mm.

The rostrum is rounded, the rostral hairs are unilaterally feathered, almost parallel and one and a half times longer than their mutual distance. The distance between the lamellar hairs is only two thirds of the distance between the rostral hairs. The lamellar hairs, which are situated on the anterior end of the lamellae, are twice as long as their mutual distance, directed forwards and upwards and feathered. The lamellae are of equal thickness throughout. There is no translamella, but an indistinct curved line off the base of the lamellar hair and a straight line a little farther anteriorly. At the posterior end where the lamellae join the pseudostigmatic cups a deep fissura cuts almost through the lamella (fig. 83 a). The distance between the anterior ends of the lamellae is only half as long as between the posterior ends. The pseudostigmatic organ has an oblong club-shaped head set with tiny hairs in rows. The stalk is no longer than the head, which is directed downwards. The interlamellar hairs are situated a good distance farther anteriorly than the pseudostigmata. They are strong, erect, and feathered and only a little longer than their mutual distance.

The hysterosoma is rather long, broadest a little behind the middle. The posterior end is rounded, the anterior end narrower. It projects forwards almost as far as off the base of the interlamellar hairs. The lateral chitinizations on the shoulders continue forwards and almost meet in two sharp points on either side of the arched anterior margin. The shoulder is very little pronounced and hardly projects beyond the outlines of the hysterosoma. The shoulder hair is thick, stiff, and set with small hairs. Immediately in front of the latter the exopseudostigmatic hair is seen, as long and strong as the shoulder hair. The remaining hairs of the hysterosoma are more slender, unilaterally feathered. The areae porosae are distinct; the area porosa adalaris is oblong, the others round and somewhat smaller. The legs are rather long; all tarsi have 3 claws, of which the middle one is the strongest. This species bears great resemblance to *O. altimontana*, but is has longer legs, longer and thinner hairs and a slenderer pseudostigmatic organ. Fig. 83 b shows a nymph.

The Argentine: In the Rio Atuel valley at El Angulo 3400 m. a.s.l. 19 specimens including a few nymphs in a dry cushion in fell-field. On the same mountain

a little farther up at about an altitude of 3700 metres more than 100 specimens in a dry *Poa*-like grass tussock in fell-field.

*Scheloribates luteomarginatus* n. sp.; fig. 84.

Colour light brown. Length 0.61 mm.

(The different species within the genus *Scheloribates* can be very difficult to distinguish, but if every detail in the outer appearance is taken into consideration it is possible without dissection to determine them. Thus, there seems to be great variations in the shape of the anterior border of the hysterosoma and in the length, shape, direction of the pseudostigmatic organs, in the appearance of the gland on the anterior border of the hysterosoma, the pores of the latter, colour, etc. For comparison some of these details are shown together in figs. 84–93b, 94a, 95a & 96c, Table 24). As compared with the propodosoma the hysterosoma is very broad. Off the pteromorphae it is twice as broad as the distance between the outer margin of the pseudostigmata. The rostrum is conical; the rostral hairs are alike in all the species found; they are inserted on the lateral borders, are unilaterally feathered and reach beyond the tip of the rostrum by half their length. The lamellar hairs are longer than the lamellae and very thin. The interlamellar hairs are as long as the lamellar hairs, both pairs are slightly uneven. The pseudostigmatic organ is directed outwards and slightly backwards in an even arch. The head is slender, clavate, rounded at the tip (fig. 84a). It is set with minute hairs arranged in 4–5 longitudinal rows. The stalk is about twice as long as the head. The whole organ is as long as the distance between the interlamellar hairs. On the anterior border of the hysterosoma, which forms a broad, even arch with rounded shoulders (fig. 84b, Table 24), there are just behind the interlamellar hairs on either side in the glandular area two small, brown spots. The pteromorphae are broad and rounded; along the margins there is a narrow light zone surrounded both laterally and medially by a somewhat darker coloration. Instead of the area porosa adalaris there is a long chitinous slit. Across the hysterosoma between the pteromorphae there are more or less irregular indistinct brown spots arranged in a row. Hairs cannot be seen. The tarsi have 3 claws, the strongest in the middle.

The Argentine: In the Rio Atuel valley at the estancia El Sosneado one specimen in wet bryophytes in the drinking-water canal; at Puente Angosto 3 specimens in moist bryophytes on a vertical bank of the river. At the Arroyo de la Cruz de Piedra several specimens in wet *Juncus* and grass; in moist *Calceolaria* and thin moss on a hang beside the river and in a high wet moss cushion sheltered by tussocks of stiff grass.

(?) *Scheloribates longior* n. sp.; fig. 85.

Colour light brown. Length 0.53 mm.

The whole animal is almost twice as long as it is broad. The hysterosoma has parallel sides; its anterior border forms an even arch (fig. 85b, Table 24) almost

like the posterior end though with slightly outstanding shoulders. The rostral hairs are unilaterally feathered; they reach beyond the tip of the rostrum by about one third of their length. The lamellar and the interlamellar hairs are of almost equal length, thin and feathered. The lamellar hairs reach the tip of the rostrum. The pseudostigmatic organ is directed forwards, then at an almost right angle backwards; the bend is near the middle of the organ. The head is slender, clavate, pointed at the tip, and set with tiny hairs or spines (fig. 85 a); it is about half as long as the distance between the interlamellar hairs. The pteromorphae are very small and hardly project beyond the outlines of the hysterosoma. All hairs are short, thin, and curved and inserted into chitinous pores. Instead of areae porosae there are round chitinous plates with an opening. The tarsi have 3 claws of which the one in the middle is the strongest.

Bolivia: At Cumbre 4658 m. a.s.l. 11 specimens in a slightly moist cushion, in appearance like yellow-grey mosses, which in many places in the highlands of the Andes mountains cover large areas.

*Scheloribates* (?) *pallidulus* (C. L. Koch); fig. 86.

Colour yellow brown-light brown. Length 0.48 mm.

The hysterosoma is rather long; it is broadest across the pteromorphae. The anterior border of the hysterosoma projects in the middle as a low flat arch as far as the anterior margin of the pseudostigmata, while the lateral parts have an almost transversal direction, though slightly rounded on the shoulder (fig. 86 b, Table 24). The lamellar and the interlamellar hairs are thin and feathered, the interlamellar hairs are a little longer than the lamellar hairs. Both pairs are twice as long as their mutual distance. The pseudostigmatic organ, which is about two thirds as long as the interlamellar hairs, has a long clavate head, thickest near the end, which is slightly pointed. It is set with small hairs. The hairy part is almost twice as long as the stalk (fig. 86 a). At the transition between head and stalk the head is bent backwards at an almost right angle. The hairs of the hysterosoma are very short and thin. There are round chitinous pores instead of areae porosae. Across the hysterosoma in its anterior half there is a row of light spots, apparently glands.

The Argentine: At Quebrada de Gallinato near Salta two specimens in a moist meadow with luxurious grass, near a small arroyo.

Bolivia: On the outskirts of La Paz 4 specimens in the edge of an *Eucalyptus* wood in moist moss on a vertical hang beside a pit with gravel. Recorded from many countries in Europe and from North America. (Canada: HAMMER, 1952).

*Scheloribates angulatus* n. sp.; fig. 87.

Colour light brown. Length 0.63 mm.

The hysterosoma is almost as broad as it is long, broadest across the middle. The anterior border of the hysterosoma forms an almost straight line in the middle,

while the lateral parts have an oblique direction slightly backwards (fig. 87b, Table 24). The shoulders are outstanding. Immediately behind the most outstanding point is a slight incurvation on the lateral sides of the hysterosoma which makes the shoulders more pronounced. The lamellar and the interlamellar hairs are thin and hairy and almost equally long as in the above-mentioned species. The lamellar hairs reach beyond the tip of the rostrum by more than one third of their length. The pseudostigmatic organ has a short disk-shaped head on a stalk which is almost twice as long as the head (fig. 87a). At the transition between stalk and head the latter is bent forwards and outwards from an almost upright direction. The head is provided with short scales or spines arranged in a few longitudinal rows. The hairs of the hysterosoma are exceedingly fine and hardly discernible. All the chitinous pores seem to have an opening laterally. All tarsi have 3 claws, the strongest in the middle.

Bolivia: At Chacaltaya about 5400 m. a.s.l. 2 specimens in a very low vegetation of Umbelliferae as found also in some localities at Cumbre.

*Scheloribates striatus* n. sp.; fig. 88.

Colour chestnut brown. Length 0.47 mm.

Across the pteromorphae the hysterosoma is broader than it is long. As seen from above, it is circular apart from the shoulders. The anterior border is an almost straight line, though with very low incurvations laterally to the pseudostigmata, and the middle part reaches slightly farther forwards than the lateral parts (fig. 88b, Table 24). The pteromorphae are broad and rounded. The lamellar and the interlamellar hairs are long and very thin towards the tip. The lamellar hairs are densely set with small bristles, the interlamellar hairs not quite so feathered. The pseudostigmatic organ has a short black club-shaped head; when laid bare it is seen that the head is rather long, rounded at the tip and set with short scales or spines in longitudinal rows (fig. 88a). The stalk outside the pseudostigmatic cup is no longer than the head when seen in profile. The whole organ, which in position is shorter than the distance between the interlamellar hairs, is turned upwards and thereafter the head is directed medially. The pteromorphae are distinctly radially striped, white striped in the dirty brown surroundings. The hairs of the hysterosoma are distinct, but short and thin. Across the hysterosoma there are some brown spots arranged in two more or less regular arches. All tarsi have 3 claws, of which the middle one is the strongest.

Bolivia: At Chacaltaya about 5000 m. a.s.l. several specimens in a cushion only half a cm. high with some Cyperaceae in dripping wet bog.

(?) *Scheloribates trichosus* n. sp.; fig. 89.

Colour dirty yellow-brown. Length 0.64 mm.

The hysterosoma is a regular oval apart from the anterior border, which is straight (fig. 89b, Table 24). The pteromorphae do not reach beyond the outlines

of the hysterosoma and in this respect the species reminds of *S. confundatus* Sell. In some ways it also reminds of an *Oribatula*, the legs, however, of *Scheloribates*. The lamellar and the interlamellar hairs are very long and thin. The interlamellar hairs are longer than the lamellar hairs, but not so much as shown in fig. 89; as seen from above, the lamellar hairs seem shorter, due to their more upright position. The pseudostigmatic organ, which is directed obliquely forwards, is a little shorter than the distance between the interlamellar hairs. The head and the stalk outside the pseudostigmatic cup are equally long. The head is slender, club-shaped, slightly pointed at the tip and furnished with tiny hairs or spines in longitudinal rows (fig. 89a). The hairs of the hysterosoma are unusually strong and long, about as long as the head of the pseudostigmatic organ. Their position is more like that in *Oribatula*. It does not, however, have any areae porosae, but chitinous pores surrounded by a ring. The chitinous pores at the posterior end seem to be conical with an opening at the top. All tarsi have 3 claws, of which the middle one is the strongest. The hairs of the legs are unusually long, strong, and feathered.

Bolivia: At Chacaltaya at about 5400 m. a.s.l. one specimen in half a cm. high very fine moss.

*Scheloribates rugosus* n. sp.; fig. 90.

Colour light brown. Length 0.51 mm.

This species bears great resemblance to *S. luteomarginatus*. The hysterosoma is almost as broad as it is long, broadest across the middle, but almost equally broad across the pteromorphae. The anterior border of the hysterosoma is straighter than in *S. luteomarginatus*; the middle part is very slightly arched (fig. 90b, Table 24) and the lateral parts are not drawn so much backwards as in *S. luteomarginatus*. The shoulders are rounded. More or less parallel to the margin of the pteromorphae there are several distinct chitinous wrinkles (hence the name). The lamellar and the interlamellar hairs are thinner than in the above-mentioned species; they are slightly feathered and more or less undulating. The interlamellar hairs are the longest, though the difference is not so pronounced as in fig. 90, where the lamellar hairs due to their upright position are drawn too short; they are at least three fourths as long as the interlamellar hairs. The pseudostigmatic organ, which is turned outwards and backwards, has a slender club-shaped head slightly pointed at the tip and set with short hairs or scales in longitudinal rows (fig. 90a). The stalk is bent immediately before the head at an almost right angle. The hairs of the hysterosoma are very short, hardly discernible. All tarsi have 3 claws, of which the one in the middle is the strongest.

Bolivia: At Cumbre 4658 m. a.s.l. more than 50 specimens in dripping wet grass and bryophytes together with a Composite beside a small brook; 8 specimens in the same locality in moist-wet moss; 7 specimens also in the same pass, but farther west at an altitude of 4200 metres in low twining Umbelliferae on peat.

At Chacaltaya about 5000 m. a.s.l. a few specimens in a dripping wet, half a cm. high cushion with some Cyperaceae in a bog.

*Scheloribates obesus* n. sp.; fig. 91.

Colour chestnut brown. Length 0.66 mm.

The hysterosoma is almost as broad as it is long, equally broad across the middle and across the pteromorphae. The anterior border of the hysterosoma is a long, very low arch almost regular from end to end only with a very low incurvation laterally to the pseudostigmata (fig. 91 b, Table 24). Immediately behind the anterior border of the hysterosoma there is on the lateral side of the hysterosoma a broad incurvation, through which a sharp edge or point on the pteromorphae is formed. The pteromorphae are light of colour on the outer border-as far as indicated by the outer broken line. On the border there are some indistinct longitudinal wrinkles. By greater magnification, moreover, some radiating very fine white lines can be seen. The lamellar and the interlamellar hairs are very long, thin and set with rather long fine bristles. The interlamellar hairs are a little longer than the lamellar hairs. The pseudostigmatic organ is bent near the middle. The head, which is turned outwards, is slender, club-shaped, pointed at the tip, and set with tiny spines or scales in longitudinal rows (fig. 91 a). The whole organ is no longer than the distance between the interlamellar hairs. The chitinous pores on the hysterosoma are distinct; hairs cannot be seen. All tarsi have 3 claws, of which the middle one is the strongest. The crest on Femur II is toothlike.

Bolivia: East of Cumbre 4000 m. a.s.l. 4 specimens in wet 1 cm. high twining Umbelliferae vegetation with a little grass beside a brook; 6 specimens in moss, grass, and low cushions. At Chacaltaya 5400 m. a.s.l. 32 specimens in half a cm. high, very fine bryophytes; 5 specimens in low twining Umbelliferae as found also in Cumbre.

*Scheloribates latus* n. sp.; fig. 92.

Colour light brown. Length 0.46 mm.

The hysterosoma is circular apart from the pteromorphae. Across the pteromorphae it is broader than long. The anterior border of the hysterosoma is an almost straight line (fig. 92 b, Table 24). The shoulder or extreme point of the pteromorphae is rounded. Behind the shoulder there is on the lateral sides of the hysterosoma a faint incurvation, which may have a slightly darker colour, as if the margin on this spot has been pressed in. Very indistinct white radiating lines can be seen along the outer margin of the pteromorphae, which are of very light colour. The lamellar and the interlamellar hairs are thin and feathered. They do not reach far beyond the tip of rostrum as is the case with several of the species described above. The interlamellar hairs reach the tip of the rostrum. The pseudostigmatic organ has a very slender head set with tiny hairs. It is thickest near the end, rounded at the outer margin or anteriorly, flat medially or posteriorly (fig. 92 a). It is turned outwards and backwards and usually bends at an almost right angle one third of its length from the border of the pseudostigmatic cup. The latter has on its lateral border a minute tooth. The chitinous pores of the hysterosoma are distinct. The hairs are very small, often they cannot be seen. All the tarsi have only one strong claw.

Bolivia: East of Cumbre one specimen in wet vegetation of very low twining *Umbelliferae* with a little grass near a brook. At Unduavi about 100 specimens in 2–5 cm. high wet luxurious bryophytes and grass on a vertical cliff.

*Scheloribates elegans* n. sp.; fig. 93.

Colour light brown. Length 0.46 mm.

Unfortunately the only specimen found was crushed but even so it was possible to see that the hysterosoma is almost as broad as long. The anterior border has in the middle a broad flat arch, then on either side a broad incurvation and further laterally the shoulder or the anterior margin of the pteromorphae projects as another low arch, the whole thus forming a rather regular undulating anterior border of the hysterosoma (fig. 93b, Table 24). The pteromorphae are rounded; the outer margin is a dirty greyish yellow with extremely fine radiating white lines. The lamellar hairs are hardly as long as the lamellae; they reach just beyond the tip of the rostrum and are stiff and hairy. The interlamellar hairs are of the same appearance, but a little longer. The pseudostigmatic organs, which in a broad curve are turned outwards and backwards, are very slender and on the anterior or outer margin set with hairs in three fourths of their length; the hairs getting longer in the distal half at the same time as the stalk widens to a head, which distally ends in a long thin thread set with hairs (fig. 93a). The lateral lobe on the pseudostigmatic cup is very large. The chitinous pores on the hysterosoma are distinct. The hairs are very small and can be seen only at the posterior end of the hysterosoma. All the tarsi have 3 claws, of which the middle one is the strongest.

Bolivia: At Chulumani one specimen in 5 cm. high thick luxurious moss on a vertical hang over a ditch with water.

*Scheloribates rectus* n. sp.; fig. 94.

Colour light brown. Length 0.33 mm.

The hysterosoma is almost as broad as long, broadest a little in front of the middle. The anterior border of the hysterosoma is slightly arched in the middle; laterally the anterior border of the pteromorphae run transversally. The pteromorphae are slightly rounded at the anterior free end; a little further posteriorly on the lateral sides of the hysterosoma there is a slight impression where the free margin is bent downwards. The anterior border, as seen from above, forms an almost right angle to the lateral border. The pteromorphae are light brown as other parts of the mite. The lamellar and the interlamellar hairs are thin, set with small bristles and not much longer than the lamellae. Due to their upright position the interlamellar hairs are drawn a little too short in fig. 94. The pseudostigmatic organ, which is directed outwards, and backwards, is bent about one third of its length from the border of the pseudostigmatic cup. The head is lanceolate, pointed at the tip and set with small hairs or spines, especially along the anterior or outer margin, while the inner or posterior margin is smoother. The tip almost reaches the outer corner of the pteromor-

phae. The chitinous pores on the hysterosoma are distinct; the hairs cannot be seen except at the posterior end of the hysterosoma. All tarsi have 3 claws, of which the middle one is the strongest.

Bolivia: At Puente Villa 2 specimens in coarse wet *Polytrichum* on a vertical cliff in a narrow cleft a few metres from a river.

(?) *Scheloribates parvialatus* n. sp.; fig. 95.

Colour light brown. Length 0.55 mm.

The hysterosoma is almost one and a half times longer than broad. The anterior border forms a rather high curve which projects anteriorly almost as far as to the base of the interlamellar hairs. The sides of the curve are almost straight lines running obliquely backwards, which end in a very narrow membrane or wing on the shoulder (fig. 95 a, Table 24). The latter hardly projects beyond the outlines of the hysterosoma. The lamellar hairs reach just beyond the tip of the rostrum; they are stiff and feathered. The interlamellar hairs are a little shorter, but otherwise of the same appearance. The pseudostigmatic organs, which are turned outwards and backwards, are unusually long and thin and reach a good distance beyond the outer point of the shoulders. On the anterior border they are set with hairs at least in three fourths of their length. The hairs are longest along the long, flat, and narrow head, which is slightly rounded at the anterior border, slightly concave at the posterior border. It is tapering into a short thin end set with hairs. The chitinous pores on the hysterosoma are narrow and small. The hairs are comparatively long and distinct. There are more hairs than usual in *Scheloribates*, and they are arranged in a different way; this together with the short pteromorphae makes me believe that it is not a real *Scheloribates*. All tarsi have 3 claws, 2 very thin lateral ones and a very strong middle one. The crest on Femur II ends in a very strong sharp tooth.

The Argentine: At Quebrada de Gallinato near Salta one specimen in *Selaginella* vegetation on a slope down to a dry arroyo sheltered by bushes.

*Scheloribates rostratus* n. sp.; fig. 96.

Colour very light brown. Length 0.35 mm.

The hysterosoma is as broad as it is long, broadest across the pteromorphae. The anterior border forms in the middle a broad very low arch, then comes an incurvation laterally to the pseudostigmata, after which the anterior margin of the pteromorpha again reaches as far anteriorly as the middle arch (fig. 96 c, Table 24). Immediately behind the anterior rounded edge of the pteromorpha there is on the lateral border of the hysterosoma a very pronounced impression. The pteromorphae are light of colour as all other parts of the integument. The rostrum is long and narrow as a nose. The lamellar and the interlamellar hairs are thin and feathered, of equal length and approximately as long as the lamellae or slightly longer. Fig. 96 b shows a sketch of the lamella. The pseudostigmatic organs, which are turned outwards and backwards,



reach beyond the outer point of the pteromorphae. The head is long and flat, rounded at the anterior margin and there set with short hairs in at least two thirds of its length. The posterior margin is smooth without hairs; the end is tapering into a short thin thread (fig. 96a). The chitinous pores on the hysterosoma are small and narrow. The hairs very small. All tarsi with only one claw.

The Argentine: In the Rio Caldera valley about 10 km. north of Salta one specimen in wet liverworts under a slope in chalk cliffs.

*Peloribates nudus* n. sp.; fig. 97.

Colour light brown. Length 0.32 mm.

The hysterosoma is almost as long as it is broad. The anterior border between the pteromorphae is slightly arched. The rostral hairs, which are rather short and feathered, reach just beyond the tip of the rostrum. The lamellar hairs, which are about twice as long as the rostral hairs, reach a little further forwards than the rostral hairs. They are thin and feathered. The interlamellar hairs, which in the only individual found are rather strongly bent, are also feathered and apparently as long as the lamellar hairs. The lamellae are very complicated. Several chitinous ridges are wound together (see the sketch fig. 97a). The pseudostigmatic organ, which is turned outwards and backwards, is very long and slender. The whole organ is about one and a half times longer than the distance between the interlamellar hairs. The very thin stalk is set with hairs almost in its full length. The head is very narrow, the tip tapering into a thin thread and it is set with comparatively long hairs. The pseudostigmatic scale, the border of which is seen laterally to the pseudostigmatic cup, is rather small. The pteromorphae are finely striated and punctate, especially along the outer margin. The chitinous pores on the hysterosoma are narrow, thickest at their medial end. Hairs cannot be seen. Over a big area across the hysterosoma there are numerous brown spots of a cellular structure, probably glands in the tissue below. The tarsi have only one claw.

The Argentine: In the Rio Caldera valley near Salta one specimen in wet moss on a cliff with oozing water.

*Peloribates rigidicoma* n. sp.; fig. 98.

Colour light brown-brown. Length 0.46 mm.

The hysterosoma is broader than it is long. The anterior border is very little arched. Off the glands on the anterior margin just behind the interlamellar hairs there is on either side a slight depression. The glands have a distinct pore opening behind the interlamellar hair (fig. 98a). The propodosoma is short, the rostrum is broad and rounded. Behind the anterior border there is a very small tooth on the posterior border of a light area (fig. 98b). The rostral hairs are thin and uneven; they are situated on the lateral sides of the propodosoma and have at the base a small free tooth; they reach the tip of the rostrum. The lamellar hairs are absent. The interlamellar hairs are short, thick, stiff and rough, about half as long as their mutual

distance. The lamella, which is situated far laterally consists of two ridges which meet near the middle of the propodosoma, from where a thin ridge continues towards the tip of the rostrum (fig. 98b). On the inner side of the anterior end of the lamella there is a big pore, probably for the lamellar hair (fig. 98b). The pseudostigmatic organ, which is turned outwards and backwards, has on a very long and slender stalk a thin club-shaped head rounded at the tip and set with minute bristles in longitudinal rows (fig. 98c). The pseudostigmatic organ is about as long as the distance between the pseudostigmatic cup and the interlamellar hair. The pseudostigmatic scale is large; it can be seen as a semicircular lobe laterally to the pseudostigmatic cup. The hairs of the hysterosoma, 14 pairs, are almost of the same length and appearance as the interlamellar hairs, stiff, slightly bent and unilaterally rough (fig. 98d). The chitinous pores are round. In the anterior half of the hysterosoma between the pteromorphae glandular tissue can be seen through the thin integument. The tarsi have 3 claws of which the middle one is the strongest. Femora II and IV have a broad crest on the ventral side. Tibia I has a long tooth or protuberance with a hair on its tip in front of the long tactile hair. Tibia II has a smaller tooth.

Bolivia: At Puente Villa 4 specimens in coarse wet *Polytrichum* on a vertical cliff in a narrow cleft a few metres from the river.

*Peloribates longicoma* n. sp.; fig. 99.

Colour light brown. Length 0.37 mm.

The rostrum is slightly pointed; the rostral hairs are unilaterally feathered; they reach beyond the tip of the rostrum by about half their length. The lamellar and the interlamellar hairs are thin and set with fine hairs (in fig. 99 all hairs are drawn a little too thick and coarse due to technical difficulty). They are of equal length; the interlamellar hairs reach the tip of the rostrum. The lamellae are very complicated and consist of various ridges wound together and overlapping each other; fig. 99a shows a sketch of this complicated structure; it appears that one ridge reaches as far as the border of the rostrum in front of the rostral hair, sending a branch round the base of the lamellar hair. The pseudostigmatic organ, which is directed outwards and backwards, is bent at a right angle immediately outside the pseudostigmatic cup. It has on a very slender hairy stalk a thin club-shaped head, which is slightly pointed at the tip and set with very thin hairs in 4 longitudinal rows. The distal part from the bend is as long as the distance between the interlamellar hairs; the pseudostigmatic chitinous scale is seen as a large round lobe outside the cup.

The hysterosoma is as broad as it is long. The anterior border is slightly arched. The hairs, 14 pairs, are very long and finely feathered, on an average as long as the lamellar and the interlamellar hairs. They seem to be rather soft, not stiff. There are distinct chitinous pores. Through the thin integument some glandular tissue can be seen in the anterior half of the hysterosoma. All tarsi have 3 claws, of which the middle one is the strongest. Femur II has a very broad crest on the ventral side. The nymph has also very long and hairy setae.

To judge from fig. 3 in WILLMANN'S paper from Guatemala (1930, p. 241) this species bears great resemblance to *Peloribates longisetosus* Willm., but having studied WILLMANN'S species it is obvious that they are very different. *P. longisetosus* is bigger (0.45–0.465 mm.) but what is most important: the hairs are completely different, they are almost equally thick throughout and rather stiff. The distance between the two posterior ones on the posterior border of the hysterosoma is equal to the length of the hairs.

The Argentine: In the Rio Caldera valley near Salta 5 adults and 5 nymphs in slightly moist moss on a chalk cliff sheltered by trees; one specimen in *Selaginella* vegetation on a slope down to a dry arroyo sheltered by bushes.

*Protoribates elegans* n. sp.; fig. 100.

Colour greyish-yellow. Length 0.37 mm.

This species is about one and a half times longer than it is broad behind the pteromorphae. The propodosoma is narrow, the rostrum pointed, though flat at the tip. The rostral hairs are rough and a little longer than their mutual distance; they reach beyond the tip of the rostrum by half their length. The lamellae are rather broad and equally thick throughout, though rounded at the anterior end. From the latter runs a narrow ridge to the rostral hair. The lamellar hairs reach a little beyond the tip of the rostrum. They are about as long as the lamellae from the end to the pseudostigmatic cup, stiff and rough. The interlamellar hairs are situated close to the lamellae immediately in front of the anterior border of the hysterosoma. They are likewise rough, but a little shorter than the lamellar hairs. The pseudostigmatic organ has in its natural position a broad disk-shaped head set with hairs and a short stalk, which is not longer than the head. As seen in profile the pseudostigmatic organ is a short thick club (figs. 100 a–b). The pseudostigmatic organ is bent backwards between head and stalk. The pseudostigmatic cup has on its lateral border, but a little ventrally, a kind of spine or thickening which supports a thin scale (fig. 100 b).

The anterior border of the hysterosoma projects in the middle beyond the base of the interlamellar hairs. The border is, however, very indistinct. The pteromorphae are very short and the distance across the pteromorphae is not longer than across the broadest part of the hysterosoma. A furrow runs from the pseudostigmata across the pteromorpha in an even curve backwards to the posterior end of the pteromorpha, dividing the latter into two almost equally large parts. The distal part has very fine radiating lines. The hair on the shoulder sits near the furrow on the medial half of the pteromorpha. The hairs of the hysterosoma are situated as shown in fig. 100; they are thin and short, a little shorter than the pseudostigmatic stalk. The areae porosae are distinct, but small. The ventral side is shown in fig. 100 c. The tarsi have only one claw. Tibia I has distally a protuberance with a long and a shorter tactile hair, the short one is situated on the top of the protuberance, the long one at its base. Tibia I and Tarsus I are equally long. The femora of all legs have ventrally a crest, which in Femora I and II projects as a tooth.

The Argentine: In the Rio Atuel valley at El Angulo 12 specimens in a very dry cushion in fell-field.

*Tuxenia* n. gen.

In outer appearance *Tuxenia* bears great resemblance to *Protoribates*; the lamellae are, however, covered by a triangular plate, which from off the lamellar hairs projects backwards to a little beyond the interlamellar hairs and make the lamellae look very complicated. Areae porosae present.

*Tuxenia complicata* n. sp.; fig. 101.

Colour light brown. Length 0.44 mm.

The rostrum is round and narrow; on either side it has a slight incurvation in which the rostral hair is situated. This is very thin and stiff. It reaches beyond the tip of the rostrum by half its length. The lamellar hair is exceedingly short and thin; it is situated in a big pore medially to the anterior end of the lamella. The lamella is very complicated, consisting in a rather broad ridge which bends slightly outwards a short distance behind the interlamellar hair. From a point off the lamellar hairs a triangular plate goes backwards, covering the distal part of the lamella. It reaches as far back as off the bend of the lamellar ridge. This complicated structure can be seen best when dissected out (fig. 101a). A keel goes from the rostral hair to the lamellar hair. The interlamellar hairs are situated rather far anteriorly, close to the lamellae. They are about half as long as their mutual distance, thin and smooth. The pseudostigmatic organ has a short head, which just reaches outside the pseudostigmatic cup, and a thin short stalk. The head is an oblong thin plate, the distal end of which is turned round and outwards this distal part thus becoming of quite a different appearance, i. e. without sculpture. I am not sure that it is always turned round. In some cases it may look as if its different appearance is due to a depression at the tip (figs. 101b-c). The pseudostigmatic cups sit deeply below the anterior border of the pteromorphae.

The hysterosoma is rounded posteriorly; the lateral sides with the pteromorphae are parallel. The anterior border projects in the middle as far as the base of the interlamellar hairs, the border is, however, hardly discernible. The anterior border of the pteromorphae are rounded. The distance across the pteromorphae is slightly shorter than the width of the hysterosoma across the middle, where it is broadest. Areae porosae are present, area porosa mesonotica. I, however, lacking. The hair of the hysterosoma are situated as shown in fig. 101; they are very thin and curly. The ventral side is faintly chitinized, having a thin chitinous plate in the middle connecting the ends of the apodemata I, II, and IV. This plate continues round the genital plates. Otherwise the ventral side is much like that in *Protoribates elegans* (fig. 100c). All tarsi have only one strong claw. Tibia I has distally a narrow conical protuberance with a thin tactile hair at the end, while the long tactile hair is situated at the base

of the protuberance (fig. 101d). Tibia II has a shorter protuberance with one long hair. Femur I has proximally a short round protuberance with a short hair (fig. 101d) and on its medial side several keels. This genus is named after my colleague, Dr. S. L. TUXEN.

The Argentine: In the Rio Atuel valley at the Arroyo de Los Pajaritos about 2600 m. a.s.l. one specimen in dripping wet *Mimulus* vegetation; near the Arroyo Las Chircas one specimen in dripping wet moss. The Arroyo de la Cruz de Piedra one specimen in a slightly moist low cushion.

*Lauritzenia* n. gen.

Seems to stand close to *Protoribates*, the lamellae are, however, very long. They almost reach the base of the rostral hairs and have a strong medial ridge. Instead of areae porosae there are chitinous pores or slits.

*Lauritzenia longipluma* n. sp.; fig. 102.

Colour light brown. Length 0.32 mm.

The rostrum is conical, the rostral hairs thin and short; they sit immediately in front of the free tip of Tectp. I and do not reach the tip of the rostrum. The lamellar hairs are situated on the tip of the lamellae; they reach just beyond the tip of rostrum and are rough. The lamellae are broad and very long, as they reach the base of the rostral hairs. The medial border is enforced by a chitinous ridge which in its anterior half becomes broader and also more strongly chitinized, its colour is dark brown. Off the tip of the lamella there is on the medial side a short point like the beginning of a translamella, which, however, seems to be the distal end of the outer ridge of the lamella, the two ridges being crossed distally. The lamellar hair is situated on this point. The interlamellar hairs are short, thick and feathered and are directed upwards and inwards. The pseudostigmatic organ is very long, consisting of a thin thread which is unilaterally hairy in its proximal half; distally all the way round it is set with somewhat stronger and longer hairs. At the tip it is a little thicker, but this may be due to a drop of oil adhering to the hairs. The tip reaches backwards as far as the middle of the pteromorphae. The anterior border of the pseudostigmatic cup is drawn out into a long pointed lobe which incline to the outer ridge of the lamella. The hysterosoma is rounded posteriorly; the anterior border projects as a broad curve to a point a short distance behind the interlamellar hairs; the latter are situated off the anterior border of the pointed lobe on the pseudostigmatic cup. The anterior border of the pteromorphae form an almost transverse line. Areae porosae are absent, instead very long and narrow chitinous slits are seen. The hairs which are situated as shown in fig. 102, are very short and thin, shorter than the chitinous pores. The integument seems to be dotted with small oblong light punctures. The ventral side is shown in fig. 102a. Apodemata II, III, and IV join a slightly chitinized plate round the genital plates. A still thinner chitinous plate is seen between Apodemata I.

It is connected with the posterior plate by a few spurs from the anterior plate. The tarsi have only one claw. Tarsus I has on its dorsal side a broad forwards directed tactile hair, Tibia I has distally a long protuberance with a thin and a thicker and longer tactile hair, proximally on the ventral side a narrow pointed tooth (fig. 102b). Femur II has ventrally a crest, which anteriorly ends in a strong tooth. This genus is named after the shipowners I. and K. LAURITZEN, who generously give free voyages for scientists visiting the laboratory in the Andes Mountains, the Argentine.

The Argentine: In the Rio Caldera valley one specimen in thin moss on chalk cliff, shaded by trees, only a little moist.

*Ceratozetes undulatus* n. sp.; fig. 103.

Colour brown. Length 0.43 mm.

The cusps are as long as their mutual distance at the base and twice as long as broad off the base, or about half as long as the lamella from the cusp to the pseudostigmatic cup. The tip, which is even or "cut off", is only one third as broad as the base of the cusp. There is no translamella. The lamellar hairs are about twice as long as the cuspes; they are thick and feathered. The interlamellar hairs, which are situated on either side of the projecting anterior margin of the hysterosoma, are slightly thinner than the lamellar hairs and almost twice as long. The free tip of Tectp. I is as long as the inner border of the cusp. It is slightly S-shaped, the tip directed slightly outwards. It reaches as far anteriorly as the cusp. The pseudostigmatic organ, which is a little bent at the transition between stalk and head, is short; head and stalk are equally long. The head is an almost black club rounded at the tip and set with small hairs or scales. The pseudostigmatic organs are directed upwards. The pseudostigmatic cup has a very wide opening, laterally and ventrally there is a very thin chitinous membrane or lobe.

The anterior border of the hysterosoma is very undulating having a deep incurvation in the middle of the anterior border of the pteromorphae, another laterally to the pseudostigmatae. There the anterior border of the hysterosoma is abruptly continuing a little further posteriorly, thus forming an open space between the pseudostigmatic cup and the projecting medial part of the pteromorphae. The hairs of the hysterosoma are very short and thin except the two anterior lateral pairs. The areae porosae are distinct. The area porosa adalaris is round and much bigger than the others. On the anterior margin of the hysterosoma there is a light area. Some parts of the hysterosoma are covered by a layer of secretion, which give the integument the appearance of being punctate, i. e. on the anterior projecting parts of the pteromorphae. The free point of the pteromorphae has a little indentation near the tip. All tarsi have 3 claws, the strongest in the middle. There is no tooth on Genu II.

The Argentine: In the Rio Atuel valley near Laguna Atuel 4 specimens in wet low moss and *Mimulus* vegetation; 3 specimens in moist *Ranunculus* and *Juncus* vegetation; at the Arroyo de Los Pajaritos between approximately 2400 and 2800 m. a.s.l. 4 specimens in wet stiff grass and moss.

*Ceratozetes thienemanni* Willm.; fig. 104.

Colour light brown. Length 0.42 mm.

The only specimen found agrees in every detail with WILLMANN'S description (1943, p. 232, figs. 14–15).

The Argentine: In the Rio Atuel valley at the Arroyo El obscuro 3300 m. a.s.l. one specimen in moist short stiff Cyperaceae with a low cushion. Known from Swedish Lapland (WILLMANN 1943), Greenland (HAMMER 1944), Canada (HAMMER 1952).

*Ceratozetes argentinensis* n. sp.; fig. 105.

Colour light brown—chestnut brown. Length 0.50 mm.

The rostrum has on either side of a median flat lobe a small incision (fig. 105 a). The cusp, which is almost as long as the lamella, is of equal thickness throughout, at the tip there is a very small tooth medially. The lamella is a vertical sharp blade, which is not much broader than the cusp. The lamellar hair is as long as the cusp and lamella together, but due to its more or less upright position it is drawn too short in the figure. It is about half as thick as the cusp and uneven. The interlamellar hair is of the same length and appearance as the lamellar hair. It is placed close to or below the anterior projecting margin of the hysterosoma. The free tip of Tectp. I reaches a little further anteriorly than the tip of the cusp, just beyond the base of the rostral hair. It is as long as the cusp. The pseudostigmatic organ, which is bent forwards is a dark club getting evenly thicker towards the tip and set with small hairs. The pseudostigmatic cup has anteriorly a long pointed tip, posteriorly it is rounded.

The anterior margin of the hysterosoma projects in the middle a little farther than to the base of the interlamellar hairs. On either side of the projection there is a deep, even incurvation occupying the whole space as far as the free anterior tip of the pteromorphae. The areae porosae are large, but indistinct. The area porosa posterior is oblong and the largest. The hairs, which are situated as shown in fig. 105, are short, a little curved and dark. The propodosoma is covered by a punctate veil of secretion, which in folds follows the outlines of i. e. the lamellae and which crosses between the interlamellar hairs.

All tarsi have one strong claw. There is no tooth on Genu II, but a tiny one on the anterior end of Tibiae I–II (fig. 105 b). The short thick spine on Genu I is not much more than half as long as the genu, on Genu II shorter than half the length of the joint (fig. 105 b). On the ventral side the apodemata from Leg I join in the middle, Apodemata II are parallel with the first and touch the anterior border of the genital plates, I and II are connected in the middle by a thin plate. Apodemata III run forwards and join Apodemata II at the anterior border of the genital plates. Apodemata IV are very faintly developed, they go to the same point as Apodemata II and III.

The Argentine: Beside the Arroyo de la Cruz de Piedra 3200 m. a.s.l. more than 100 specimens in wet moss with a little *Juncus* between big tussocks of stiff grass; a few in a wet low cushion on the edge of a brook.

*Ceratozetes nigrisetosus* n. sp.; fig. 106.

Colour light brown. Length 0.47 mm.

The rostrum is much like that in *C. argentinensis*. There is a little incision on either side of a median lobe which may be slightly undulating (fig. 106 a). The cusps, which are equally thick throughout and "cut off" or even at the tip, are from one half to two thirds as long as the lamella. The lamella is a vertically placed blade about twice as broad as the cusp. Its medial strongly chitinized margin continues forwards and join the one from the other side in a broad indistinct arch across the propodosoma. The lamellar hair is almost as thick as the cusp and slightly uneven, almost smooth. It is about one and a half times longer than the cusp. The interlamellar hair, which is situated close to the anterior margin of the hysterosoma, is slightly thinner than the lamellar hair, but more rough or feathered. It is upright and about one and a half times longer than the lamellar hair. The pseudostigmatic organ is bent forwards and inwards at the transition between head and stalk. The head is a broad club getting evenly thicker towards the tip; it is set with short hairs (fig. 106 b). The pseudostigmatic cup has anteriorly a very sharp point. The free tip of Tectp. I reaches a good distance beyond the base of the rostral hair; it is striated.

The anterior border of the hysterosoma projects in the middle in a big curve a little further anteriorly than to the base of the interlamellar hairs. On either side of the projection there is an incurvation the depth of which depends on the position in which the animal has been drawn, but it may be as deep as seen in fig. 105, which depicts *C. argentinensis*. The posterior border of the hysterosoma is flat. The areae porosae are very difficult to see, they are not delimited from the surroundings, but only consist in dark punctures in the brown integument. The hairs are long, curly and black, very thin towards the tip. The third pair of dorsal hairs, which are situated rather close together is not present in the other *Ceratozetes* species. The anterior border of the hysterosoma is covered by a dark veil which in two folds meet in the middle, overlapping each other; these two folds often get loose and are then seen crossed in front of the projecting part of the hysterosoma between the interlamellar hairs (cp. fig. 105). All tarsi have one strong claw. There is no tooth on Genu II; on Tibia I is a minute tooth as in *C. argentinensis*. The rough spine on Genus I-II is about half as long as the joint in question.

On the ventral side the two Apodemata I join in the middle forming a broad chitinous band which posteriorly is connected by a broad plate with 4 hairs with Apodemata II and III. They meet in a point laterally to and off the anterior border of the genital plates and from there a chitinous plate connects them with the above-mentioned broad plate with the 4 hairs. The posterior pair of apodemata is not developed, but the border of a light reticulated area behind the third pair of apodemata shows its place. The genital plates are broader than long; they have 6 pairs of long hairs 2 pairs of which are situated on the anterior border. The anal plates, which also are broader than long, have 2 pairs of long curly dark setae. This species is very much like *C. argentinensis*, the greatest difference being the presence of the



dorsal third pair of hairs in *C. nigrisetosus* and much longer and stronger hairs on the hysterosoma in this species.

Bolivia: At Cumbre about 4200 m. a.s.l. 82 specimens in dripping wet bryophytes, Cyperaceae and twining low Umbelliferae on the edge of a small brook. Chacaltaya about 5000 m. a.s.l. 8 specimens in a dripping wet half a centimetre high cushion in a bog.

*Ceratozetes platyrhinus* n. sp.; fig. 107.

Colour light brown-chestnut brown, darkest in a broad area across the hysterosoma. Length 0.50 mm.

The rostrum is flat as a snout; on either side it has a chitinization which is rolled up (fig. 107 a). The cusp, which is about half as long as the lamella, is broadest at its base, at the tip only half as broad. The tip may have a short blunt tooth or lobe laterally. The medial sides of the cusps are almost parallel and about as long as their mutual distance. The lamellar hairs are set with stiff short spines or hairs. They are more than twice as long as the cusps. The interlamellar hairs are situated a little in front of the median projecting part of the hysterosoma. They are longer than the lamellar hairs and may be a little rougher. The free tip of Tectp. I is shorter than the cusp and does not reach the base of the rostral hair. The pseudostigmatic organ, which is bent upwards and medially, has a dark short clavate head on a thin stalk. The pseudostigmatic cup has anteriorly a long tip. The anterior part of the hysterosoma and some parts of the propodosoma are covered by a punctate veil as in the above-mentioned species. The areae porosae are very distinct. The area porosa adalaris is the biggest. The hairs, which are situated as shown in fig. 107, are stiff as spines and unilaterally slightly rough. The anterior lateral pair is considerably longer than the others. All tarsi have 3 claws, of which the middle one is only little stronger than the lateral ones. Femur II has a low crest on the ventral side, Genu II has ventrally a short tooth on its distal border. The hairs of the legs are very strong. The thick spines on Genus and Tibiae I-II are equally long and almost one and a half times longer than the genu. Tibia I has a large protuberance with a long tactile hair and a thin short one. On the ventral side the apodemata are not connected in the middle and there is no transversal band. The third pair of apodemata does not join the second pair and the latter does not by far reach the border of the genital plates. The hairs on the ventral plates are thick and feathered, those on the genital plates thinner.

Bolivia: At Chacaltaya 5000-4900 m. a.s.l. 11 specimens in half a cm. high cushion with a little grass on a pile of stones.

*Ceratozetes striatus* n. sp.; fig. 108.

Colour light brown—chestnut brown. Length 0.37 mm.

The rostrum has on either side a small short tooth. The cusp is not longer than its breadth at the base. At the tip it is only little broader than the lamellar hair. There

is no tooth on the anterior end. The lamella is almost equally thick throughout, only a little narrower near the pseudostigmata. It is slightly longitudinally wrinkled. No translamella. A little farther anteriorly there is a short transversal ridge. The lamellar hair is a little shorter than the cusp and lamella together. It is set with stiff hairs. The interlamellar hairs, which are situated on the end of a thin ridge from the pseudostigmata, are a little longer than the lamellar hairs and also rough and feathered. The free end of Tectp. I almost reaches the tip of the rostrum. It is densely striated (hence the name). The pseudostigmatic organ is a rather long slender club which is bent forwards. The head has parallel sides and is set with short hairs. The anterior border of the hysterosoma is undulating, having an incurvation near the lateral sides, then a low projection laterally to the pseudostigmata and in the middle the large projection, which reaches almost as far as the base of the interlamellar hairs. The pteromorphae and the anterior border of the hysterosoma are, as in the above-described species, covered by a dirty grey veil of secretion. The areae porosae are distinct. The area porosa adalaris is the biggest. The hairs of the hysterosoma are very thin and short. The two anterior lateral pairs are slightly stronger than the others. All tarsi have 3 claws, of which the middle one is twice as strong as the lateral ones. Femora I–II have a low crest distally on the ventral side. Genus I–II have a low protuberance distally on the ventral side. The spine on Genus I–II is about half as long as the joint in question. Tibia I has a large protuberance with a long tactile hair and a short thinner one. On the ventral side there is no transversal band as the apodemata from the two sides are not connected. Nor do Apodemata II–III by far reach the border of the genital plates. In this respect the species resembles *C. undulatus*, *C. thienemanni* and *C. platyrhinus*.

The Argentine: Near Salta on the beach of the lake Cabeza de Buey 23 specimens in moist vegetation of a one cm. high green plant and grasses. At Quebrada de Gallinato near Salta a few specimens in a moist luxurious meadow with grasses, *Zinnia*, *Tradescantia*, etc. and in a moist-wet meadow with grass, *Juncus*, and bryophytes.

*Sphaerobates foveolatus* n. sp.; fig. 109.

Colour light brown-brown. Length 0.61 mm.

The rostrum is rounded. The rostral hairs, which are situated on the lateral side of the rostrum a short distance in front of the base of the lamellar hairs, are thick and densely feathered. They reach beyond the tip of the rostrum by half their length. The lamellar and the interlamellar hairs are also thick and set with tiny hairs. They are equally long and reach far beyond the tip of the rostrum. The interlamellar hairs are inserted below the anterior border of the hysterosoma. The lamellar hairs are situated on the tip of the very short and broad cusps. The cusp is incurvated in the middle. It has a broad exterior tooth and a lower round inner tooth. The translamella is well developed; in the middle it is slightly pointed. The lamella, which is not quite so long as the translamella is getting evenly narrower towards the pseudo-

stigmata. The pseudostigmatic organ has a globular head on a very thin stalk which is not longer than the head. Only the head reaches beyond the anterior margin of the hysterosoma. In the middle the anterior margin of the hysterosoma is not fully separated from the propodosoma. The pteromorpha is rounded. Its anterior border is slightly incurvated between the free tip and the pseudostigmata. The lateral sides of the hysterosoma are slightly incurvated behind the pteromorphae. The areae porosae are distinct. The area porosa adalaris is the biggest, all are oval. Very short hairs can be seen along the border of the hysterosoma. The integument has regular small pits, which can be seen especially on the posterior part of the hysterosoma. The anal plates have two pairs of long stiff and rough setae; 4 similar hairs are situated behind the anal plates; the tip of them can be seen from the dorsal side. The legs are long and thin. Femora I–II have a crest on the ventral side. There are 3 claws on all tarsi, almost equally thick.

The Argentine: In the Rio Atuel valley at El Angulo 6 specimens in a dry cushion in fell-field.

*Edwardzetes andicola* n. sp.; fig. 110.

Colour chestnut brown. Length 0.72 mm.

The rostrum is rounded and hyaline. In fig. 110a it is seen that the middle projects as a small lobe. On the right side of the rostrum there is a ridge which seems to be fixed to the right rostral hair. A light area is seen in the middle. The rostral hairs are situated on the upper side of the rostrum very laterally. As seen from above, they are a little longer than their mutual distance and slightly rough and curly. The lamella, which is equally thick throughout is about one third as long as the propodosoma or a little longer than the distance between the tip of the lamellae. Cusp and translamella absent. The lamellar hair, which is about twice as long as the lamella, is rather thin, about half as thick as the lamella and a little rough; it is very thin towards the tip. The interlamellar hairs have a slightly shorter mutual distance than the lamellar hairs. They are a little longer than the latter, thin and slightly rough as the lamellar hairs. As seen from above, Tectp. I is a broad striped blade with a short free tip. The pseudostigmatic organ is short, club-shaped, rounded at the tip, and set with short hairs (fig. 110b). It is bent inwards at the transition between head and stalk, which are equally long. The pseudostigmatic cup has a broad lobe both anteriorly and posteriorly, but no sharp point anteriorly. Laterally there is a thin scale. Between the interlamellar hairs there are 8 small brown chitinous knobs in two longitudinal rows.

On the anterior border of the hysterosoma the middle part does not project further anteriorly than the pteromorphae do. The areae porosae are small and round and indistinct. The area porosa adalaris may be almost triangular (fig. 110b). The others, which are equally large, are round. The hairs of the hysterosoma, 10 pairs, which are situated as shown in fig. 110, are curly or bent, smooth and very thin, especially towards the tip. The first lateral pair is somewhat longer than the rest of

them. On the anterior half of the hysterosoma there are two curved rows of brown chitinous spots. Similar spots are seen on the posterior end of the hysterosoma. Legs II and IV are shown in figs. 110c–d. Femur II has a short crest distally on its ventral side, Femur IV has a low crest along its whole ventral side. Genu II has a smooth spine, which is almost as long as the joint. The corresponding one on Genu I is a thin stiff hair. Tibia I has distally a protuberance with a long tactile hair and, moreover, a thinner and shorter one. All tarsi have 3 claws, of which the middle one is the strongest. The genital plates have 5 pairs of long hairs, the anal plates 2 pairs (fig. 110e).

The Argentine: In the Rio Atuel valley at the Arroyo de Los Pajaritos about 2400 m. a.s.l. 10 specimens in dripping wet moss; at about 2800 m. a.s.l. at the same arroyo one specimen in wet stiff grass.

Bolivia: East of Cumbre one specimen in moist-wet half a centimetre high dense mosses, a little grass, and low cushions.

*Jugatala armata* n. sp.; fig. 111.

Colour chestnut brown. Length 0.62 mm.

The rostrum is rounded, hyaline with a deep incision in the middle (fig. 111a). This anterior part is dark coloured and has some irregular light spots on the posterior margin. The rostral hairs, which reach beyond the tip of the rostrum by half their length, are thick and densely feathered on the outer side. The lamella, which is less than half as long as the propodosoma, is of equal thickness throughout and slightly furrowed. The inner margin is strengthened by a thick ridge. The lamellae incline a little. There is a very short cusp, which is not quite so long as it is broad at the base; it is rounded at the tip or has a minute outer tooth (fig. 111b). The translamella is very thin, often only a line. The lamellar hair, which is about one and a half times longer than the lamella, is thick and feathered. The interlamellar hairs reach the tip of the rostrum. They are about twice as long as the lamella. They are situated below the anterior margin of the hysterosoma at a mutual distance which is slightly longer than the distance between the lamellar hairs. The pseudostigmatic organ is almost concealed under the anterior margin of the hysterosoma, only the short dark head, which is rounded at the tip, appears. The stalk, which is as long as the head, is very thin (fig. 111c). The free end of Tectp. I reaches the base of the rostral hair. Tectp. II, too, is well developed. They are both striated on the tip (fig. 111d).

The hysterosoma which is broader than long, is rounded at the posterior end. The anterior part forms a bridge, which connects the pteromorphae; it is slightly arched. The free tip of the pteromorphae project as far anteriorly as the middle part. The pteromorphae are along the border very light of colour, the inner part is grey, both the inner part and the border with numerous radiating light lines, which can be seen only when laid bare. The areae porosae are very distinct, especially the areae porosae mesonoticae I–II. Area porosa posterior is oblong. The hairs of the hysterosoma, 10 pairs, are thick and rough. They are situated as shown in fig. 111.

The two anterior lateral pairs are considerably longer than the rest. The two dorsal posterior ones are situated close together. The hairs show a great variation concerning thickness. In one specimen all hairs are very thin and smooth, but placed exactly as usual for the species.

The ventral side is shown in fig. 111 e. The apodemata from the left and right side are not connected in the middle except by weak chitinizations. The genital plates have 6 pairs of hairs the 3 of which in the middle on the anterior border are very long and thin; the anal plates have two pairs of rather stiff and thick setae. All tarsi have 3 claws, of which the middle one is the strongest. Tibia I has a protuberance with a long and a shorter tactile hair (fig. 111 f). Genu and tibia on all legs have a thick rough spine. The nymph is shown in fig. 111 g.

Bolivia: At Cumbre at about 4200 m. a.s.l. more than 100 specimens in low twining Umbelliferae on peat; at 4658 m. a.s.l. several specimens in a wet meadow grown with twining Umbelliferae. At Chacaltaya 5400 m. a.s.l. one specimen in moss and grass between cliffs; 26 specimens in about 5000 m. a.s.l. in a dripping wet half a centimetre high cushion with some Cyperaceae.

*Mycobates austroamericanus* n. sp.; fig. 112.

Colour brown. Length 0.48 mm.

As seen from above, the rostrum is round. Its tip reaches a little beyond the tip of the cusps. When it is laid bare, it is seen that the rostrum has a slight incurvation in the middle (fig. 112 a). On the right side of the rostrum there is a broad chitinous plate from which projects a semilunar ridge which is situated a little in front of the translamella. The rostral hairs are shorter than the translamella. As seen from above, the lamellae and the translamella are broad. When its is dissected out it appears that the cusp and the lamellae have a deep longitudinal ventral furrow, which makes it look as if there are two tips close together in the cusps. The cusp is about two thirds of the translamella in length (fig. 112 a). The translamella is distinct only anteriorly. In the middle it has also a ventral furrow. The lamellar hair is situated a little behind the tip of the cusp, which ends in a sharp tooth separated into two by the above-mentioned furrow. The lamellar hair is slightly longer than the rostral hair and reaches beyond the tip of the rostrum; when laid bare, it just reaches the anterior margin of the rostrum. The interlamellar hairs reach the anterior border of the translamella; they are a little longer than their mutual distance. The pseudostigmatic organ, which is bent inwards, has a slender club on a short stalk. Tect. I has on its anterior margin a few very small teeth (fig. 112 a).

The hysterosoma is rounded posteriorly; anteriorly a broad arch covers the posterior part of the propodosoma as far as the base of the interlamellar hairs. There are 10 pairs of slightly curved hairs inserted in chitinous pores. The areae porosae are round and of about equal size. In the middle of the anterior part of the hysterosoma there are two areas with brown triangular chitinous knobs. The integument is smooth. Genus I-II have a broad toothlike projection distally on the

dorsal side (fig. 112b). All tarsi have three claws, of which the middle one is the strongest.

Bolivia: At Chulumani one specimen in 5 cm. high luxurious moss on a vertical hang above a ditch with water.

*Punctoribates manzanoensis* n. sp.; fig. 113.

Colour dark brown. Length 0.45 mm.

The rostral hairs, which are very short are situated near the tip of the rostrum. The lamellar and the interlamellar hairs are thin and rough. The lamellar hairs are a little longer than the interlamellar hairs (fig. 113a). Only the lamellar hairs can be seen when in the natural position. They are placed on a short round cusp on the end of the rather broad translamella, which is about half as long as the lamellar hairs. The lamella, which is shorter and thinner than the translamella, reaches the pseudostigmata as a thin ridge. The lamellae, translamella and partly the lamellar hairs are concealed below a projection from the anterior border of the hysterosoma. This projection has two long and thin points between which there is a deep incurvation almost twice as long as broad. Behind the points there are two dark oblong ridges (fig. 113b). The pseudostigmatic organ is a very slender club, the head and the stalk are of almost equal length. The head is bent medially. As seen from above, they almost reach the tip of the rostrum. Tectp. I (fig. 113a) has a long free tip, which reaches as far anteriorly as the points on the median projection of the hysterosoma. The posterior half of the hysterosoma is semicircular, the anterior half is angular with 4 almost equally long sides: two lateral ones and two anterior ones, the latter ending in the sharp points. The areae porosae are distinct. The area porosa adalaris is oblong, the area porosa mesonotica II is slightly oblong and a little larger than the area porosa mesonotica I and the area porosa posterior. Behind the anterior border of the hysterosoma there is a light area and behind this there is a broad band of small brown chitinous knobs. Hairs cannot be seen. All tarsi have 3 claws, of which the middle one is the strongest. The tibiae of all legs have distally a strong tooth, strongest on Tibia II (fig. 113c). Tarsus II dorsally a short distance behind the claw has a sharper tooth apparently intended for cleaning the claws (cp. in fig. 113e the 2 spines which are found in the same place in *P. punctum* (Berl.). The distance between the spines fits exactly with the thickness of the middle claw). Fig. 113d shows Leg III.

The Argentine: In the Rio Grande valley at Manzano 9 specimens in horse dung in a moist meadow grown with clover; one specimen in the same locality in a wet meadow with *Juncus* and *Ranunculus*.

*Galumna duplicata* n. sp.; fig. 114.

Colour mahogany red. Length 0.40 mm.

The rostral hairs reach the tip of the rostrum. They are situated a little behind the middle of the distance between the tip of the rostrum and the lamellar tip. The lamellar hairs are very thin and short. They are situated immediately in front of the lamellar tip. Also the interlamellar hairs are very short and thin. The lamellae are

well developed and end in a small tip. The pseudostigmatic organ, which is bent backwards has on a stalk as thin as a thread a rather broad, well-defined head, which is rounded on the anterior or outer border, a little more flat on the inner or posterior border. It ends in a small tip, and it is set with fine hairs (fig. 114a). The head is about one third as long as the stalk. There is no border between the propodosoma and the hysterosoma. There is only one pair of areae porosae adalares, which is situated rather far from the pteromorphae. It is round and not much bigger than the medial area porosa mesonotica. Laterally to this there is a second area porosa mesonotica, which is a little smaller, and in front of the latter there is a light pore or slit, all three close together. At the posterior end there are also two areae porosae close together, the anterior one the largest of all areae porosae. Hairs cannot be seen. On the posterior end of the hysterosoma there are several light spots. The distance between the genital plates and the anal plates is a little shorter than twice as long as the length of the genital plates.

Bolivia: At Chulumani 3 specimens in 5 cm. high moist luxurious moss on a vertical hang above a ditch with water.

*Galumna circularis* n. sp.; fig. 115.

Colour light brown. Length 0.25 mm.

The species is almost circular. The rostrum is broad, semicircular. The rostral hairs, lamellar hairs, and the interlamellar hairs are so short that they cannot be drawn. The lamellae are well developed, but very short, and do not reach far beyond the indistinct border between the propodosoma and the hysterosoma. The pseudostigmatic organ has a short spear-shaped head on a stalk, which is about 3 times longer than the head. It is bent backwards. The head in its full length reaches beyond the slit in the pteromorphae.

The border between the propodosoma and the hysterosoma is very indistinct, but two small light glandular spots indicate the transition. Laterally to the interlamellar hair-pores there is a small oblong light area. The pteromorphae have radiating irregular ridges being merged distally. The slit is long and very distinct. There is only one pair of areae porosae adalares; it is oblong and at least twice as big as the remainder, which are all round. Hair-pores are distinct, but hairs cannot be seen. The slit between the first and the second hair-pore is situated nearest to the anterior one. The ventral side is shown in fig. 115a. The distance between the genital plates and the anal plates is as long as the breadth of one genital plate. Many of the hair-pores look as if they are double.

Bolivia: At Chulumani one specimen in 5 cm. thick luxurious moss on a vertical hang above a ditch with water.

*Galumna flabellifera* n. sp.; fig. 116.

Colour light brown. Length 0.31 mm.

The rostral hairs are thin and short; they are situated halfway between the tip of the rostrum and the lamellar hairs. The lamellar hairs, which are still shorter,

have a distinct pore in which they are inserted, on the tip of the lamellar ridge. The interlamellar hairs are tiny, not longer than the hair-pore. The lamellae are well developed; they have a free inwards directed tip halfway between the anterior margin of the hysterosoma and the lamellar hairs. The pseudostigmatic organ is directed outwards in a big curve. It has a long broad head, which is rounded along the anterior margin and there set with bristles one third as long as the head is broad at the distal end. The posterior margin is flat and without hairs or bristles (fig. 116a). The broad head gets evenly narrower in the stalk, which is shorter than the head. The anterior border of the hysterosoma is slightly incurvated in the middle. It has a double contour with two backward directed brown ridges. The pteromorpha is shown in fig. 116b. It has no structure especially except the long slit. There is only one pair of areae porosae adalares, which are slightly oblong and about twice as big as the rest. Hairs cannot be seen, only the hair-pores. In the middle between the two anterior dorsal pairs there is a narrow slit. The distance between the genital plates and the anal plates is about twice as long as the length of the genital plates.

The Argentine: At Quebrada de Gallinato near Salta 2 specimens in thin moist moss sheltered by a big stone and shaded by trees; one specimen in a moist luxurious grass meadow. In the Rio Caldera valley near the former locality 4 specimens in half a centimeter thick, almost dry moss on chalk cliffs shaded by trees.

Bolivia: At Chulumani one specimen in 5 cm. high luxurious moss on a vertical hang above a water ditch.

*Galumna clericata* (Berl.) (1915, Redia X, p. 126, fig. 17); fig. 117.  
Colour mahogany red. Length 0.86 mm.

This species is very characteristic by having on the tip of the rostrum a broad keel with parallel sides. The anterior border has three low tongues. Inside there is dorsally a strong tooth on either side of which there is a deep incision, into which fit two shorter teeth on the ventral border (fig. 117a); perhaps there are 3 dorsal teeth and 2 ventral, the whole forming a filter. The rostrum is almost flat on both sides of the keel. The rostral hairs, which reach the top of the keel, are situated close to the tip of the lamellae. The latter reach very far anteriorly, almost to a point on a level with the base of the keel, the lamellar tip following the rounding of the rostrum. The lamellar hairs are smooth; they reach beyond the tip of the keel. The interlamellar hairs are lacking in the only specimen found. BERLESE, however, has drawn them so long that in case they were directed forwards, they would be able to reach the base of the keel on the rostrum. The pseudostigmatic organ is thin, thread like without any thickening distally, but equally thick throughout. BERLESE draws them a little thinner towards the tip, which in the specimen present might have been broken off, but as both organs are alike and of equal length and as long as indicated by Berlese, this is not probable. The border between the propodosoma and the hysterosoma looks like a dotted line. A short distance in front of the latter is another though fainter line. The pteromorphae have on the anterior half longitudinal light areas; the border is slightly striated. The area porosa adalaris is about 3 times longer than broad;



it is placed almost transversally in a distance from the pteromorpha as long as its length. Area porosa mesonotica I is slightly narrow laterally, more or less pear-shaped. Area porosa mesonotica II and Area porosa posterior are slightly oblong. Hairs cannot be seen. The distance between the genital plates and the anal plates is about twice as long as the length of the genital plates.

The Argentine: At Quebrada de Gallinato near Salta one specimen in liverworts on a slope down to a dry arroyo, shaded by trees, only a very little moist. It has previously been recorded from La Plata by BERLESE (1915), from the Brazil and other South American countries by SELLNICK (1923).

*Galumna pallida* n. sp.; fig. 118.

Colour dirty light brown. Length 0.53 mm.

The rostral hairs are a little rough; they meet in front of the rostrum. The lamellar hairs, which are unilaterally feathered, are situated close to the rostral hairs in front of the short free tip of the lamellae. They reach beyond the tip of the rostrum, but do not meet. The lamellae are well-defined and continue with a keel to the base of the lamellar hairs, from which a distinct line goes backwards, ending a little in front of the interlamellar hairs (fig. 118a). The interlamellar hairs are first bent medially, then laterally in a big curve. They are about three fourths as long as their mutual distance, strong and rough, almost equally thick throughout.

The pseudostigmatic organ is slender, lanceolate, set with proportionately long hairs (fig. 118b) and is slightly pointed at the tip. The head is about half as long as the interlamellar hairs; the stalk which is about twice as long as the head is much thinner than the interlamellar hairs. The pseudostigmatic organs are directed more or less forwards. Behind the interlamellar hairs there is on either side a big round glandular spot. The posterior margin of the propodosoma is distinctly striated. The border between the propodosoma and the hysterosoma is very distinct. The pteromorphae have numerous abrupted chitinous lines. There is only one pair of areae porosae adalares. It is situated near the pteromorpha, at a distance as its diameter; it is round. Area porosa mesonotica I is also round, but a little smaller. Area porosa mesonotica II and Area porosa posterior are round and almost as big as Area porosa adalaris; the size of the pores, however, varies a good deal. Hairs cannot be seen; the hair-pores are double. The distance between the genital plates and the anal plates is almost twice as long as the length of the genital plates.

The Argentine: At Quebrada de Gallinato near Salta 5 specimens in thin moist moss sheltered by a big stone and shaded by shrubs. Near Campo Santa 30-40 km. east of Salta one specimen in thin moss on a clay slope down to a water drain under shrubs.

*Galumna reticulata* n. sp.; fig. 119.

Colour mahogany red. Length 0.39 mm.

The rostrum is broadly conical. The rostral hairs, which are situated halfway between the tip of the rostrum and the tip of the lamellae, are long and thin; they

meet immediately in front of the rostrum. The lamellar hairs, which are situated on the free lamellar tip, are very short and thin. The lamellae are well developed, broad and rather long; their lateral sides are almost parallel. At their anterior end the rostrum bends abruptly inwards, forming a distinct angle. A fine line goes backwards from the base of the lamellar hair parallel to the anterior part of the lamellae. Interlamellar hairs are absent. A little behind and laterally to the interlamellar hair-pore there is a very distinct drop-shaped light area. The integument of the posterior half of the propodosoma is densely striated. Further anteriorly it is set with dirty brown chitinous knobs, which makes it look punctate. The pseudostigmatic organ is a long slender club, which is broadest at the tip, tapering evenly into the stalk. It is set with comparatively long hairs and is directed forwards and outwards. The border between the propodosoma and the hysterosoma is distinct. The pteromorphae are nicely reticulated, having short meshes distally, more oblong and not quite so well defined medially. There is only one pair of areae porosae adalares. It is slightly oblong and about twice as big as the remaining areae porosae, which all are round. Hairs cannot be seen. The hair-pores are double. The distance between the genital plates and the anal plates is a little more than twice as long as the length of the genital plates.

The Argentine: At Quebrada de Gallinato near Salta one specimen in thin moist moss sheltered by a big stone under shrubs.

*Tegoribates americanus* n. sp.; fig. 120.

Colour dark brown. Length 0.41 mm.

The scale or shield, which covers the propodosoma, has in the middle an incision or an incisura; a longitudinal line runs backwards from the incision for three fourths of the length of the scale. The posterior fourth is occupied by a triangular area situated between the medial sides of the lamellae. A faint line runs from the base of the lamellar hair, which is situated close to the tip of the confluent lamellae, backwards in a curve following the median line between the lamellae (fig. 120 a). A thicker line or ridge is seen on the ventral side of the scale running from the tip of the scale laterally to the lamellar hair backwards and almost parallel to the lateral sides of the scale. Between this and the median curved line there is on either side a large light oblong area. Numerous faint thin lines in the integument run in almost all directions. The lamellar hairs are short and thin, the interlamellar hairs are only half as long and thinner, too. The latter are situated close to the median triangle. The pseudostigmatic organ is a very slender club, head and stalk without any distinct transition. It is about half as long as the scale is broad at the base. The hysterosoma is broader than long. The anterior border is a straight line apart from the pteromorphae which distally project a little. There are several chitinous slits in the integument, but no areae porosae. The hairs are very small, hardly visible. The posterior end of the hysterosoma has ventrally a tongued border. The integument is densely dotted by very small oblong dark knobs (fig. 120 a). The distance between the genital plates and the anal plates is as long as the anal plates. The genital plates have 6 pairs of

hairs, the anal plates 2 pairs; all hair-pores look double. All tarsi have 3 claws, of which the middle one is the strongest. Genus I, II, and IV have a sharp spine distally, which in its natural position points outwards when the leg is bent (fig. 120). Tarsus I has ventrally a long serrated hair, which distally is bifurcate, ending in a thick and a thinner tip. Tibia I has distally a short protuberance with a long and a short tactile hair. The thick setae ventrally on Tarsus II, which usually are deeply unilaterally branched or combed are here more like serrated spines. A similar spine is seen distally on Tibia II.

This species is smaller than *T. latirostris* (C. L. Koch). The pattern of the propodosoma is not the same, nor the position of the pores. The specimen from the Argentine agrees, however, with the specimens from Canada identified as *T. latirostris* (C. L. Koch), though considerable smaller (HAMMER 1952, p. 61, fig. 96).

The Argentine: Beside the Arroyo de la Cruz de Piedra one specimen in a wet half a centimetre high and thick carpet of moss with a little *Juncus* between big tussocks of short stiff grass. Recorded from Canada at Churchill, Yellowknife, and the Makenzie delta (HAMMER 1952, p. 61: *T. latirostris* (C. L. Koch).

#### *Williamsia* n. gen.

The propodosoma is covered by a large conical shield, which reaches the tip of the rostrum and only leaves the lateral sides free. The lamellar and the interlamellar hairs are situated on this shield. The pteromorphae, which are moveable, do not reach much farther anteriorly than does the anterior margin of the hysterosoma. Leg II has strong spines on the genu and tarsus.

#### *Williamsia elsosneadensis* n. sp.; fig. 121.

Colour brown. Length 0.44 mm.

As seen from above, the rostrum is rounded. When laid bare it is seen that the tip is almost flat (fig. 121 a). On the upper side of the rostrum there is an oblong light area and behind this a triangular field, which apparently fits into the shape of the shield. The rostral hair, which is situated off the middle of the ridge surrounding the triangular field on its lateral side, is thick and feathered. In its natural position it reaches beyond the tip of rostrum by half its length. The shield, which covers the propodosoma, is conical, almost triangular (fig. 121 b). On the tip there is a very small incurvation; the sides are rounded. The lamellar hairs which are situated far laterally about one third from the anterior end of the distance between the tip of the shield and its posterior margin, project beyond the tip of the shield by about half their length. They are rather thick and rough. The interlamellar hairs are not more than about one third as long as the lamellar hairs; they are rough and much thinner, about half as long as their mutual distance. They are inserted below the anterior border of the hysterosoma. In the middle of the shield there are posteriorly two longitudinal ridges which are merged, projecting beyond the anterior border of the hysterosoma. From the base of the lamellar hair runs an indistinct furrow in a large curve

backwards as far as the base of the interlamellar hair. Along the lateral sides of the shield there is a thin ridge. The integument is densely covered by low light knobs or pits (?) in rows. Tectp. I has a short free tip and a transversal ridge from which a branch goes to the base of the rostral hair (fig. 121 a). The pseudostigmatic organ has a dark round almost circular head set with short hairs and a thin stalk, which is not much longer than the head. The latter is bent inwards. The pseudostigmatic cup consists of two parts: a more deeply laying narrow one and a dorsal part, which is very wide and separated from the ventral part by a deep incision laterally. Anteriorly it has a very sharp point, which inclines to the lateral side of the shield.

The hysterosoma is as broad as it is long. The posterior end is slightly pointed; the anterior end has in the middle a broad low arch. Behind the pseudostigmata the margin retires slightly; laterally to the pseudostigmata it projects rather suddenly. The hysterosoma is narrow across the ptheromorphae. The latter are narrow with parallel sides and rounded at the free end (fig. 121 c). They are moveable. The integument is finely striated due to rows of very small knobs. The hairs of the hysterosoma are visible only at the posterior end. They are exceedingly fine and short. The area porosa adalaris is oblong and about twice as big as the others. Many light spots are seen along the anterior border of the hysterosoma (fig. 121 c). The ventral side is shown in fig. 121 d. Apodemata I and II from the left and the right side are connected in the middle by thin chitinizations forming two transversal bands which are merged in the middle into a broad plate, which continues backwards round the genital plates. Between Apodemata I and II there are two very well-defined round reticulated areas; similar areas are seen between the other apodemata, but maybe not so pronounced. The hairs of the ventral side are short. All tarsi have 3 claws, of which the middle one is the strongest. Tibia I has distally a protuberance with two hairs, a long and a thinner, shorter one. Tarsus II has two strong thick spines, one dorsally and one ventrally (fig. 121 e); both are bifurcate, having a long thin and smooth hairlike and a thicker, shorter and rough part. Tibia II has distally a broad protuberance cut off at the tip; it bears the long tactile hair. Genu II has a spine, which is as long as the joint. Leg III is shown in fig. 121 f. The femur has a short crest distally. Leg IV has a crest along the ventral side of the femur. The tibia has dorsally a sharp keel in its whole length. It ends in a tooth. A keel is seen also dorsally on Tarsus IV in its proximal half. The nymph is shown in fig. 121 g.

This genus is named after Mr. THOMAS JEFFERSON WILLIAMS, who generously founded a laboratory for Danish scientists at his estancia El Sosneado, the Argentine.

The Argentine: This species is very common and also numerous in many of the localities examined. In the Rio Atuel valley near the Arroyo Las Chircas, especially numerous in dripping wet moss (168 specimens); at the Arroyo de Los Pajaritos about 2300 m. a.s.l. 100 specimens were found also in dripping wet moss, a few in other biotopes in the same locality; further up the same mountain at El Angulo 110 specimens in wet *Juncus* with a little moss; beside the Arroyo El obscuro more than 300 specimens in wet moss, in moist Cyperaceae and especially

in a low moist cushion near the arroyo; near Laguna Atuel 120 specimens in wet moss. Beside the Arroyo Plomo near Malargüe a few specimens in wet moss and in wet *Juncus* with a small cushion near the water. Beside the Arroyo de la Cruz de Piedra it was found in several wet biotopes, though never in great numbers.

Bolivia: At Cumbre 4658 m. a.s.l. 15 specimens in dripping wet grass, moss and a composite.

*Oribatella punctata* n. sp.; fig. 122.

Colour light brown-brown. Length 0.46 mm.

The tip of the rostrum is semicircular and has a broad tooth on either side (fig. 122a). The rostral hairs just meet in front of the tip of the rostrum. They are densely feathered. The medial free tip of the lamella is almost as long as the length of the lamellar plate medially. The lateral tip is of the same length or slightly shorter. The medial tip is smooth without teeth and of equal thickness throughout. The lateral tip has on its outer side 0–3 teeth, often smaller than shown in fig. 122. On the inner side a single tooth may be found. The lamellar hair is about one and a half times longer than the tips and twice as thick as the median tips. The interlamellar hair is one and a half times longer than the lamellar hair and a little thinner. The pseudostigmatic organ is short, club-shaped, broadly rounded at the tip. The stalk is short and only the head, which is as long as the cup, reaches outside the latter. On the anterior border of the cup there is a tip. Tectp. II is strongly chitinized and rough on its outer side.

The anterior border of the hysterosoma is striated: 5–8 distinct lines are found laterally to the pseudostigmata, parallel to the base of the pteromorpha; several more irregular ones are seen more laterally, parallel to the anterior border of the pteromorpha. The integument is densely and finely punctate. The areae porosae are of the same size, all are round. The hairs of the hysterosoma are short and thin. The first lateral hair is twice as long as the posterior dorsal one and thicker, too. A few light spots are seen in the anterior part of the hysterosoma near the area porosa adalaris. All tarsi have 3 claws, of which the middle one is the strongest. The rough spine on Genus I–II is slightly bent and about twice as long as the joint in question. A similar spine is found on Tibiae I–II; it is slightly thinner and almost as long as the joint. The length of these spines, however, varies a good deal. The nymph is shown in fig. 122b.

The Argentine: In the Rio Atuel valley beside the Arroyo Blanco about 50 specimens in wet *Carex* vegetation with a little clover; beside the Arroyo de Los Pajaritos 2300 m. a.s.l. 14 specimens in moist *Ranunculus* vegetation; 13 specimens in moist stiff, one cm. high *Juncus*. About 2800 m. a.s.l. 13 specimens also in moist stiff *Juncus* vegetation. Puesto de Los Arroyos 4 specimens in a moist low cushion; 3 specimens in moist vegetation of *Juncus* and clover. Beside the Arroyo Plomo near Malargüe 27 specimens in a slightly moist low cushion, a few in wet moss.

Beside the Arroyo de la Cruz de Piedra 3200 m. a.s.l. one specimen in a wet cushion.

*Oribatella unispinata* n. sp.; fig. 123.

Colour light brown, lamellae and pteromorphae much darker than the hysterosoma. Length 0.45 mm.

The rostrum is pointed (fig. 123 a). The rostral hairs, which are densely feathered, reach a good distance beyond the tip of the rostrum. The lamellae have parallel sides. They are slightly furrowed and densely punctate. The tips of the lamellae have no teeth; they are equally long. The length of the tips as reckoned from off the base of the lamellar hair is about half as long as the median side of the lamellar plate. The lamellar hair is about twice as long as the tips, rough and about twice as thick as the median tip. The interlamellar hairs, which reach as far anteriorly as the lamellar hairs, are also rough, but much thinner. The pseudostigmatic organ is a little longer than in *O. punctata*. The head is slender, as long as the stalk, but there is no distinct separation between them; the stalk more or less becomes evenly thicker towards the head. The pseudostigmatic cup has a sharp point on its anterior border. The anterior border of the hysterosoma has laterally to the pseudostigmata 8–10 parallel lines. The hairs of the hysterosoma are thin, the anterior lateral pair is twice as long as the posterior dorsal one. The areae porosae are small. The integument is densely punctate. All tarsi have 3 claws, of which the middle one is the strongest. Genu II has a thick rough spine at least one and a half times longer than the joint. The corresponding one on Genu I is much thinner, more pointed at the end. Tibiae I–II have no spine as in *O. punctata*, only a hair which is no stronger than some of the hairs on the tarsus.

Bolivia: At Unduavi 2 specimens in wet moss and grass on a vertical cliff.

*Lamellobates* n. gen.

The lamellae are broad plates, which are situated close together as in *Oribatella* and completely separated as far as the transversal ridge which connects the lamellae basally. The anterior border of the lamellae are without free tips. The hairs of the hysterosoma have an arrangement different from the hairs in *Oribatella*; they are situated not only along the borders but also on the middle part of the hysterosoma.

*Lamellobates palustris* n. sp.; fig. 124.

The rostrum is pointed with concave sides. The rostral hairs, as in *Oribatella*, are very long and unilaterally feathered. They reach beyond the tip of the rostrum by half their length, where they meet. The lamellae are broad plates as in *Oribatella*, though without distal tips. The sides are parallel, the end "cut off"; laterally the anterior end is, however, tapering into a sharp point, which reaches as far laterally as the sides of the rostrum; the inner corner is rounded. Along the median sides the lamellae are reinforced by a chitinous thickening which posteriorly ends in a median

knob between the lamellae. The lamellar hairs are situated a short distance behind the anterior border nearest to the median side. From their base runs a thick line backwards. The lamellar hairs are about one and a half times longer than the medial side of the lamella. They are very thick, equally thick throughout, and rough. The interlamellar hairs are situated in the point where the lamellae and the anterior border of the hysterosoma meet. They reach as far anteriorly as the lamellar hairs or a little further. Their proximal parts are somewhat thinner than the lamellar hairs; at the tip they are much thinner; they are slightly rough. The pseudostigmatic organ is a long slender club pointed at the tip and set with short hairs. The organs are bent forwards at an almost right angle in the middle. The distal part is about one and a half times longer than the medial side of the lamella (in fig. 124 they are seen in shortening). Tectp. I has a long free tip, which reaches beyond the outer point of the anterior end of the lamella. The anterior border of the hysterosoma projects a good distance between the base of the interlamellar hairs. The anterior lateral part of the pteromorphae reaches almost as far anteriorly as the middle part of the hysterosoma. The hysterosoma is across the anterior part almost as broad as it is long. In the posterior end it is narrower. The hairs, which are situated as shown in fig. 124, are thin and rather long; the anterior lateral ones are as long as the medial side of the lamella, posteriorly they are a little shorter. As distinct from *Oribatella*, in which the hairs are arranged more or less along the border of the hysterosoma, the hairs in *Lamellobates* occupy also the dorsal part of the hysterosoma. Areae porosae are absent, instead a few very small chitinous pores are seen. The ventral side is shown in fig. 124a. The tarsi have only one claw. Genu II has a long bent rough spine, Tibia II a somewhat thicker but shorter spine. Genu I has a still shorter and thinner spine, Femur II a tooth distally.

The Argentine: At Quebrada de Gallinato near Salta one specimen in a luxurious moist meadow with grass.

*Arcozetes* n. gen.

The lamellae together with the translamella form a high broad arch which is divided into two halves by a long incision which goes to the chitinous thickening along the median sides of the lamellae. The arch especially consists of the translamella, which as a bipartite tongue projects beyond the anterior end of the lamellae. The pteromorphae are moveable. Areae porosae present.

*Arcozetes bicuspidatus* n. sp.; fig. 125.

Colour light brown. Length 0.27 mm.

The rostral hairs are inserted on the lateral sides of the rostrum and reach the tip of the latter. Immediately behind them there is a short free tip on Tectp. I. The lamellar hairs, which reach beyond the tip of the rostrum by half their length, are situated on the anterior end of the lamellae. The lamellae and the translamella form a broad arch, which almost covers the anterior part of the propodosoma. The arch

is divided into two halves, each of them medially and anteriorly having a long tip, which reaches beyond the tip of the rostrum. The tips are close together and are about one third as long as the median side of the translamella. The lateral side of the translamella passes in a large curve backwards joining the lamella halfway between the posterior margin of the translamella and the pseudostigmatic cup. The lamellae are broad ridges, narrower in their anterior half, which is half concealed below the translamellar arch. Anteriorly the lamellae end in a small lateral tooth. The interlamellar hairs are situated immediately in front of the anterior border of the hysterosoma. They are rough, thin at the tip, which reaches to the base of the tip on the translamella. The pseudostigmatic organs are distinctly striated broad blades, pointed at the tip and directed inwards and forwards. The part outside the cup is almost as long as the median side of the translamellar lobes without the tips. The anterior border of the pseudostigmatic cup has a long point which is placed close to the lamella. Tectp. II is longitudinally striped. The hysterosoma is as broad as it is long, rounded both anteriorly and posteriorly. The pteromorphae are moveable, of shape almost triangular, longer than broad. Along the distal margin they are densely striated. The areae porosae are round and distinct. The position of the hairs is shown in fig. 125; they are very short and thin. The ventral side is shown in fig. 125a. All tarsi have 3 claws, of which the middle one is the strongest. Tarsus I has two long tactile hairs, Tibia I one and Genu I also one. Tibia II has distally a thick short spine and a long tactile hair, Genu II one long hair. Tibiae III–IV have also a long hair.

The Argentine: At Quebrada de Gallinato near Salta one specimen in liverworts on a slope down to a deep dry arroyo shaded by shrubs, only a little moist.

*Lobozetes* n. gen.

The lamellae are well developed. The translamella has as in *Arcozetes* two long anteriorly directed lobes, which are separated by a deep space. Tectp. I has a free tip. The pteromorphae are short, not moveable. Areae porosae are present.

*Lobozetes bilobatus* n. sp.; fig. 126.

Colour light brown. Length 0.35 mm.

The rostral hairs are inserted on the lateral sides of the propodosoma a little behind the anterior end of the free tip of Tectp. I. They reach the tip of the rostrum and are unilaterally densely feathered. The lamellae in their proximal halves are broad blades, distally they taper towards the end, finally ending in a point on which the very small lamellar hair is situated. The medial sides of the lamellae are anteriorly half concealed by two long parallel lobes from the translamella; they reach the tip of the rostrum. Their lateral sides reach a little further posteriorly than to the posterior margin of the transversal part of the translamella. The lobes are in the middle at least as long as the distance between the posterior border of the translamella and the anterior border of the hysterosoma. The interlamellar hairs which are placed a short distance in front of the anterior border of the hysterosoma, are thin, slightly



rough and a little longer than their mutual distance. Tectp. I looks like a thick broad scale; it is striated on the lateral side, the tip is free and projects as far anteriorly as the lamellar tip. Tectp. II are also deep brown scales, striated on the outer side. The pseudostigmatic organ has on a short stalk a disk-shaped head with strong chitinized sides (fig. 126 a). From the face it is quite different from its appearance in profile (fig. 126 b). The pseudostigmatic cup is deep and has both anteriorly and posteriorly a long pointed lobe. The posterior lobe has a few longitudinal stripes. Ventrally to the posterior lobe a somewhat darker scale is seen (fig. 126 b). The head of the pseudostigmatic organ just reaches outside the cup; it is turned towards the middle and forwards. The hysterosoma is one and a half times longer than it is broad immediately behind the pteromorphae. The posterior border is rounded; the anterior one projects in the middle almost as far as the base of the interlamellar hairs or off the anterior border of the pseudostigmatic cup. Areae porosae are present; the area porosa adalaris is the biggest, all are round. The hairs of the hysterosoma are situated as shown in fig. 126; they are very short and thin. Fig. 126 c shows the ventral side. Apodemata I–II are well developed and connected in the middle by a faintly chitinized plate, which reaches the genital plates. The genital plates have 5 pairs of hairs two of which are situated on the anterior border. The anal plates have 2 pairs. All tarsi have 3 claws of which the one in the middle is the strongest. Tibia I has a long protuberance with a long and a short tactile hair. Femur I has a tooth distally on the ventral side. Genu II has proximally a short thick spine on the outer side. Also Femur II has a tooth distally.

The Argentine: Beside the Arroyo de la Cruz de Piedra 3350 m. a.s.l. one specimen in a moist moss cushion with some Cyperaceae.

*Trachyoribates nodosus* n. sp.; fig. 127.

Colour light brown-brown, strongly chitinized. Length 0.37 mm.

The rostrum is broad and rounded. The rostral hairs are situated on the sides of the rostrum near the tip; they are rather thin and smooth, about half as long as their mutual distance (fig. 127 a). Along the lateral side of the propodosoma there is a lateral keel. The lateral keels are slightly undulating in their proximal part; then follows a straight part twice as long as the undulating part. At the anterior end there is a rather sharp tooth in front of or medially to which the lamellar hair is situated, which reaches the tip of the rostrum. It is thick and slightly uneven in its proximal half. Medially to the base of the lamellar hair there is a chitinous lobe or keel, which projects as a lateral tooth on the side of the rostrum. The interlamellar hairs are a little more than half as long as the lamellar hairs and smooth. They are situated in front of a deep incurvation, which is seen on either side of the projecting middle part of the hysterosoma. The pseudostigmatic organs are long thin brushes (fig. 127 b). The distal third is on the anterior border set with thick stiff bristles. The pseudostigmatic organs are as long as the lateral keels (fig. 127 a) and are directed outwards, the tip backwards. On the posterior side of the pseudostigmatic cup there is a clear

scale. The hysterosoma is only a little longer than it is broad. The posterior end is rounded; the anterior border is divided into three almost equally broad parts, of which the middle one reaches as far as off the base of the interlamellar hairs. The anterior border of the pteromorphae do not by far reach so far forwards, not further than to the posterior border of the pseudostigmatic cup. Laterally to the pseudostigmata there is on either side a rather deep incurvation, the bottom of which is the anterior border of a pointed tooth which touches the above-mentioned clear scale (fig. 127, 127 a). Femur II fits into this incurvation. The pteromorphae are almost triangular, pointed distally and moveable. Areae porosae absent. The hairs of the hysterosoma are situated as shown in the figure. They are thin and short, about as long as the interlamellar hairs and are situated in oblong pores. This species has a rough appearance, every detail being decorated. The integument of the propodosoma has big regular round pits, also in the lateral keels. The rostrum has very small pits along the border. The anterior part of the propodosoma seems to be at a deeper level than the posterior part behind a transversal line between the lateral teeth on the sides of the rostrum. The hysterosoma is likewise pitted, but not so regularly as the propodosoma. The pits are of different size and more scattered. They can be seen only in the middle of the hysterosoma. On the anterior half of the dorsum glandular tissue can be seen through the integument. Some parts of the body is covered by a thin layer of secretion. The ventral side is shown in fig. 127 c. All the tarsi have only one claw. Fig. 127 d shows Leg I. On either side of the claw there is a hair the proximal half of which is thick as a cushion. On the dorsal side there are 3 almost parallel tactile hairs, a very long one in the middle. The tibia has dorsally on the distal end a short tooth at the base of which is inserted the long tactile hair, further medially the thinner and shorter one. On the ventral side there is distally a bifurcate hair, proximally a tiny tooth. The genu has distally on the dorsal side a pointed tooth, the femur a clog crest on the ventral side and big pits. All joints are strongly chitinized. Femur IV has on the ventral side a crest which distally ends in a big rounded lobe. Femur III has on the corresponding place a shorter and more pointed lobe directed forwards.

This species seems to be very closely related to *Trachyoribates ampulla* Berl. (1904, Redia II, p. 172, fig. 43 and 1908, Redia V, p. 3, where BERLESE established the genus *Trachyoribates*) from Buitenzorg, New Guinea.

Bolivia: At Chulumani 6 specimens in 5 cm. high luxurious moss on a vertical hang above a ditch with water.

*Pelops* sp.; fig. 128.

Colour brown. Length about 0.53 mm.

As only one adult of this species which is not very characteristic, was found and as this moreover is crushed so that its exact length cannot be given (in fig. 128 the drawing is partly a construction), it will not be given a name. Fig. 128 shows the position of the hairs. I2 and S3 are not situated close together. All hairs are stiff,

slightly bent, blunt at the tip and of equal length (fig. 128a). I3 is slightly thicker. The anterior part of the hysterosoma projects in the middle as a broad long lobe with two low incurvations. The pseudostigmatic organ (fig. 128b) is lanceolate; it reaches beyond the anterior border of the middle part of the hysterosoma by half of its free part. The hysterosoma is covered by a thin layer of secretion.

Bolivia: East of Cumbre 2 specimens (1 adult and 1 nymph) in moist vegetation of half a centimetre high Umbelliferae, moss and a little grass.

*Hoploderma* sp.; fig. 129.

As only two specimens, both of which are crushed, were found, it will only be briefly described. As I might find this species later in my further investigations into the oribatid fauna of the Andes Mountains a description, though incomplete, to which reference can be made, will be valuable. Length of the propodosoma 0.38 mm. (hysterosoma crushed). Colour grey as dry mud. The hairs of the hysterosoma are stiff, a little shorter than the medial hairs of the propodosoma (fig. 129a); at the tip they are set with short bristles; they are directed outwards and slightly forwards. On the dorsal side of the propodosoma there is a long medial dark stripe or low crest (fig. 129b, d), which reaches almost to the tip of rostrum dividing here into two branches at the end of which the rostral hair is situated; the latter is short and stiff as a spine (fig. 129b). On either side of the dark stripe the propodosoma is dark grey, while the posterior half of the propodosoma is somewhat lighter and provided with pits. The two pairs of hairs on the propodosoma are directed backwards. The median hairs are almost as long as the lighter posterior part of the propodosoma, the two lateral hairs are only half as long; all of them are set with short bristles on the distal part. The pseudostigmatic organ is very short and directed forwards. The head is a short yellow plate with radiating lines along the outer margin (fig. 129c). Behind it there is a chitinous protuberance protecting it. The genital plates have 4 pairs of hairs, which, however, cannot be seen, only the hair-pores. The anal plates have 4 (?5) pairs of very long bent hairs (fig. 129e).

The Argentine: In the Rio Atuel valley near the Arroyo Las Chircas two specimens in wet *Mimulus* and moss in a spring on the mountain side.



TABLE 1 (continued).

Species	The Argentine												Bolivia													
	Manzano	Arroyo Plomo	Ar. Paraguay	Rio Salado	Rio Atuel							Salta	Sub-tropical		Chacaltaya	The Argentine	Bolivia	South America	North America	Greenland	Europe					
					Est. El Sosneado	Puente Angosto	Ar. Blanco	Ar. Las Chircas	Puesto d. Los Arroyos	Ar. d. Los Pajaritos	El Angulo		Ar. El oscuro	Above ---, 3700 m. a. s. l.								Laguna Atuel	Ar. d. la Cruz de Piedra	San Antonio d. Los Cobres	Puente Villa	Chulumani
																									La Paz	Cumbre
37. <i>Scapheremæus trirugis</i> n. sp. . . . .																										
38. — <i>glaber</i> n. sp. . . . .																										
39. — <i>stratus</i> n. sp. . . . .																										
40. <i>Gymnodamaeus elegantulus</i> n. sp. . . . .																										
41. <i>Pedrocortesia mirabilis</i> n. gen. n. sp. . . . .																										
42. <i>Damaeolus saltaensis</i> n. sp. . . . .																										
43. <i>Suctobelba bifoveolata</i> n. sp. . . . .																										
44. — <i>quadricarina</i> n. sp. . . . .																										
45. — <i>microclava</i> n. sp. . . . .																										
46. — <i>transversalis</i> n. sp. . . . .																										
47. — <i>longiclava</i> n. sp. . . . .																										
48. — <i>complexa</i> n. sp. . . . .																										
49. — <i>ornatissima</i> n. sp. . . . .																										
50. — <i>elegantula</i> n. sp. . . . .																										
51. <i>Oppia suramericana</i> n. sp. . . . .																										
52. — <i>tenuis</i> n. sp. . . . .																										
53. — <i>neerlandica</i> (Oudem.) . . . . .																										
54. — <i>breviclava</i> n. sp. . . . .																										
55. — <i>dispariseta</i> n. sp. . . . .																										
56. — <i>arcuata</i> n. sp. . . . .																										
57. — <i>spinosa</i> n. sp. . . . .																										
58. — <i>notata</i> n. sp. . . . .																										
59. — <i>scalifera</i> n. sp. . . . .																										
60. — <i>nodosa</i> n. sp. . . . .																										
61. — <i>rotunda</i> n. sp. . . . .																										
62. — <i>tenuicoma</i> n. sp. . . . .																										
63. — <i>longicoma</i> n. sp. . . . .																										
64. — <i>lanceolata</i> n. sp. . . . .																										
65. — <i>trichosa</i> . . . . .																										
66. <i>Oppia chulumaniensis</i> n. sp. . . . .																										
67. <i>Oribella spinifera</i> Hammer. . . . .																										
68. — <i>arcuata</i> n. sp. . . . .																										
69. <i>Eremobelba foliata</i> n. sp. . . . .																										
70. <i>Eremulus nigrisetosus</i> n. sp. . . . .																										
71. — <i>crispus</i> n. sp. . . . .																										
72. <i>Anderemaeus monticola</i> n. gen. n. sp. . . . .																										
73. <i>Hydrozetes mollicoma</i> n. sp. . . . .																										

(to be continued)

TABLE 1 (continued).

Species	The Argentine											Bolivia						The Argentine	Bolivia	South America	North America	Greenland	Europe				
	Manzano	Arroyo Plomo	Ar. Paraguay	Rio Salado	Rio Atuel							San Antonio d. Los Cobres	Sub-tropical		Chacaltaya												
					Est. El Sosneado	Puente Angosto	Ar. Blanco	Ar. Las Chircas	Puesto d. Los Arroyos	Ar. d. Los Pajaritos	El Angulo		Ar. El obscuro	Above --, 3700 m. a. s. l.		Laguna Atuel	Ar. d. la Cruz de Piedra							Salta	Puente Villa	Chulumani	La Paz
74. <i>Tectocephus</i> sp. . . . .			X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
75. <i>Nodocephus dentatus</i> n. gen. n. sp. . . . .				X			X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
76. <i>Carabodes</i> sp. . . . .																											
77. <i>Mikizetes diamantensis</i> n. gen. n. sp. . . . .													X														
78. <i>Eporibatula bicuspadata</i> n. sp. . . . .											X																
79. — <i>gracilis</i> n. sp. . . . .											X																
80. <i>Oribatula suramericana</i> n. sp. . . . .	X		X	X	X	X			X													X	X	X	X	X	X
81. — <i>magniporosa</i> n. sp. . . . .									X		X											X	X	X	X	X	X
82. — <i>altimontana</i> n. sp. . . . .												X										X	X	X	X	X	X
83. — <i>altimontanoides</i> n. sp. . . . .										X			X									X	X	X	X	X	X
84. <i>Scheloribates luteomarginatus</i> n. sp. . . . .				X	X							X										X	X	X	X	X	X
85. — <i>longior</i> n. sp. . . . .																						X	X	X	X	X	X
86. — <i>pallidulus</i> (C. L. Koch) . . . . .																	X					X	X	X	X	X	X
87. — <i>angulatus</i> n. sp. . . . .																	X										
88. — <i>striatus</i> n. sp. . . . .																	X					X	X	X	X	X	X
89. — <i>trichosus</i> n. sp. . . . .																		X				X	X	X	X	X	X
90. — <i>rugosus</i> n. sp. . . . .																	X					X	X	X	X	X	X
91. — <i>obesus</i> n. sp. . . . .																		X				X	X	X	X	X	X
92. — <i>latus</i> n. sp. . . . .																		X				X	X	X	X	X	X
93. — <i>elegans</i> n. sp. . . . .																		X					X	X	X	X	X
94. — <i>rectus</i> n. sp. . . . .																			X				X	X	X	X	X
95. — <i>parvialatus</i> n. sp. . . . .														X								X	X	X	X	X	X
96. — <i>rostratus</i> n. sp. . . . .														X								X	X	X	X	X	X
97. <i>Peloribates nudus</i> n. sp. . . . .														X								X	X	X	X	X	X
98. — <i>rigidicoma</i> n. sp. . . . .														X								X	X	X	X	X	X
99. — <i>longicoma</i> n. sp. . . . .														X								X	X	X	X	X	X
100. <i>Protoribates elegans</i> n. sp. . . . .										X												X	X	X	X	X	X
101. <i>Tuxenia complicata</i> n. gen. n. sp. . . . .						X		X				X										X	X	X	X	X	X
102. <i>Lauritzenia longipluma</i> n. gen. n. sp. . . . .														X								X	X	X	X	X	X
103. <i>Ceratozetes undulatus</i> n. sp. . . . .								X					X									X	X	X	X	X	X
104. — <i>thienemanni</i> Willm. . . . .									X													X	X	X	X	X	X
105. — <i>argentinensis</i> n. sp. . . . .											X											X	X	X	X	X	X
106. — <i>nigrisetosus</i> n. sp. . . . .																		X				X	X	X	X	X	X
107. — <i>platyrhinus</i> n. sp. . . . .												X							X			X	X	X	X	X	X
108. — <i>striatus</i> n. sp. . . . .												X							X			X	X	X	X	X	X
109. <i>Sphaerobates foveolatus</i> n. sp. . . . .							X	X														X	X	X	X	X	X
110. <i>Edwardzetes andicola</i> n. sp. . . . .							X														X	X	X	X	X	X	X

(to be continued)



Table 1 only indicates the occurrence of the species in the localities examined, but does not tell anything about the numerical occurrence of the various species or about the faunal composition in the biotopes examined. Still, the number of species and individuals per locality examined (indicated below) may tell something about the composition of the fauna. Thus the largest number of individuals from any locality was collected at Laguna Atuel, more than 9000 distributed on 44 samples, which is also the largest number of samples, but still no more than 10 species were found. This shows a very homogeneous fauna. The opposite is seen in the case of the Arroyo Las Chircas, where 7 samples from a small green area round a spring contained no less than 21 species.

If the biotopes from Laguna Atuel are arranged as in Table 2, it is seen that the fauna is very homogeneous and that it is actually the question of a single biotope in which two species, *Mucronothrus rostratus* and *Platynothrus skottsbergii*, constitute 98.2 per cent. of the whole oribatid fauna. All samples were taken within a distance of a kilometre from the head of the Rio Atuel, where it oozes through a large moraine. The river there flows rather slowly, the water is clear and a rich vegetation consisting of *Mimulus*, *Ranunculus*, *Juncus*, grass and a thick carpet of moss grows far into the river. Besides the oribatid population, very rich in individuals, there were Gamasidae, Trombidiidae, Collembola, numerous larvae of aquatic insects: Perlidae, Psychodidae,

TABLE 2.

Near Laguna Atuel  Species	Biotopes and Catalogue numbers								
	121-125 dripping wet <i>Ranunculus</i> and grass	126-130 wet low moss, <i>Mimulus</i> veg.	131-135 wet high <i>Mimulus</i> veg. in the water	136-140 moist <i>Ranunculus</i> and <i>Juncus</i>	141-145 dripping wet moss in the water	146-150 wet low moss on vertical hang	151-155 wet low moss, a little <i>Mimulus</i>	156-159 green algae in water	160-164 dripping wet grass, <i>Ranunculus</i>
<i>Brachychthonius fimbriatus</i> n. sp. ....	..	..	..	..	..	..	4	..	..
<i>Mucronothrus rostratus</i> Trghd. ....	24	..	2383	103	2881	449	530	28	79
<i>Malaconothrus translamellatus</i> n. sp. ....	..	..	..	1	..	..	..	..	..
<i>Platynothrus skottsbergii</i> Trghd. ....	179	84	98	1141	500	257	116	1	9
<i>Oppia suramericana</i> n. sp. ....	..	..	..	..	..	1	8	..	..
— <i>nodosa</i> n. sp. ....	..	..	..	..	..	1	..	..	..
<i>Hydrozetes mollicoma</i> n. sp. ....	..	..	1	..	2	..	..	2	..
<i>Tectocephus</i> sp. ....	1	..	2	..	..	..	..	..	..
<i>Ceratozetes undulatus</i> n. sp. ....	..	5	..	2	1	..	..	..	..
<i>Williamsia elsosneadensis</i> n. gen. n. sp. .	..	120	1	1	..	1	..	..	..
10 species in 44 samples									

Table 2 shows the compositions of the oribatid fauna near Laguna Atuel.



TABLE 3.

Species	Biotores and Catalogue numbers														
	165-169 dripping wet low moss, a little <i>Juncus</i>	170-172 wet-moist moss, grass and Cyperaceae	173-174 wet <i>Juncus</i>	175-176 very wet grass and <i>Juncus</i>	177-179 moist <i>Calceolaria</i> , a little moss on a hang	180-182 wet high moss on a vertical hang	183-184 very wet <i>Calceolaria</i> , a little low moss	185-187 dripping wet moss, high, on water in a well	188-189 wet low cushion plant on the edge of the well	190-191 moist low cushion plant and Cyperaceae	192-194 dripping wet moss, a little <i>Juncus</i>	195 wet moss in a little well	196 moist moss and a little Cyperaceae	197 only a little moist, low cushion plant	198 very dry cushion plant in fell-field
<i>Brachychthonius fimbriatus</i> n. sp. ....	..	..	3	..	1	..	..	..	..	..	..	..	1	2	..
— <i>altimonticola</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	..	13	..	..
<i>Eobrachychthonius argentinensis</i> n. sp. ....	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..
<i>Brachychochthonius rotundatus</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
<i>Trhypochthonius breviclava</i> n. sp. ....	..	9	16	..	..	..	..	..	..	..	37	..	..	..	..
<i>Mucronothrus rostratus</i> Trghd. ....	2	..	..	1	..	..	1	2880	24	..	..	..	..	..	..
<i>Trimalaconothrus australis</i> n. sp. ....	..	..	..	..	..	..	..	..	132	..	57	..	..	..	..
<i>Malaconothrus translamellatus</i> n. sp. ....	29	9	110	88	1	5	9	5	158	13	75	..	..	..	..
<i>Nothrus suramericanus</i> n. sp. ....	..	3	9	..	27	30	6	..	..	..	..	1	..	..	..
<i>Platynothrus skottsbergii</i> Trghd. ....	4	9	1	4	11	16	2	56	1078	273	109	..	..	..	..
— <i>quadristriatus</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	444	..	..	..	..
<i>Oppia suramericana</i> n. sp. ....	..	..	2	..	10	1	1	..	..	..	..	..	1	1	..
— <i>arcuata</i> n. sp. ....	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..
<i>Tectocephus</i> sp. ....	..	1	12	..	7	4	3	..	..	..	..	3	2	5	..
<i>Mikizetes diamantensis</i> n. gen. n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
<i>Oribatula allimontana</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
<i>Schelorbates luteomarginatus</i> n. sp. ....	..	..	1	2	19	24	..	..	..	1	..	..	..	..	..
<i>Tuxenia complicata</i> n. gen. n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
<i>Ceratozetes argentinensis</i> n. sp. ....	..	..	18	..	..	..	..	..	2	..	93	..	..	..	..
<i>Tegoribates americanus</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
<i>Williamsia elsosneadensis</i> n. gen. n. sp. ....	..	1	4	..	1	..	..	..	15	17	43	..	..	..	2
<i>Oribatella punctata</i> n. sp. ....	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
<i>Lobozetes bilobatus</i> n. gen. n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
23 species in 34 samples															

Table 3 shows the composition of the oribatid fauna at Arroyo de la Cruz de Piedra. In the present table sample 198, taken on a fell-field, is not included in the calculation.

Chironomidae, Tipulidae, Coleoptera, and Crustacea, Oligochaeta, Nematoda, etc. Well over 9000<sup>1</sup> oribatids in 44 samples of 1/1000 square metre, thus gives an average of about 200,000 oribatids per square metre. If we add all the other animals living in this very wet biotope, it is evident that it is an extraordinarily densely populated oasis.

<sup>1</sup> The total number of individuals in the following tables is often somewhat smaller than indicated in Table 1, which is due to the fact that undetermined nymphs be disregarded in the tables of the biotopes in various localities.

A corresponding oribatid fauna dominated by *Mucronothrus rostratus* and *Platynothrus skottsbergii* was furthermore found beside the Arroyo de la Cruz de Piedra (Table 3), about 200 km. farther north, in 2–3 cm. thick moss growing in the water in a spring beside the arroyo (Nos. 185–187). *Mucronothrus rostratus* there constitutes 97.9 per cent., *Platynothrus skottsbergii* 1.9 per cent. Both species are evenly distributed on the three samples in question. The Arroyo de la Cruz de Piedra flows through a narrow wild valley with a violent fall and only in the spring in question moss can grow in the water. The other samples were taken along the bank, i. e. on firm, hard

TABLE 4.

Arroyo de Los Pajaritos At the top of the Rio Atuel valley  Species	Biotope and Catalogue numbers														
	34-35 wet moss	36-38 moist <i>Ranunculus</i> veg.	39-40 moist-dry, 1 cm high stiff <i>Juncus</i> veg.	41-42 wet moss and grass	43-44 wet moss, grass and <i>Luzula</i> in running water	45 moist <i>Luzula</i> veg.	46-47 moist low moss in a hole on a slope	48 dripping wet moss	49-50 bryophytes in water	51-52 wet stiff <i>Juncus</i>	53 moist stiff <i>Juncus</i>	54-56 dripping wet <i>Mimulus</i> veg.	57-58 moist stiff <i>Juncus</i>	59-60 wet moss on the edge of the arroyo	61-63 moss and a little stiff grass in ferruginous water
<i>Nanhermannia elegantissima</i> n. sp. ....	..	2	..	..	20	..	..	3	1	48	13	1	103	..	..
<i>Brachychthonius fimbriatus</i> n. sp. ....	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
— <i>griseus</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
<i>Mucronothrus rostratus</i> Trghd. ....	19	..	..	..	..	..	..	67	8	1	..	152	..	3	1
<i>Trimalaconothrus australis</i> n. sp. ....	2	..	..	1	..	..	..	..	..	15	..	1	..	..	16
<i>Malacoconothrus translamellatus</i> n. sp. ....	2	92	..	19	237	8	..	4	11	78	58	9	..	3	16
— <i>mollisetosus</i> Hammer .....	..	..	..	..	..	..	..	..	..	5	..	..	1	..	..
<i>Nothrus suramericanus</i> n. sp. ....	..	1	13	..	..	..	..	..	..	66	68	9	104	..	..
<i>Platynothrus skottsbergii</i> Trghd. ....	7	..	..	10	..	..	..	..	..	..	..	..	..	..	..
<i>Oppia suramericana</i> n. sp. ....	..	15	76	..	..	88	115	..	..	..	32	..	131	..	..
— <i>arcuata</i> n. sp. ....	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
— <i>nodosa</i> n. sp. ....	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..
<i>Tectocephus</i> sp. ....	..	3	1	..	2	1	..	..	..	1	4	1	132	..	..
<i>Oribatula suramericana</i> n. sp. ....	..	..	13	..	..	..	..	..	..	..	..	1	15	..	..
— <i>magniporosa</i> n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
<i>Tuxenia complicata</i> n. gen. n. sp. ....	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
<i>Ceratozetes undulatus</i> n. sp. ....	..	..	..	..	1	..	..	..	..	..	1	..	2	..	..
<i>Edwardszetes andicola</i> n. sp. ....	..	..	..	..	..	..	..	10	..	1	..	..	..	..	..
<i>Williamsia elsosneadensis</i> n. gen. n. sp. ....	..	..	..	1	32	..	..	100	1	1	..	1	..	1	8
<i>Oribatella punctata</i> n. sp. ....	..	14	10	..	..	..	..	..	..	..	3	..	13	..	..
20 species in 31 samples															

Table 4 shows the composition of the oribatid fauna at Arroyo de Los Pajaritos.



*Oppia suramericana* are mostly missing in these as in the Arroya de la Cruz de Piedra. *Nanhermannia elegantissima* is found in rather large number together with the two last-mentioned species in biotopes which are somewhat less aqueous.

At San Antonio de los Cobres (Table 5) in the province of Salta, where almost all samples were taken high up on mountain sides with water oozing down round which narrow green stripes of vegetation are seen, the species are almost completely absent which to such a pronounced degree live in water or moss sucked full of water as *Mucronothrus rostratus* (one specimen found). In the wet, oozing biotopes *Malaconothrus translamellatus* is almost universal. In horizontal biotopes, such as the river bank, where the water is not constantly oozing down, it is found together with *Oppia suramericana*. In not too wet biotopes (242–244) *Nanhermannia elegantissima* and *Oribatula suramericana* occur together with *Oppia suramericana*.

In the areas within the estancia El Sosneado which are under cultivation, i. e. are irrigated, without actually being tilled, but which are left as permanent growths of small groves or lawns, the oribatid fauna is very poor whether the irrigation takes place regularly or at intervals only, although so that the soil is constantly slightly moist. Under 35 year old weeping willows and poplars, where there is a dense layer of dry leaves or withered grass, there were no oribatids, only in places in the wood where there was a little fine green grass, one species was found: *Malaconothrus translamellatus*. A *Poa* lawn constantly irrigated did not harbour any species of oribatids either, whereas the forest floor harboured Gamasidae, Collembola, Chilopoda, Pseudoscorpionida, Oligochaeta, etc. In these previously cultivated areas 19 samples were taken with only one single species: *Malaconothrus translamellatus*, containing 65 individuals, which is extreme poverty.

In the drinking-water canal to the estancia and in the spring supplying the water 8 samples with the following 12 species were taken:

In the spring 2 samples:

<i>Nanhermannia elegantissima</i> . . . . .	14	individuals.
<i>Mucronothrus rostratus</i> . . . . .	128	—
<i>Malaconothrus translamellatus</i> . . . . .	85	—
<i>Oribatula suramericana</i> . . . . .	1	—

In moss and green algae in different places in the canal 6 samples:

<i>Mucronothrus rostratus</i> . . . . .	1	individual.
<i>Malaconothrus atuelanus</i> . . . . .	7	individuals.
<i>Nothrus suramericanus</i> . . . . .	18	—
<i>Oppia suramericana</i> . . . . .	3	—
— <i>neerlandica</i> . . . . .	4	—
— <i>breviclava</i> . . . . .	7	—
— <i>nodosa</i> . . . . .	1	—
<i>Nodocephus dentata</i> . . . . .	3	—
<i>Scheloribates luteomarginatus</i> . . . . .	1	—

TABLE 6.

Biotopes and Catalogue numbers				Near Arroyo Las Chircas  Species	Biotopes and Catalogue numbers		
Brook or well on a mountain side 1900 m. a. s. l. about 28 km west of the estancia El Sosneado	all in wet moss in oozing water				111 wet moss and <i>Juncus</i> in oozing water	112 wet <i>Mimulus</i> and moss in running water	113 dripping wet moss below dripping water
	107	108	109	110			
..	..	..	..	<i>Nanhermannia elegantissima</i> n. sp. ....	..	..	9
100	..	..	..	<i>Brachychthonius mollis</i> n. sp. ....	..	..	..
..	..	..	10	— <i>ocellatus</i> Hammer .....	..	..	1
10	..	..	..	<i>Cosmochthonius pulcherrimus</i> n. sp. ....	..	..	..
..	..	..	..	<i>Mucronothrus rostratus</i> Trghd. ....	..	..	} 41
..	..	..	..	<i>Trimalacoanthrus australis</i> n. sp. ....	..	..	
..	..	..	1	<i>Malacoanthrus translamellatus</i> n. sp. ....	..	..	
9	2	2	6	— <i>atuelanus</i> n. sp. ....	8	..	96
..	..	..	..	<i>Camisia australis</i> n. sp. ....	..	1	..
..	..	1	..	<i>Nothrus suramericanus</i> n. sp. ....	..	..	..
1	..	..	..	<i>Platynothrus skottsbergii</i> Trghd. ....	..	..	219
6	10	1	..	<i>Oppia suramericana</i> n. sp. ....	1	..	3
11	..	..	..	— <i>tenuis</i> n. sp. ....	..	..	..
..	..	..	..	— <i>nodosa</i> n. sp. ....	..	1	2
..	1	..	..	<i>Oribella arcuata</i> n. sp. ....	..	..	..
6	3	..	..	<i>Tectocepheus</i> sp. ....	2	..	..
12	..	..	..	<i>Nodocepheus dentatus</i> n. gen. n. sp. ....	..	..	..
..	..	..	..	<i>Tuxenia complicata</i> n. gen. n. sp. ....	..	..	1
..	..	..	..	<i>Williamsia elsosneadensis</i> n. gen. g. sp. ....	..	3	168
..	1	..	..	<i>Oribatella punctata</i> n. sp. ....	..	..	..
..	..	..	..	<i>Hoploderma</i> sp. ....	..	2	..
				21 species in 7 samples			

Table 6 shows the composition of the oribatid fauna near the Arroyo Las Chircas. In the table two localities with very nearly the same conditions are put together.

In none of these samples the number of species was very large, nor the number of individuals.

The samples from the tributary to the Arroyo Las Chircas and from the neighbouring mountain slope with springs are listed in Table 6. The two localities are very homogeneous and rather poor in individuals, but very rich in species, 7 samples containing 21 species distributed on the two localities, as appears from the table.

The reason for the occurrence of the comparatively large number of species in these small oases, which often are not connected with an arroyo and presumably in summer dry up to being only a spot round the spring, is no doubt that this biotope is never spoilt by inundations, drought, or cultivation.

On the whole it is seen that it is very few species that dominate in most of the localities examined in the Argentine. This is presumably due to fact that the conditions of existence for oribatids in these regions are almost only found where water is present, oozing from the mountain sides or flowing in small rivers. Outside these areas there is dry sand with scattered plants in which only quite special species find possibilities of existence and then never in large numbers. Some samples were taken in such dry plant cushions, but mostly these did not contain any oribatids at all.

Beside the Arroyo Blanco in the Rio Atuel valley there was in the dry, hard Yaretiya cushions, the stems of which are densely packed as in *Sphagnum*, an enormous number of specimens of *Oppia suramericana*, 1060 individuals in 5 samples at 1/1000 square metre corresponding to more than 200,000 per square metre.

At the head of the Rio Atuel valley around El Angulo the following species were found in bone-dry, scattered cushion plants in stony fell-field at an altitude of 3300 to 3700 metres:

<i>Petrocortesia mirabilis</i> .....	About 3400 m. a.s.l.
<i>Oppia dispariseta</i> .....	— 3400 —
<i>Eporibatula bicuspidata</i> .....	— 3300 —
<i>Oribatula altimontanoides</i> .....	— 3400, 3700 m. a.s.l.
<i>Protoribates elegans</i> .....	— 3400 m. a.s.l.
<i>Spaerobates foveolatus</i> .....	— 3400 —

Above the Arroyo de la Cruz de Piedra the following two oribatids species were found in dry, stiff Yaretiya-like cushion plant at an altitude of 3650 metres.

*Mikizetes diamantensis*  
*Oribatula altimontana*.

Of all these species found in dry biotopes only *Oribatula altimontana* was found elsewhere, viz. near La Paz, Bolivia and at Cumbre at an altitude of 4658 metres in moss, grass, and low cushion plants.

In the dry localities in the Argentine also *Oribella arcuata* was found in a dry grass tussock at an altitude of 3700 metres, above El Angulo at the head of the Rio Atuel valley, *Williamsia elsosneadensis* at an altitude of 3450 metres, above the Arroyo de la Cruz de Piedra, the former species also being found near the Arroyo Las Chircas (1 specimen in wet moss), while the latter seems to be common almost everywhere.

In the other localities examined in the Argentine the number of samples and of species is so small that these localities are not of any appreciable interest except for the fact that they indicate the presence of certain common species.

**Comparison between the Oribatid Fauna of the Argentine and Bolivia.**

A comparison between the oribatid fauna in the Argentine and that in Bolivia shows that astonishingly few species are common to the two countries. This would seem to indicate that only a minor part of the existing oribatid fauna has been found. The slight similarity is presumably due to the fact that in the Argentine the collections were made only in very dry regions or in a very dry season (in the case of Salta), while in Bolivia collections were made in the rainy season in the moist mountains

TABLE 7.

Species	Biotores and Catalogue numbers															
	292-296 wet-moist moss, grass, low cushions	297-300 dripping wet grass, moss and a Composite	301-305 wet-moist luxurios moss	306-308 very wet low Umbelliferae, in a meadow	309-310 very wet low Umbelliferae, moss + Caryophyllaceae	311-313 moist-dry moss-like cushion	314-316 wet moss on a slope to a hole with water	317-318 moist low Umbelliferae on a peat meadow	319-320 moist grass tussocks and some Umbelliferae	321 moist luxurios Umbelliferae	322 very wet stiff cushion among cliffs	323-324 wet thick moss on a vertical hang	325-326 dripping wet moss, Cyperaceae, Umbelliferae	327-328 dripping wet moss and <i>Equisetum</i>	329 wet thin <i>Polytrichum</i> among cliffs	330-331 wet grass and a little moss
<i>Brachychthonius andinus</i> n. sp. . . . .	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
— <i>altimonticola</i> n. sp. . . . .	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Trimalaconothrus australis</i> n. sp. . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Malaconothrus translamellatus</i> n. sp. . . . .	..	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Camisia segnis</i> (Herm.) . . . . .	96	2	..	..	..	3	..	..	..	..	..	..	..	..	..	..
<i>Nothrus suramericanus</i> n. sp. . . . .	..	3	..	..	..	3	..	..	..	..	..	..	..	..	..	..
<i>Platynothrus altimontanus</i> n. sp. . . . .	..	18	..	..	..	..	..	..	..	7	..	..	..	..	..	..
<i>Scapheremaeus glaber</i> n. sp. . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	8
— <i>stratus</i> n. sp. . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
<i>Oppia suramericana</i> n. sp. . . . .	81	3	200	..	..	210	..	4	63	9	..	..	..	..	..	..
— <i>spinosa</i> n. sp. . . . .	..	..	..	..	..	23	..	..	..	..	..	..	..	..	..	..
— <i>trichosa</i> n. sp. . . . .	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Oribella spinifera</i> Hammer . . . . .	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Tectocephus</i> sp. . . . .	140	10	68	..	34	..	..	1	29	34	..	..	..	..	..	..
<i>Oribatula altimontana</i> n. sp. . . . .	81	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Schelorbates longior</i> n. sp. . . . .	..	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..
— <i>rugosus</i> n. sp. . . . .	..	59	8	..	..	..	..	..	..	19	..	..	..	..	..	..
<i>Ceratozetes nigrisetosus</i> n. sp. . . . .	..	..	..	..	..	..	..	..	..	..	..	108	41	4	2	..
<i>Jugatala armata</i> n. sp. . . . .	..	..	..	6	12	..	..	..	14	117	..	..	..	..	..	..
<i>Williamsia elsosneadensis</i> n.gen. n.sp.	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20 species in 40 samples																

Table 7 shows the composition of the oribatid fauna at Cumbe.

and mountain passes around the capital La Paz and in the very moisture-saturated valley which leads eastwards down towards Amazonas from La Paz to Chulumani. Any appreciable agreement between the faunas of the two countries consequently cannot be expected to occur from these few samples.

The 40 samples from Cumbre near La Paz are arranged in Table 7 in the same way as the samples from the localities in the Argentine. There is no similarity to or basis of comparison with the localities in the Argentine. The localities in the mountains east of La Paz: Cumbre, east of Cumbre and Chacaltaya, which are situated close together and are covered by a more or less low, dense carpet of vegetation have only 14 species common to them. Of these the following 9 have been found in Bolivia only:

*Brachychochthonius foliatus*, *Camisia segnis*, *Platynothrus altimontanus*, *Oppia spinosa*, *Andermaeus monticola*, *Schelorbates rugosus*, *Schelorbates obesus*, *Ceratozetes nigrisetosus*, and *Jugatala armata*.

The following 5 species were found in the Argentine as well: *Brachychthonius altimonticola*, *Malaconothrus translamellatus*, *Oppia suramericana*, and *Tectocephus* sp.

In the Argentine 292 samples were taken, with about 24,000 animals representing 89 species, in Bolivia 92 samples were taken, with about 6,000 animals representing 61 species. The Argentine thus was much more thoroughly investigated, which is due to the fact that the main work was done within the area of the estancia El Sosneado. Of the 129 species found 21 was common to the two countries; which species will appear from the column in Table 1 of the occurrence in the Argentine and Bolivia.

In the highlands there were in the Argentine	58	species
- - - - -	-	Bolivia
- - subtropical areas	34	-
- - - - -	20	-

Common to the highlands are the following 11 species: *Brachychthonius andinus*, *Brachychthonius altimonticola*, *Brachychochthonius rotundatus*, *Cosmochthonius pulcherrimus*, *Mucronothrus rostratus*, *Trimalaconothrus australis*, *Malaconothrus translamellatus*, *Nothrus suramericanus*, *Oribatula altimontana*, *Edwardzetes andicola*, and *Williamsia elsosneadensis*.

Common to the subtropical areas are the following 4 species: *Suctobelba complexa*, *Suctobelba ornatissima*, *Suctobelba elegantula*, and *Galumna flabellifera*.

The following South American species were found both in the highlands and in the subtropical areas in the two countries: *Nanhermannia elegantissima*, *Oppia suramericana*, and *Oribatula suramericana*. To these should be added 2 species common to the two countries and with a distribution beyond South America: *Oppia neerlandica* and *Schelorbates pallidulus*, besides *Tectocephus* sp., which could not be determined as to species.

42 species were found only in the subtropical areas; there the 6 species just mentioned as having a wider distribution were also found.

Of the 129 species found 13 have previously been described. The others are



new; still, the following have not been definitively determined: *Tectocephus* sp., *Carabodes* sp., *Pelops* sp., and *Hoploderma* sp. (see pp. 64, 66, 104 & 105).

11 new genera have been set up.

The 13 species previously found are known from the following localities arranged according to the distance from my finding-places in the Andes Mountains, the nearest localities being the first in the list:

<i>Galumna clericata</i>	La Plata, Brazil, Paraguay
<i>Platynothrus skottsbergii</i>	Juan Fernandez
<i>Oribella spinifera</i>	U.S.A., Canada
<i>Oppia neerlandica</i>	U.S.A., Canada, Greenland, Europe (e. g. in Lapland)
<i>Brachychthonius ocellatus</i>	Canada
<i>Eobrachychthonius montanus</i>	Canada
<i>Tegoribates americanus</i>	Canada
<i>Malaconothrus mollisetosus</i>	Canada, Europe (Lapland)
<i>Scheloribates pallidulus</i>	Canada, Europe
<i>Ceratozetes thienemanni</i>	Canada, Greenland, Europe (Lapland)
<i>Mucronothrus rostratus</i>	Greenland, Europe (e. g. Lapland)
<i>Cosmochthonius plumatus</i> v. <i>suramericanus</i>	Europe (main form)
<i>Camisia segnis</i>	Europe.

*Galumna clericata* and *Platynothrus skottsbergii* are undoubtedly South American species, *Oribella spinifera* is presumably a Pan-American species.

The following 6 species must for the present be considered arctic-high alpine species: *Brachychthonius ocellatus*, *Eobrachychthonius montanus*, *Malaconothrus mollisetosus*, *Ceratozetes thienemanni*, *Mucronothrus rostratus*, and *Tegoribates americanus* while *Oppia neerlandica* is found everywhere. The same presumably applies to *Scheloribates pallidulus*, *Cosmochthonius plumatus*, and *Camisia segnis*.

On the basis of our present knowledge of the South American oribatid fauna a comparison with that of the other parts of the world can only be extremely uncertain.

## Summary.

The present investigations are based on collection of more than 30,000 oribatids, partly in the Argentine (about 24,000), partly in Bolivia (about 6,000). Collections were made in the Andes Mountains from about 36° lat. S. to about 17° lat. S., from about 5400 metres above sea level to subtropical and tropical steep mountain slopes about 1800 metres above sea level to 1200 metres above sea level.

A total of 129 different species were found, which are arranged in systematic succession in Table 1, which also shows the occurrence of the species in the localities examined in the Argentine and Bolivia. At the bottom of the table the number of species, samples, and individuals for each locality is indicated.

Tables 2-7 show the composition of species within the biotopes in question. The extremes are demonstrated at Laguna Atuel (Table 2), where there is constantly a rich influx of water, and where there is a very homogeneous fauna, rich in individuals, but poor in species, dominated by two species, which constitute 98.2 per cent. of the total oribatid fauna. Beside the Arroyo Las Chircas, a small "oasis" on a dry steep mountain slope (Table 6) the contrast, with many species and few individuals, is seen.

By these investigations little similarity between the faunas of the Argentine and Bolivia was found. This may be due to insufficient collection, but also to the fact that in the Argentine collections were made especially in summer and in a dry desert-like region, while in Bolivia the collections were made in the rainy season and mainly high in the mountains, which have a considerably more luxuriant vegetation than that in the mountains in the Argentine.

In the Argentine 89 species were found, in Bolivia 61. Only 21 species were common to the two countries. Common to the highlands were 11 species, to the tropical-subtropical regions only 4 species. Very few species were found both in the highlands and in the tropical-subtropical areas.

Of the 129 species described, 116 were new, only 13 having been described previously. As to the distribution of the latter see p. 119.

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## Bibliography.

- BERLESE, A.: 1888. Acari austro-americi. Bull. Soc. Ent. Ital. 20.  
— 1902. Specie di Acari nuovi. Zool. Anz. 25.  
— 1903. Acari nuovi. Redia II.  
— 1908. Elenco di Generi e specie nuove di Acari. Redia V.  
— 1910. Acari nuovi. Redia VI.  
— 1915. Acari nuovi. Redia X.  
— 1917. Centuria seconda e terza di Acari nuovi. Redia XII.  
— 1921. Centuria quinta di Acari nuovi. Redia XIV.  
— & LEONARDI, G.: 1902. Acari sud americani. Zool. Anz. 25.
- CANESTRINI, G.: 1896. Diagnosi di alcune specie nuove di Acari della Bolivia. Bull. Soc. Veneto Trent. VI.  
— 1897. Intorno ad alcune specie nuove di Acari della Bolivia. Atti Soc. Ven. Tr. Sc. Nat. ser. II, Vol. III.
- EWING, H. E.: 1913. Some New and Curious Acarina from Oregon. Pomona Coll. Journ. Entom. & Zool. 5, nr. 3.
- FORSSLUND, K.-H.: 1941. Schwedische Arten der Gattung Suctobelba Paoli. Zool. Bidrag från Uppsala 20.  
— 1942. Schwedische Oribatei (Acari). I. Arkiv för Zoologi 34 A, nr. 10.
- FRANZ, H.: 1953. Die Nordostalpen im Spiegel ihrer Landtierwelt. Universitätsverlag Wagner, Innsbruck.
- GRANDJEAN, F.: 1929. Quelques nouveaux genres d'Oribatei du Venezuela et de la Martinique. Bull. Soc. zool. Fr. 54, nr. 5.  
— 1930. Oribates nouveaux de la Région Caraïbe. Bull. Soc. zool. Fr. 55.  
— 1931. Le Genre Licneremaeus Paoli (Acariens). Bull. Soc. zool. Fr. 56.  
— 1932. La Famille des Protoplophoridae (Acariens). Bull. Soc. zool. Fr. 57.  
— 1934. Oribates de l'Afrique du Nord (2<sup>me</sup> Série). Bull. Soc. d'Histoire Nat. de l'Afrique du Nord 25.  
— 1935. Observations sur les Oribates. Bull. Mus. Hist. Nat. Paris (2) 7, No. 4.  
— 1936a. Les Oribates de Jean Frédéric Hermann et de son père. Ann. Soc. Ent. France 105.  
— 1936b. Microzetes auxiliaris n. sp. Bull. Mus. Hist. Nat. Paris (2) 8, No. 2.  
— 1950. Étude sur les Lohmanniidae (Oribates, Acariens). Archiv zool. exp. et general 87.  
— 1954. Zetomotrichus lacrimans. Acarien Sauteur (Oribates). Ann. Soc. Ent. France 123.
- HAMMEN VAN DER, L.: 1952. The Oribatei (Acari) of the Netherlands. Zoologische Verhandlungen 17.
- HAMMER, M.: 1944. Studies on the Oribatids and Collemboles of Greenland. Medd. om Grønland 141, Nr. 3.  
— 1952. Investigations on the microfauna of Northern Canada. Part I. Oribatidae. Acta Arctica. Fasc. IV.
- JACOT, A. P.: 1936. More primitive moss-mites of North Carolina. J. Eliska Mitch. Soc. 52, Nr. 2.  
— 1938. More primitive moss-mites of North Carolina III. J. Eliska Mitch. Soc. 54, No. 1.
- JOAN, T.: 1917. Nota sobre un Oribátido nuovo para la República Argentina. Buenos Aires. Physis. Revista Soc. Argent. Cienc. Nat. 3, Nr. 15.
- KNÜLLE, W.: 1954. Die Arten der Gattung Tectocephus Berlese (Acarina: Oribatei). Zool. Anz. 152, Heft 11–12.
- KRAMER, P.: 1898. Acariden. Ergebnisse der Hamburger Magalhaensischen Sammelreise II.

- MICHAEL, A. D.: 1894. Ueber die auf Süd-Georgien von der deutschen Station 1882–83 gesammelten Oribatiden. Jahrb. Hamburg wiss. Anstalt 12.
- 1903. Acarida (Oribatidae). Voyage du S. Y. Belgica en 1897–98–99. Rapports Scientifiques. Zoologie. Anvers.
- PAOLI, G.: 1908. Monografia del Genere Dameosoma Berl. e generi affini. Redia V.
- SCHWEIZER, J.: 1956. Die Landmilben des Schweizerischen Nationalparks. Ergebnisse der wissenschaftlichen Untersuchungen des schweizerischen Nationalparks. V (Neue Folge) 34. Liestal.
- SELLNICK, M.: 1922. Brasilianische Oribatiden (Acar.) II Heterobelba zikáni n. sp. Ent. Mitt. Berlin 11.
- 1923. Oribatideos Brasileiros. I. Galumnae. Arch. Mus. Rio de Janeiro 24.
- 1924. Einige neue südamerikanische Dameosoma Arten (Acar. Oribat.). Beitr. aus der Tierkunde M. Braun als Festgabe Königsberg.
- 1929. Hornmilben, Oribatei. Die Tierwelt Mitteleuropas III, Lief. 4.
- 1930. Eine neue brasilianische Neoliodes Art und Bemerkungen über die Gattung Neoliodes Berlese (Acar.). Zool. Anz. 89, Heft 1–2.
- & FORSSLUND, K.-H.: 1955. Die Camisiidae Schwedens (Aeari. Oribat.). Arkiv för Zoologi, Serie 2, 8, Nr. 4. Stockholm.
- STRENZKE, K.: 1951. Die norddeutschen Arten der Oribatiden-Gattung Suctobelba. Zool. Anz. 147, Heft 7–8.
- 1953. Zwei neue Arten der Oribatiden-Gattung Nanhermannia. Zool. Anz. 150, Heft 3–4.
- 1954. Permycobates bicornis n. gen., n. sp., A New Centrale European moss mite (Acarina, Oribatei). Koninkl. Nederl. Akademie van Wetenschappen-Amsterdam. Proceedings, Series C, 57, Nr. 1.
- TRÄGÅRDH, I.: 1901. Nothrus maximus, eine neue Oribatide, fossil in der "Glossotheriumhöhle" gefunden und recent noch in Patagonien fortlebend. Zool. Anz. 24.
- 1907. The Acari of the Swedish South Polar Expedition. Wissenschaftliche Ergebnisse der Schwedischen Südpolar-Expedition 1901–1903 unter Leitung von Dr. Otto Norden-skjöld. V, Lief. 11.
- 1910. Acariden aus dem Sarekgebirge. Naturwiss. Untersuch. Sarekgeb. Schwedisch-Lappland. 4, Lief. 4.
- 1931a. Acarina from the Juan Fernandez Islands. The Natural History of Juan Fernandez and Easter Island, Edited by Dr. Carl Skottsberg III, Uppsala.
- 1931b. Terrestrial Acarina. Zoology of the Faroes 49.
- TUXEN, S. L.: 1952. Die Jugendstadien der nordischen Camisiiden (Acar. Orib.). Ent. Medd. 26. Copenhagen.
- WILLMANN, C.: 1929. Oribatiden von der Insel Herdla. Bergens Museums Årbok 1929. Naturvidenskapelig rekke 5.
- 1930. Neue Oribatiden aus Guatemala. Zool. Anz. 88, Heft 9–10.
- 1931. Moosmilben oder Oribatiden (Oribatei). Die Tierwelt Deutschlands 22. Jena.
- 1933a. Acari aus dem Moosebruch. Zeitschr. f. Morph. Ökol. Tiere. 27, Heft 2.
- 1933b. Zoologische Ergebnisse einer Reise nach Bonaire, Curaçao und Aruba im Jahre 1930. Zool. Jahrb. (Syst.) 64, Heft 3–5.
- 1936. Zoologische Ergebnisse einer Reise nach Bonaire, Curaçao und Aruba im Jahre 1930. Zool. Jahrb. (Syst.) 67, Heft 5–6.
- 1939. Die Moorfauna des Glatzer Schneeberges 3. Die Milben des Schneebergmoore. Beitr. Biol. Glatzer Schneeberges 5, Breslau.
- 1943. Terrestrische Milben aus Schwedisch-Lappland. Archiv für Hydrobiologie 40.-Aug. Thienemann-Festband.
- 1956. Milben aus dem Naturschutzgebiet auf dem Spieglitzet (Glatzer) Schneeberg. Československá parasitologie III.

## Explanation of the Figures on the Plates I-XXXIV.

- Fig. 1. *Nanhermannia elegantissima* n. sp.  
 — 2. *Brachychthonius fimbriatus* n. sp.  
 — 2a. — — hair from hysterosoma.  
 — 3. — — *mollis* n. sp.  
 — 3a. — — hair from hysterosoma.  
 — 4. — — *altus* n. sp.  
 — 4a. — — hair from hysterosoma.  
 — 5. — — *breviseta* n. sp.  
 — 5a. — — hair from hysterosoma.  
 — 6. — — *andinus* n. sp.  
 — 6a. — — hair from hysterosoma.  
 — 6b. — — from the lateral side.  
 — 7. — — *altimonticola* n. sp.  
 — 8. — — *tropicus* n. sp.  
 — 9. — — *saltaensis* n. sp.  
 — 10. — — *ocellatus* Hammer.  
 — 10a. — — pseudostigmatic organ.  
 — 11. *Eobrachychthonius montanus* Hammer.  
 — 12. — — *argentinensis* n. sp.  
 — 12a. — — half from the dorsal half from the lateral side.  
 — 13. *Brachyochthonius griseus* n. sp.  
 — 13a. — — pore from Segment I.  
 — 14. — — *elsosneadensis* n. sp.  
 — 14a. — — dorsal side in profile.  
 — 15. — — *rotundatus* n. sp.  
 — 16. — — *foliatus* n. sp.  
 — 17. *Cosmochthonius pulcherrimus* n. sp.  
 — 17a. — — from the lateral side.  
 — 17b. — — propodosoma from the lateral side.  
 — 17c. — — from the ventral side.  
 — 18. — — *plumatus* Berl. var. *suramericanus* n. var.  
 — 19. *Tetrochthonius clavatus* n. gen. n. sp.  
 — 19a. — — ventral side.  
 — 20. *Trhypochthonius breviclava* n. sp.  
 — 20a. — — pseudostigmatic organ.  
 — 20b. — — nymph.  
 — 21. *Mucronothrus rostratus* Trghd.  
 — 21a. — — ventral side.  
 — 21b. — — nymph.  
 — 22. *Trimalacothonius australis* n. sp.  
 — 22a. — — ventral side.

- Fig. 22b. *Trimalacoethrus australis* nymph.  
 - 23. — — *montanus* n. sp.  
 - 23a. — — ventral side.  
 - 24. *Malacoethrus translamellatus* n. sp.  
 - 24a. — — ventral side.  
 - 24b. — — nymph.  
 - 25. — — *atuelanus* n. sp.  
 - 25a. — — ventral side.  
 - 26. — — *mollisetosus* Hammer.  
 - 26a. — — ventral side.  
 - 27. — — *conicus* n. sp.  
 - 27a. — — ventral side.  
 - 28. — — *robustus* n. sp.  
 - 28a. — — ventral side.  
 - 29. — — *angulatus* n. sp.  
 - 29a. — — ventral side.  
 - 30. *Camisia segnis* (Herm.)  
 - 30a. — — hair from the posterior border, K1.  
 - 31. — — *australis* n. sp.  
 - 31a. — — lamellar apophyses and one lamellar hair.  
 - 32. *Nothrus suramericanus* n. sp.  
 - 32a. — — pseudostigmatic organ.  
 - 32b. — — detail of structure of hysterosoma.  
 - 32c. — — hair from the posterior end, PN2.  
 - 32d. — — Tarsus I.  
 - 33. *Platynoethrus skottsbergii* Trghd.  
 - 33a. — — pseudostigmatic organs.  
 - 33b. — — Tarsus I.  
 - 34. — — *quadristriatus* n. sp.  
 - 34a. — — pseudostigmatic organ.  
 - 34b. — — Tarsus I.  
 - 35. — — *altimontanus* n. sp.  
 - 35a. — — Tarsus I.  
 - 36. *Scapheremaeus clavifer* n. sp.  
 - 36a. — — Leg I.  
 - 37. — — *trirugis* n. sp.  
 - 38. — — *glaber* n. sp.  
 - 38a. — — detail of structure of hysterosoma.  
 - 38b. — — nymph.  
 - 39. — — *stratus* n. sp.  
 - 40. *Gymnodamaeus elegantulus* n. sp.  
 - 40a. — — part of the pseudostigmatic organ.  
 - 41. *Pedrocortesia mirabilis* n. gen. n. sp.  
 - 41a. — — mandible.  
 - 41b. — — maxilla and palp.  
 - 41c. — — ventral side.  
 - 41d. — — Leg I.  
 - 42. *Damaeolus saltaensis* n. sp.  
 - 43. *Suctobelba bifoveolata* n. sp.  
 - 43a. — — rostral teeth from above.  
 - 43b. — — rostral teeth from below.

- Fig. 43 c. *Suctobelba bifoveolata* lamellar knob.
- 44. — *quadricarina* n. sp.
  - 44a. — — rostral teeth.
  - 44b. — — rostral teeth.
  - 44c. — — lamellar knob, lamella, and surroundings.
  - 45. — *microclava* n. sp.
  - 45a. — — rostral teeth.
  - 45b. — — left pseudostigmata with surroundings.
  - 46. — *transversalis* n. sp.
  - 46a. — — rostral teeth.
  - 46b. — — lamellar knob.
  - 47. — *longiclava* n. sp.
  - 47a. — — rostral teeth.
  - 48. — *complexa* n. sp.
  - 48a. — — pseudostigmatic organ.
  - 49. — *ornatissima* n. sp.
  - 49a. — — pseudostigmatic organ.
  - 50. — *elegantula* n. sp.
  - 50a. — — rostral teeth from below.
  - 50b. — — lamellar knob, pseudostigmatic organ, interpseudostigmatic ridges and the anterior part of hysterosoma.
  - 51. *Oppia suramericana* n. sp.
  - 51a. — — pseudostigmatic organ.
  - 51b. — — pseudostigmatic organ in profile.
  - 52. — *tenuis* n. sp.
  - 52a. — — pseudostigmatic organ.
  - 53. — *neerlandica* (Oudms.)
  - 54. — *breviclava* n. sp.
  - 54a. — — pseudostigmatic organ.
  - 55. — *dispariseta* n. sp.
  - 55a. — — pseudostigmatic organ.
  - 55b. — — pseudostigmatic organ.
  - 56. — *arcuta* n. sp.
  - 56a. — — pseudostigmatic organ.
  - 57. — *spinosa* n. sp.
  - 57a. — — hair from hysterosoma.
  - 58. — *notata* n. sp.
  - 59. — *scalifera* n. sp.
  - 60. — *nodosa* n. sp.
  - 60a. — — pseudostigmatic organ.
  - 60b. — — Leg 1, "armpit".
  - 61. — *rotunda* n. sp.
  - 62. — *tenuicoma* n. sp.
  - 62a. — — pseudostigmatic organ.
  - 63. — *longicoma* n. sp.
  - 64. — *lanceolata* n. sp.
  - 65. — *trichosa* n. sp.
  - 65a. — — pseudostigmatic organ.
  - 66. — *chulumaniensis* n. sp.
  - 66a. — — pseudostigmatic organ.
  - 67. *Oribella spinifera* Hammer.

- Fig. 67 a. *Oribella spinifera* nymph.  
 — 68. *Oribella arcuata* n. sp.  
 — 68a. — — ventral side.  
 — 69. *Eremobelba foliata* n. sp.  
 — 69a. — — hair from hysterosoma.  
 — 70. *Eremulus nigriselosus* n. sp.  
 — 71. — *crispus* n. sp.  
 — 72. *Anderemaeus monticola* n. gen. n. sp.  
 — 72a. — — ventral side.  
 — 72b. — — Leg I.  
 — 73. *Hydrozetes mollicoma* n. sp.  
 — 73a. — — Leg II.  
 — 73b. — — nymph.  
 — 74. *Tectocephus* sp.  
 — 74a. — — rostrum with lamellae, ridges on rostrum and the light area.  
 — 75. *Nodecephus dentatus* n. gen. n. sp.  
 — 75a. — — rostrum, lamellae, and Tectopedium I.  
 — 75b. — — ventral side.  
 — 76. *Carabodes* sp.  
 — 77. *Mikizetes diamantensis* n. gen. n. sp.  
 — 77a. — — rostrum with some of the teeth.  
 — 77b. — — pseudostigmatic organ.  
 — 77c. — — ventral side.  
 — 77d. — — Leg I.  
 — 77e. — — mandible.  
 — 78. *Eporibatula bicuspidata* n. sp.  
 — 79. — *gracilis* n. sp.  
 — 80. *Oribatula suramericana* n. sp.  
 — 81. — *magniporosa* n. sp.  
 — 82. — *altimontana* n. sp.  
 — 82a. — — hair of hysterosoma.  
 — 82b. — — nymph.  
 — 82c. — — papillae in profile from hysterosoma of the nymph.  
 — 82d. — — papillae from above.  
 — 83. — *altimontanoides* n. sp.  
 — 83a. — — pseudostigmatic organ, lamella with fissura.  
 — 83b. — — nymph.  
 — 84. *Schelorbates luteomarginatus* n. sp.  
 — 84a. — — pseudostigmatic organ.  
 — 84b. — — anterior margin of hysterosoma (table 24)  
 — 85. — *longior* n. sp.  
 — 85a. — — head of pseudostigmatic organ.  
 — 85b. — — anterior margin of hysterosoma (table 24).  
 — 86. — *pallidulus* (C. L. Koch).  
 — 86a. — — pseudostigmatic organ.  
 — 86b. — — anterior margin of hysterosoma (table 24).  
 — 87. — *angulatus* n. sp.  
 — 87a. — — pseudostigmatic organ.  
 — 87b. — — anterior margin of hysterosoma (table 24).  
 — 88. — *striatus* n. sp.  
 — 88a. — — pseudostigmatic organ.



- Fig. 88b. *Scheloribates striatus* anterior margin of hysterosoma (table 24).
- 89. *Scheloribates trichosus* n. sp.
    - 89a. — — pseudostigmatic organ.
    - 89b. — — anterior margin of hysterosoma (table 24).
  - 90. — *rugosus* n. sp.
    - 90a. — — pseudostigmatic organ.
    - 90b. — — anterior margin of hysterosoma (table 24).
  - 91. — *obesus* n. sp.
    - 91a. — — pseudostigmatic organ.
    - 91b. — — anterior margin of hysterosoma (table 24).
  - 92. — *latus* n. sp.
    - 92a. — — pseudostigmatic organ.
    - 92b. — — anterior margin of hysterosoma (table 24).
  - 93. — *elegans* n. sp.
    - 93a. — — pseudostigmatic organ.
    - 93b. — — anterior margin of hysterosoma (table 24).
  - 94. — *rectus* n. sp.
    - 94a. — — anterior margin of hysterosoma (table 24).
  - 95. — *parvialatus* n. sp.
    - 95a. — — anterior margin of hysterosoma (table 24).
  - 96. — *rostratus* n. sp.
    - 96a. — — pseudostigmatic organ.
    - 96b. — — sketch of lamella with surroundings.
    - 96c. — — anterior margin of hysterosoma (table 24).
  - 97. *Peloribates nudus* n. sp.
    - 97a. — — sketch of lamella.
  - 98. — *rigidicoma* n. sp.
    - 98a. — — gland with pore opening behind the base of the interlamellar hair.
    - 98b. — — rostrum with surroundings.
    - 98c. — — pseudostigmatic organ.
    - 98d. — — hair from hysterosoma.
  - 99. — *longicoma* n. sp.
    - 99a. — — sketch of lamella.
  - 100. *Protoribates elegans* n. sp.
    - 100a. — — pseudostigmatic organ.
    - 100b. — — right lamella, lamellar hair, interlamellar hair, pseudostigmatic organ and scale with spine.
    - 100c. — — ventral side.
  - 101. *Tuxenia complicata* n. gen. n. sp.
    - 101a. — — rostrum from the lateral side showing the hairs and the triangular plate.
    - 101b. — — pseudostigmatic organ.
    - 101c. — — head of pseudostigmatic organ.
    - 101d. — — Leg I.
  - 102. *Lauritzenia longipluma* n. gen. n. sp.
    - 102a. — — ventral side.
    - 102b. — — Leg I.
  - 103. *Ceratozetes undulatus* n. sp.
  - 104. — *thienemanni* Willm.
  - 105. — *argentinensis* n. sp.

- Fig. 105 a. *Ceratozetes argentinensis* tip of rostrum.  
 - 105 b. — — Leg II.  
 - 106. *Ceratozetes nigrisetosus* n. sp.  
 - 106 a. — — tip of rostrum.  
 - 106 b. — — pseudostigmatic organ.  
 - 107. — *platyrhinus* n. sp.  
 - 107 a. — — tip of rostrum.  
 - 108. — *striatus* n. sp.  
 - 109. *Sphaerobates foveolatus* n. sp.  
 - 110. *Edwardzetes andicola* n. sp.  
 - 110 a. — — rostrum.  
 - 110 b. — — right side of propodosoma with lamellar & interlamellar hair, Tectp. I, pseudostigmatic organ, anterior margin of pteromorpha, area porosa adalaris and hairs.  
 - 110 c. — — Leg II.  
 - 110 d. — — Leg IV.  
 - 110 e. — — ventral side.  
 - 111. *Jugatata armata* n. sp.  
 - 111 a. — — rostrum.  
 - 111 b. — — cusp, right side.  
 - 111 c. — — pseudostigmatic organ.  
 - 111 d. — — right side of propodosoma showing Tectp. I, lamella and pseudostigmatic organ.  
 - 111 e. — — ventral side.  
 - 111 f. — — Leg I.  
 - 111 g. — — nymph.  
 - 112. *Mycobates austroamericanus* n. sp.  
 - 112 a. — — left side of propodosoma with Tectp. I, ridge on rostrum, lamella and pseudostigmatic organ.  
 - 112 b. — — Leg II.  
 - 113. *Punctoribates manzanoensis* n. sp.  
 - 113 a. — — right side showing Tectp. I, rostral hair, interlamellar & lamellar hairs, lamella and pseudostigmatic organ.  
 - 113 b. — — anterior part of hysterosoma.  
 - 113 c. — — Leg II.  
 - 113 d. — — Leg III.  
 - 113 e. — *punctum* (Berl.) tip of Tarsus II.  
 - 114. *Galumna duplicata* n. sp.  
 - 114 a. — — pseudostigmatic organ.  
 - 115. — *circularis* n. sp.  
 - 115 a. — — ventral side.  
 - 116. — *flabellifera* n. sp.  
 - 116 a. — — pseudostigmatic organ.  
 - 116 b. — — left pteromorpha.  
 - 117. — *clericata* (Berl.)  
 - 117 a. — — keel on rostrum.  
 - 118. — *pallida* n. sp.  
 - 118 a. — — right lamella.  
 - 118 b. — — pseudostigmatic organ.  
 - 119. — *reticulata* n. sp.  
 - 120. *Tegoribates americanus* n. sp.

Fig. 120 a. *Tegoribates americanus* propodosoma and the anterior part of hysterosoma with right pteromorpha.

- 121. *Williamsia elsosneadensis* n. gen. n. sp.
- 121 a. — — rostrum and the right rostral hair.
- 121 b. — — the shield covering propodosoma with lamellar and interlamellar hairs.
- 121 c. — — right pteromorpha with surroundings.
- 121 d. — — ventral side.
- 121 e. — — Leg II.
- 121 f. — — Leg III.
- 121 g. — — nymph.
- 122. *Oribatella punctata* n. sp.
- 122 a. — — tip of rostrum.
- 122 b. — — nymph.
- 123. — *unispinata* n. sp.
- 123 a. — — tip of rostrum.
- 124. *Lamellobates palustris* n. gen. n. sp.
- 124 a. — — ventral side.
- 125. *Arcozetes bicuspidatus* n. gen. n. sp.
- 125 a. — — ventral side.
- 126. *Lobozetes bilobatus* n. gen. n. sp.
- 126 a. — — pseudostigmatic organ in profile.
- 126 b. — — pseudostigmatic organ en face.
- 126 c. — — ventral side.
- 127. *Trachyoribates nodosus* n. sp.
- 127 a. — — left side of propodosoma with rostral hair, lamellar & interlamellar hair, pseudostigmatic organ; left pteromorpha.
- 127 b. — — pseudostigmatic organ.
- 127 c. — — ventral side.
- 127 d. — — Leg I.
- 128. *Pelops* sp.
- 128 a. — — hair of hysterosoma.
- 128 b. — — pseudostigmatic organ.
- 129 a. *Hoploderma* sp. hair of hysterosoma.
- 129 b. — — propodosoma from above.
- 129 c. — — left pseudostigmatic organ.
- 129 d. — — propodosoma in profile.
- 129 e. — — genital-anal plates.



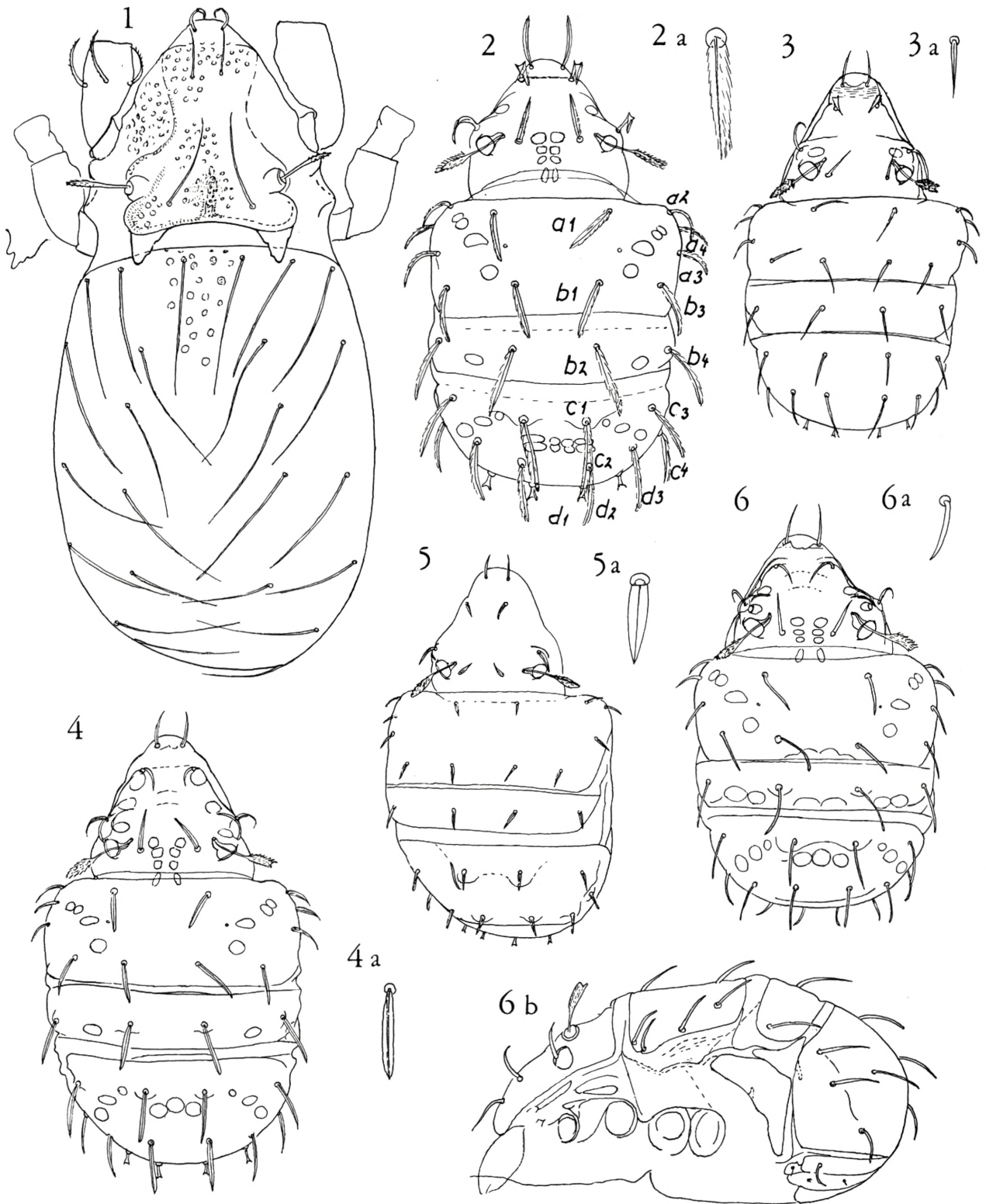
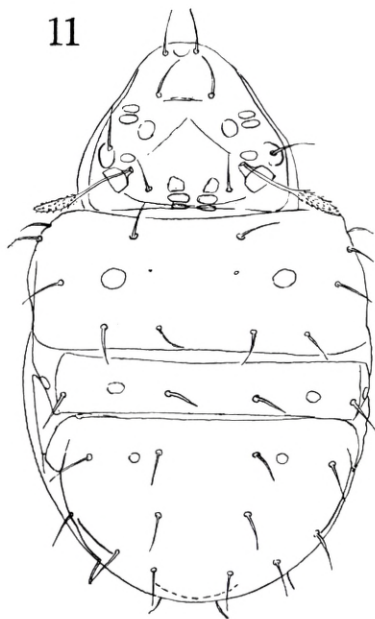


PLATE II

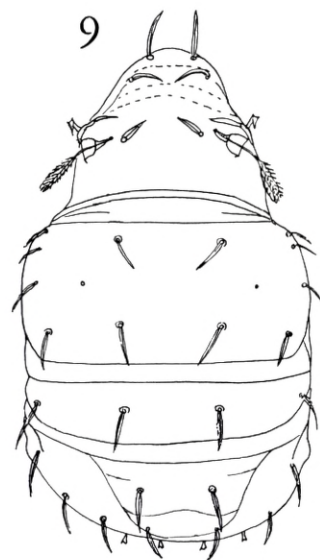
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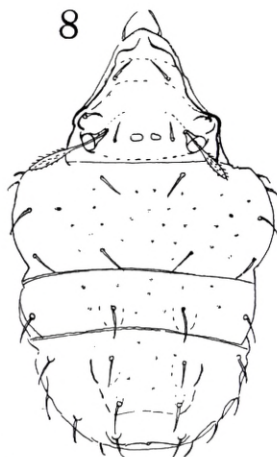
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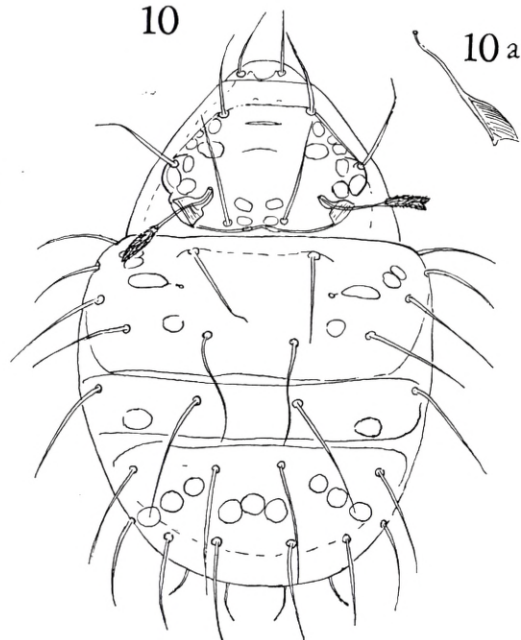
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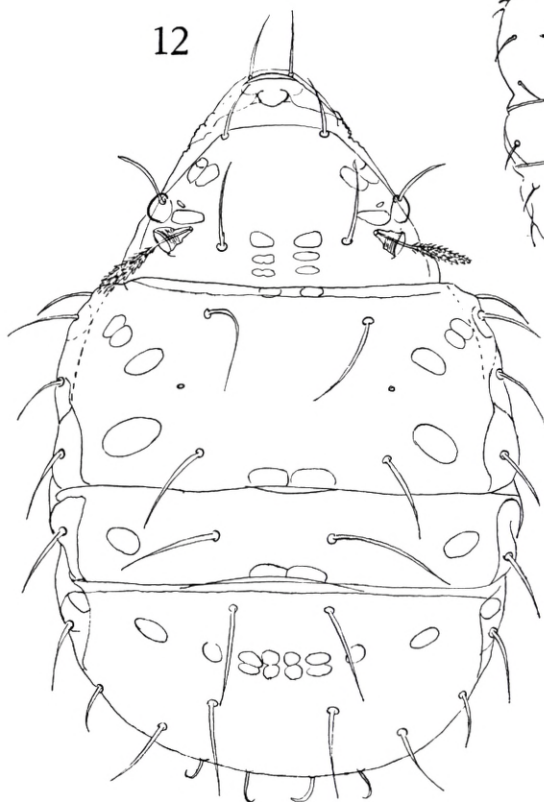
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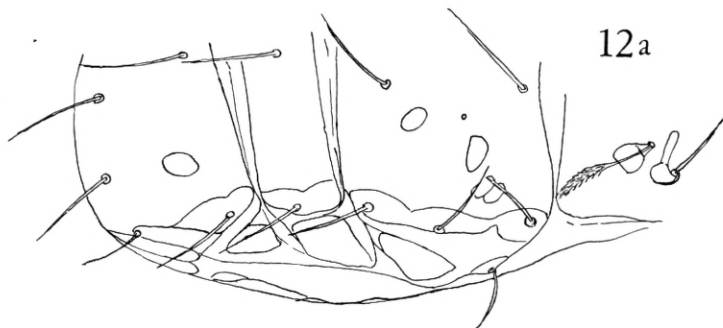
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12



12a



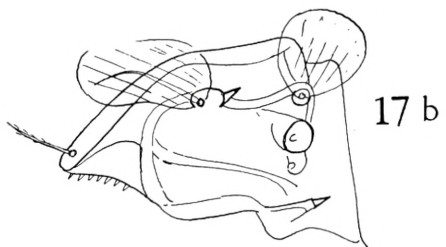
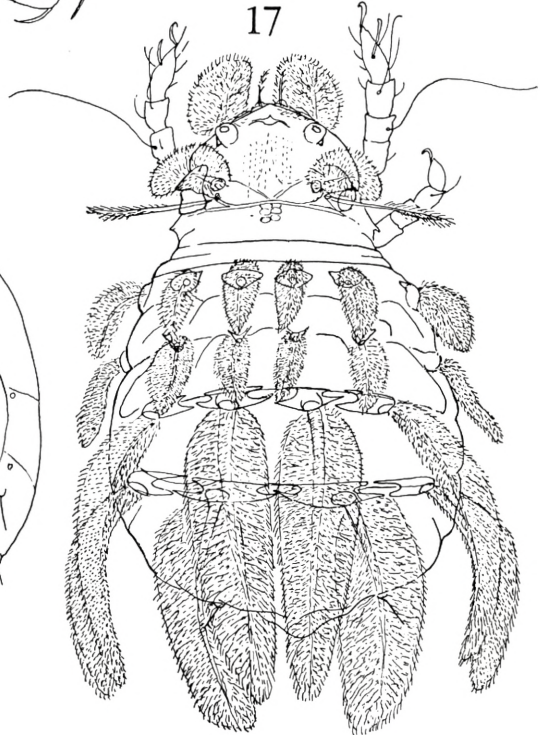
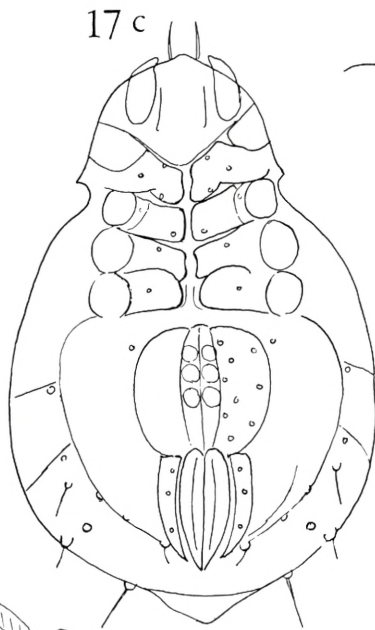
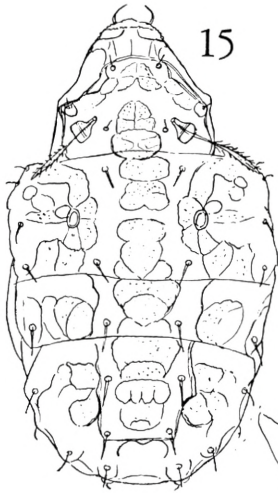
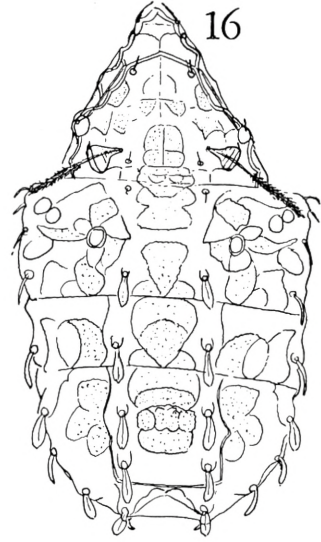
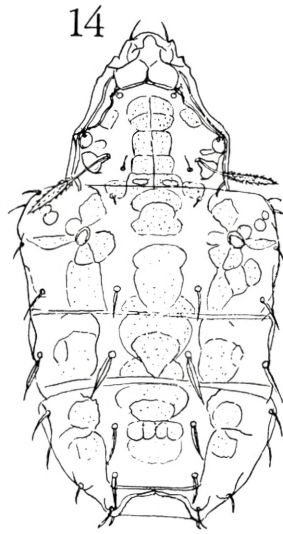
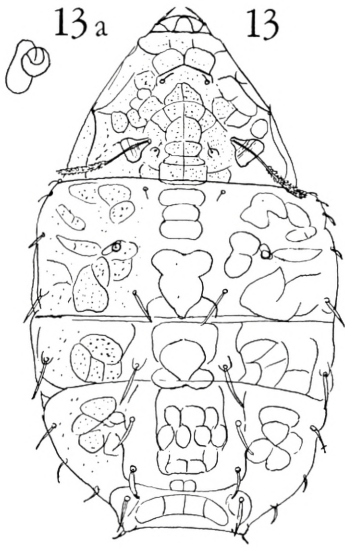
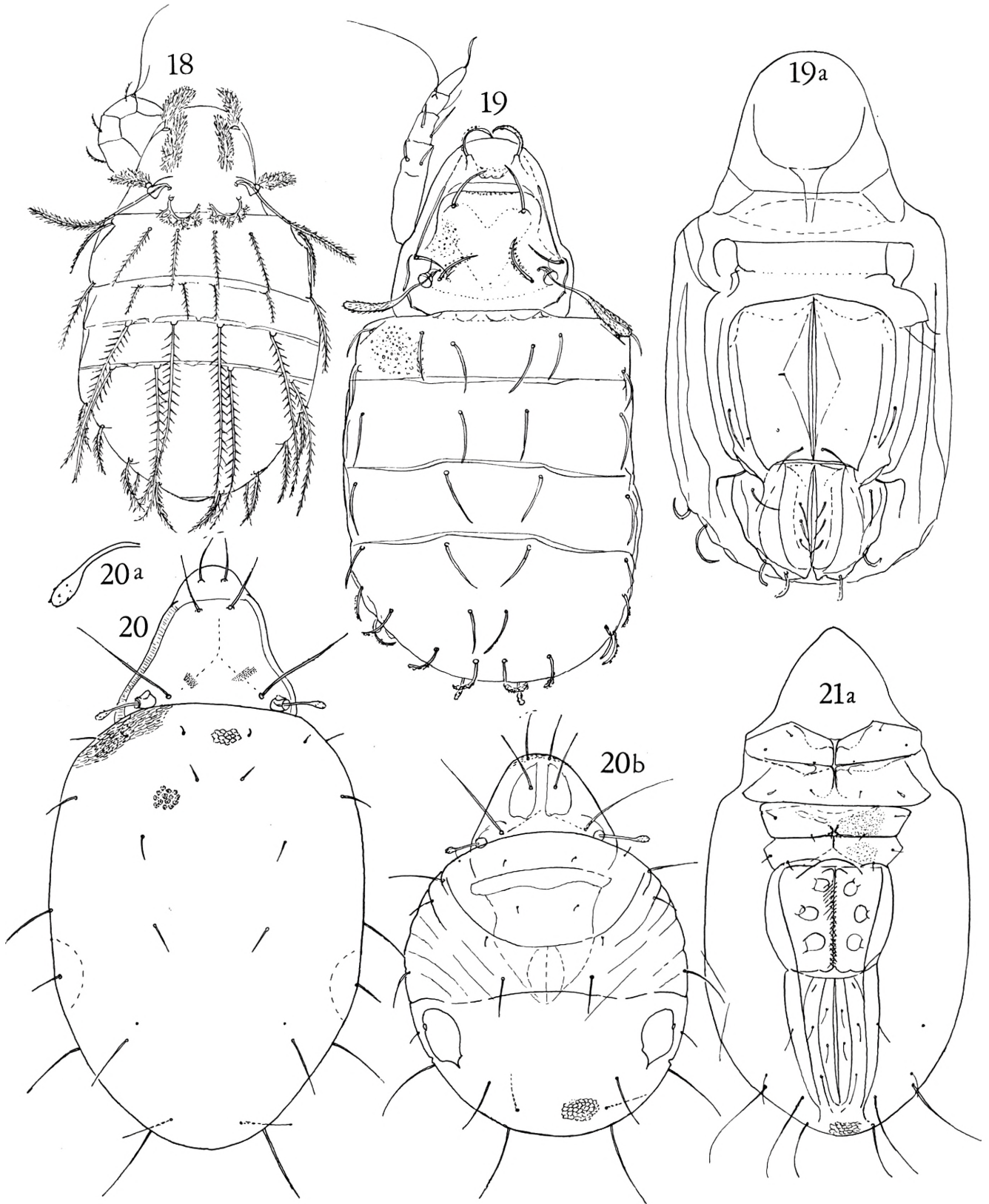


PLATE IV





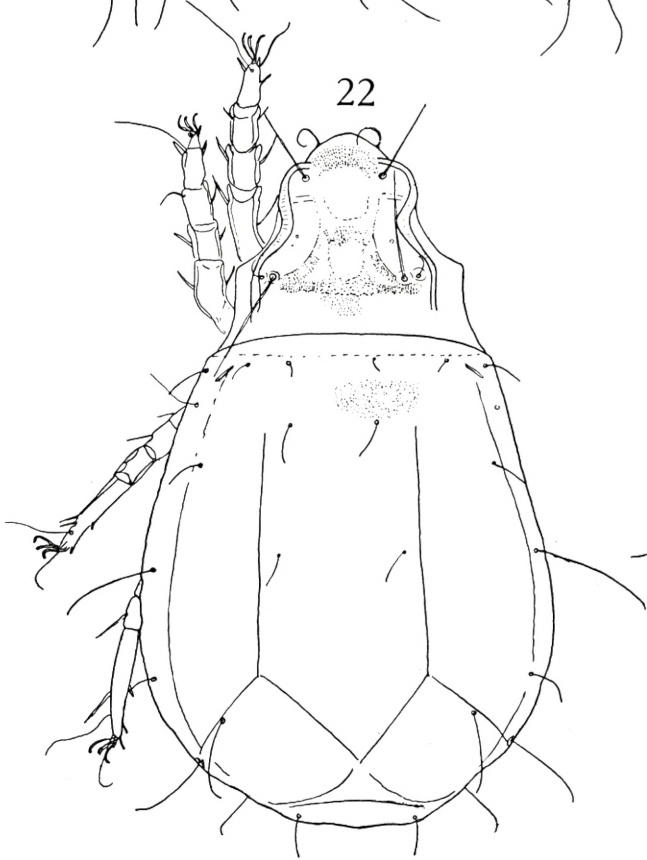
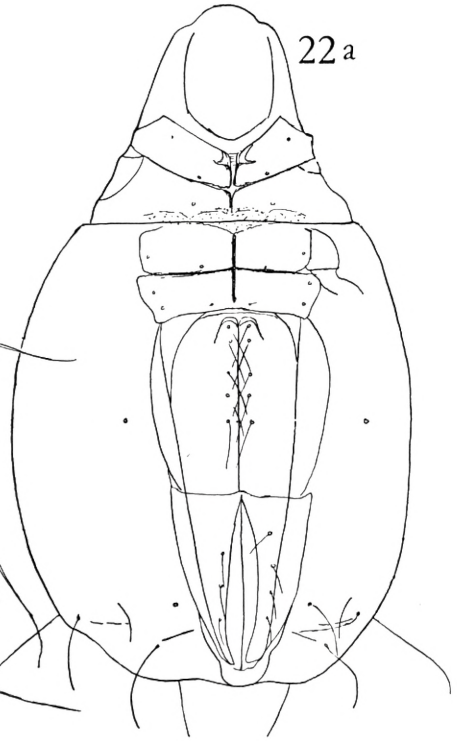
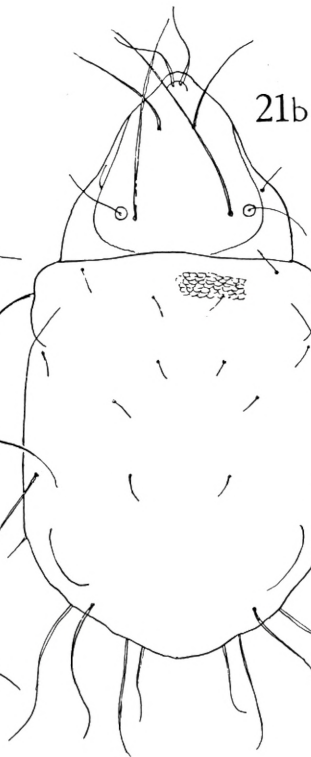


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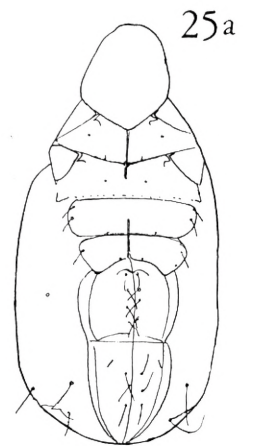
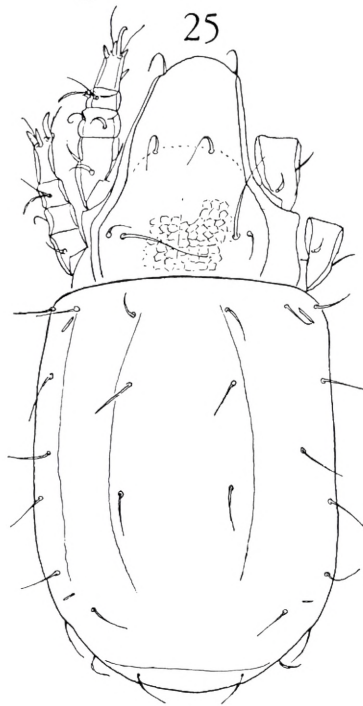
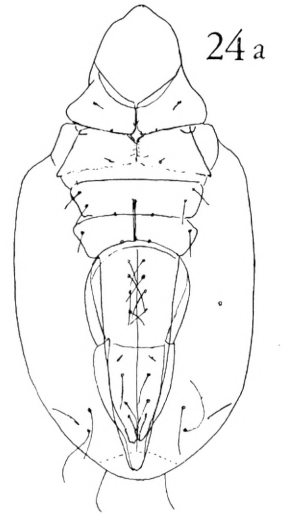
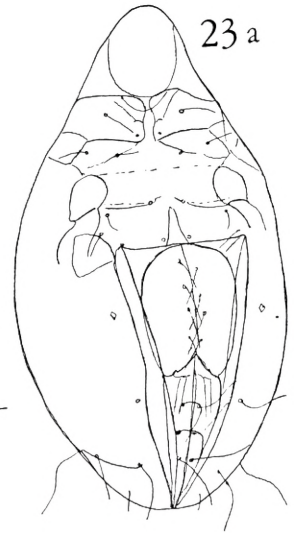
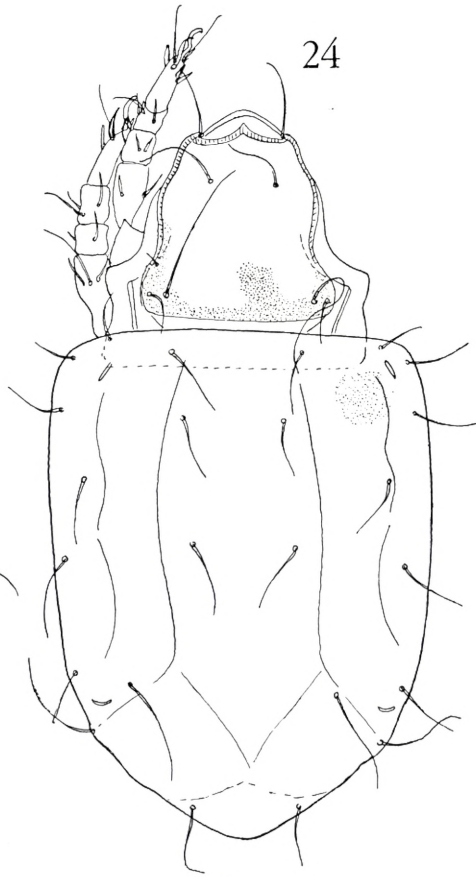


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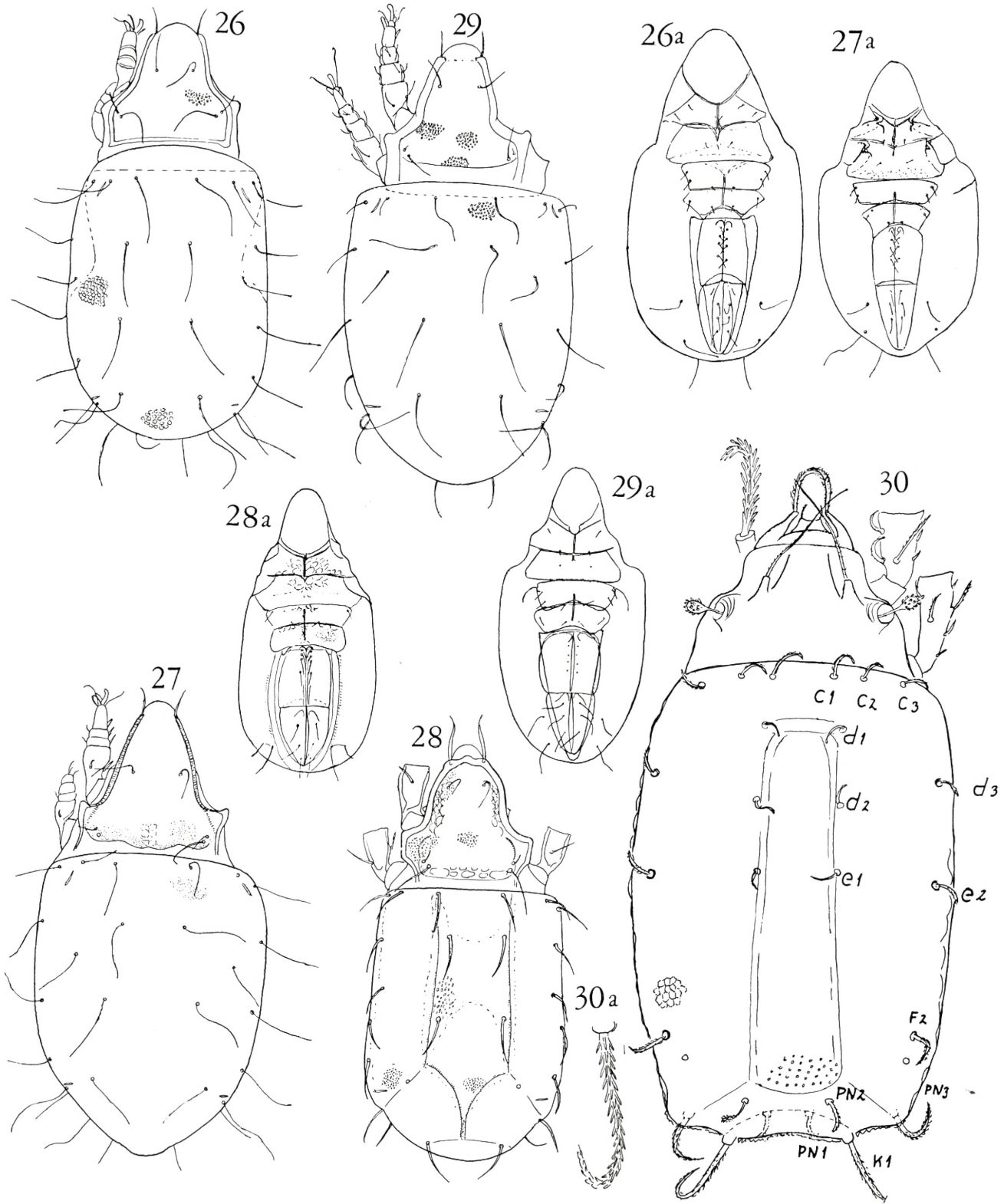
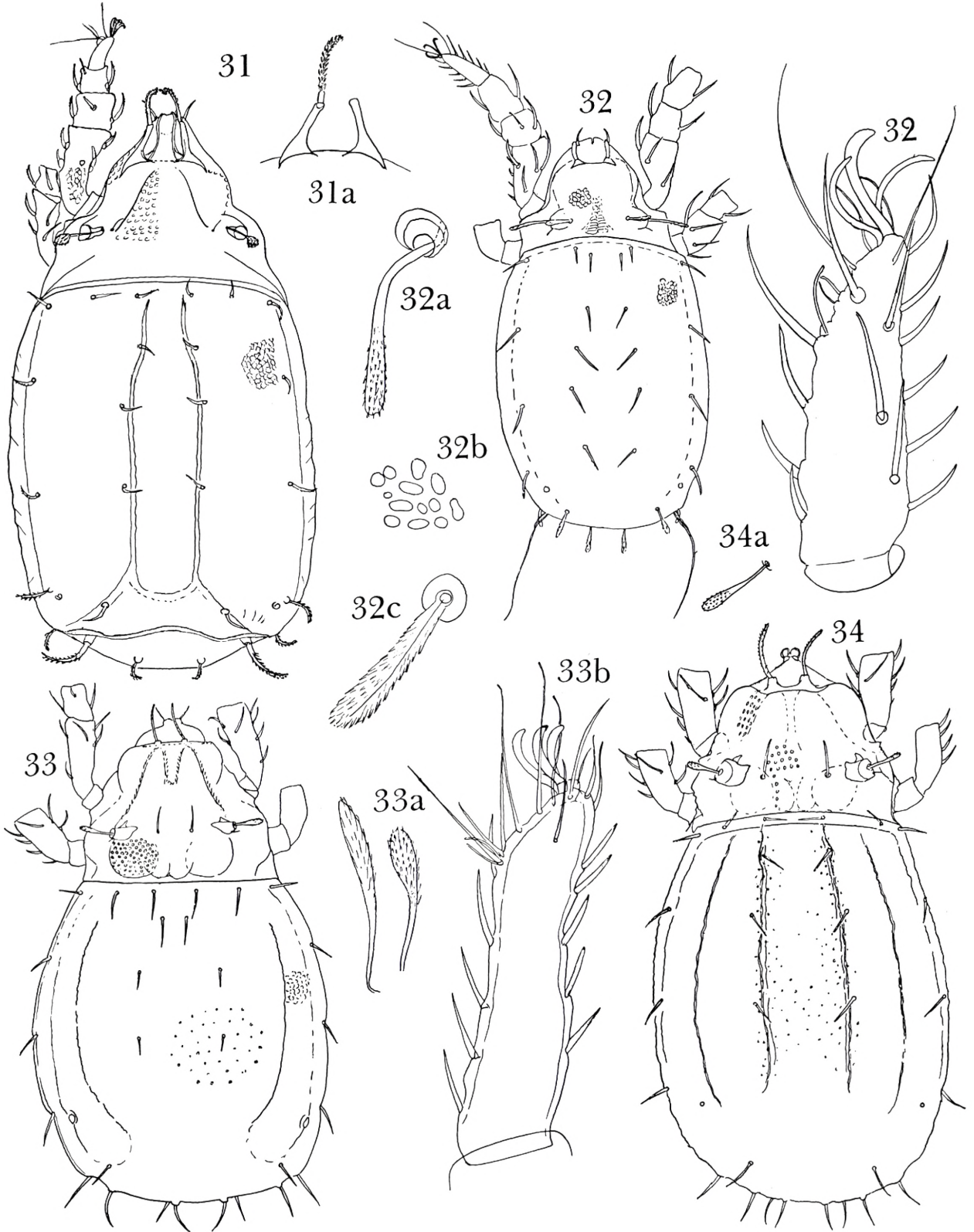
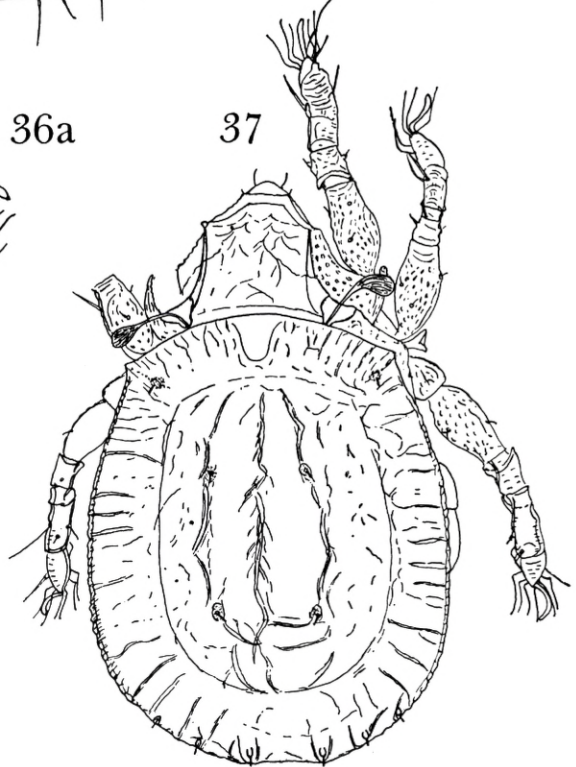
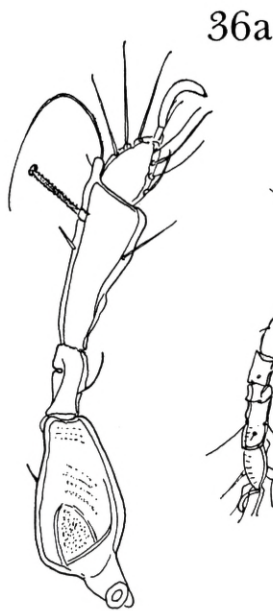
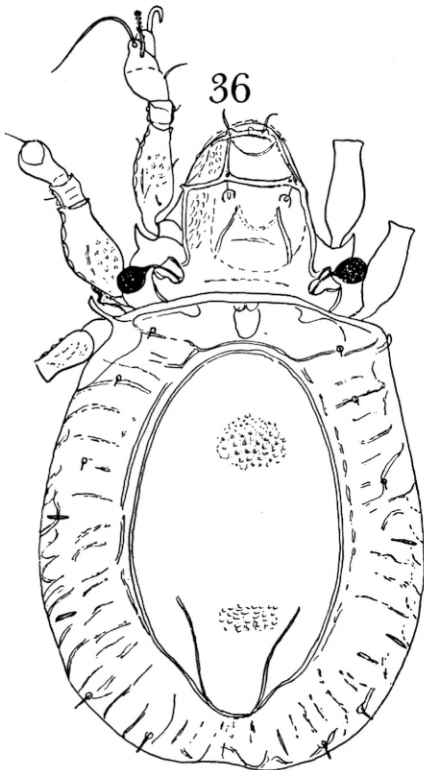
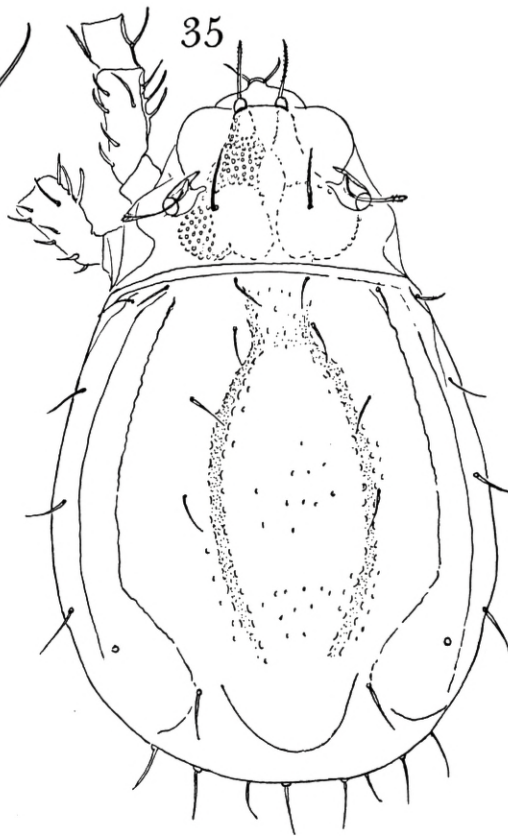
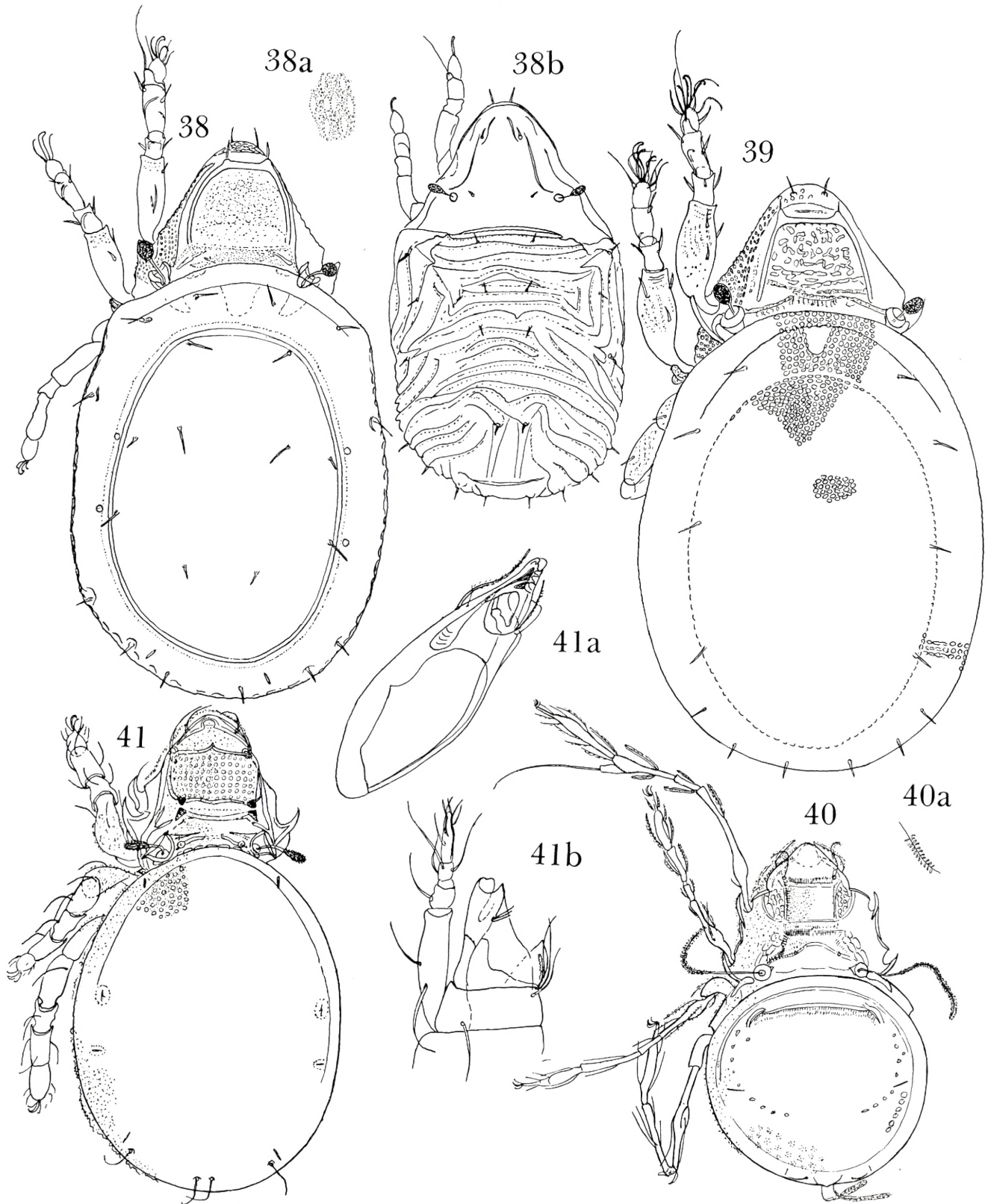
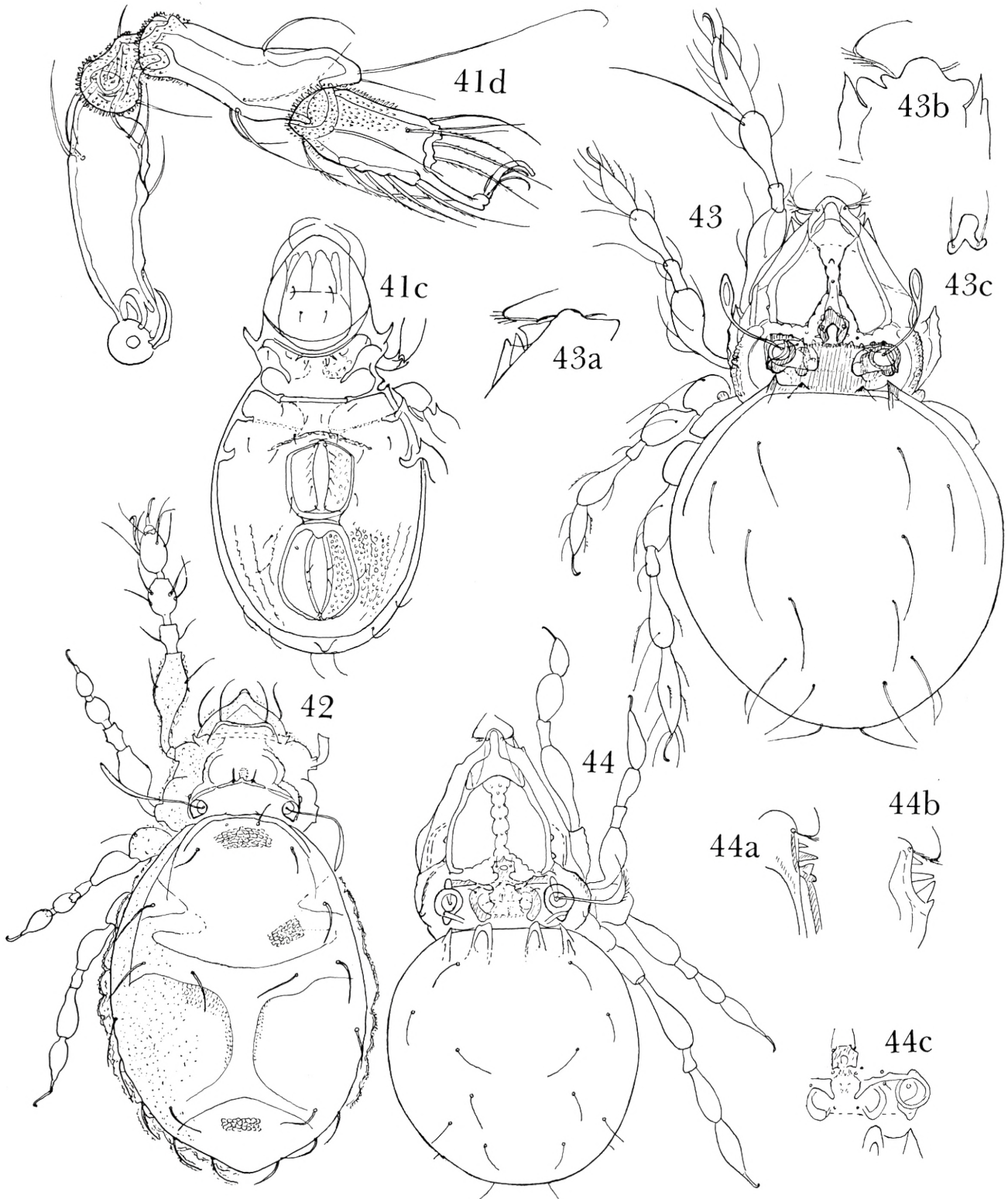


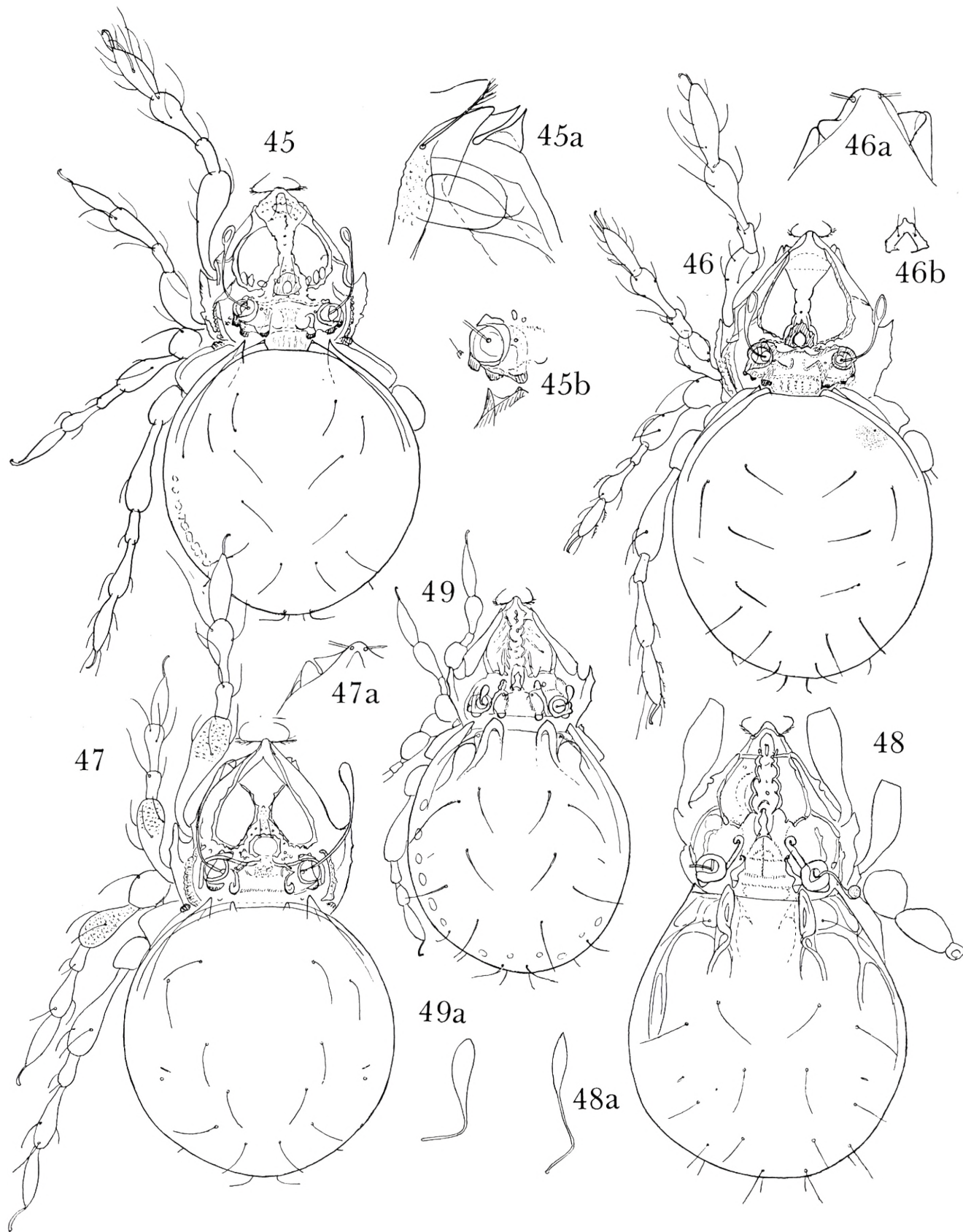
PLATE VIII













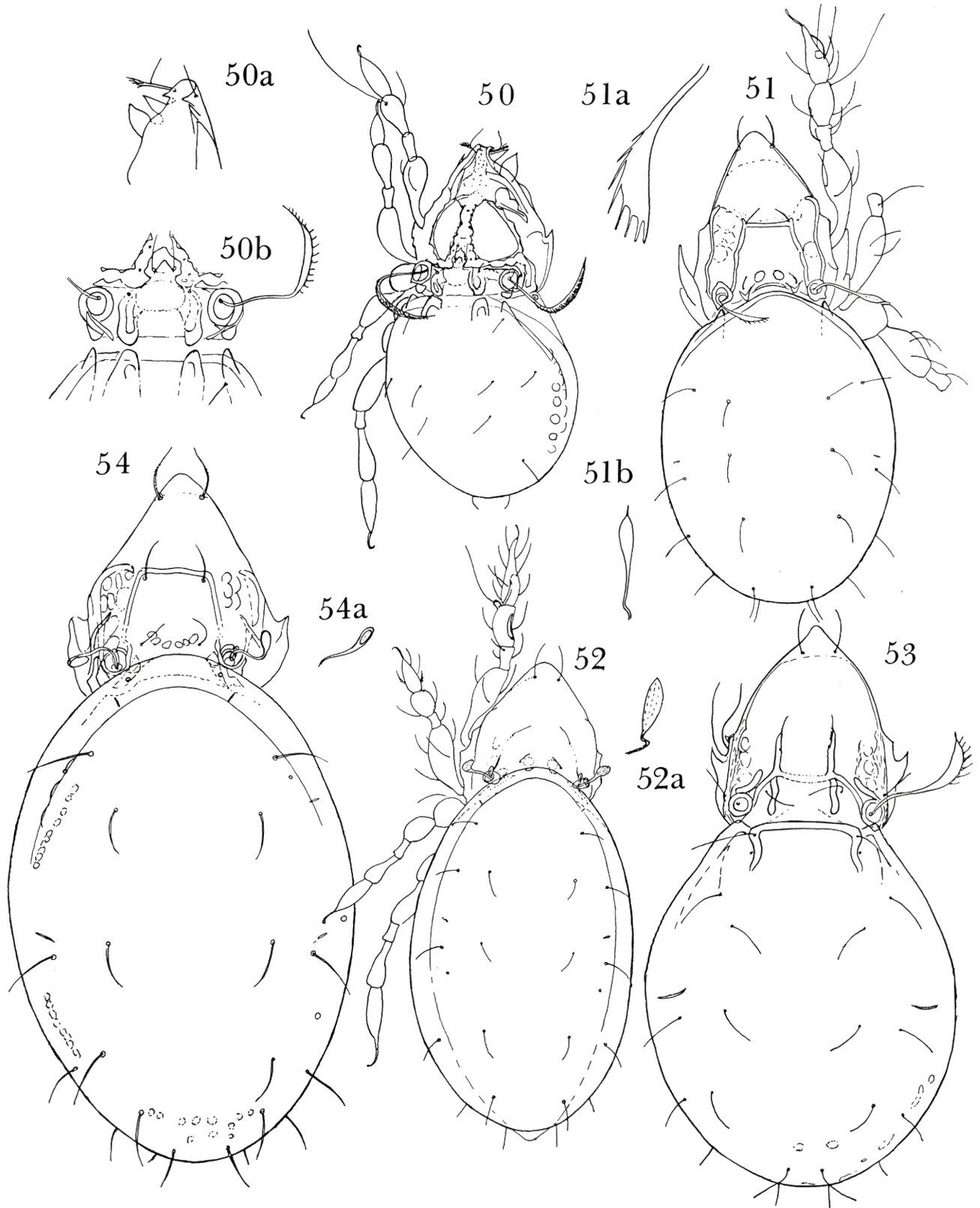
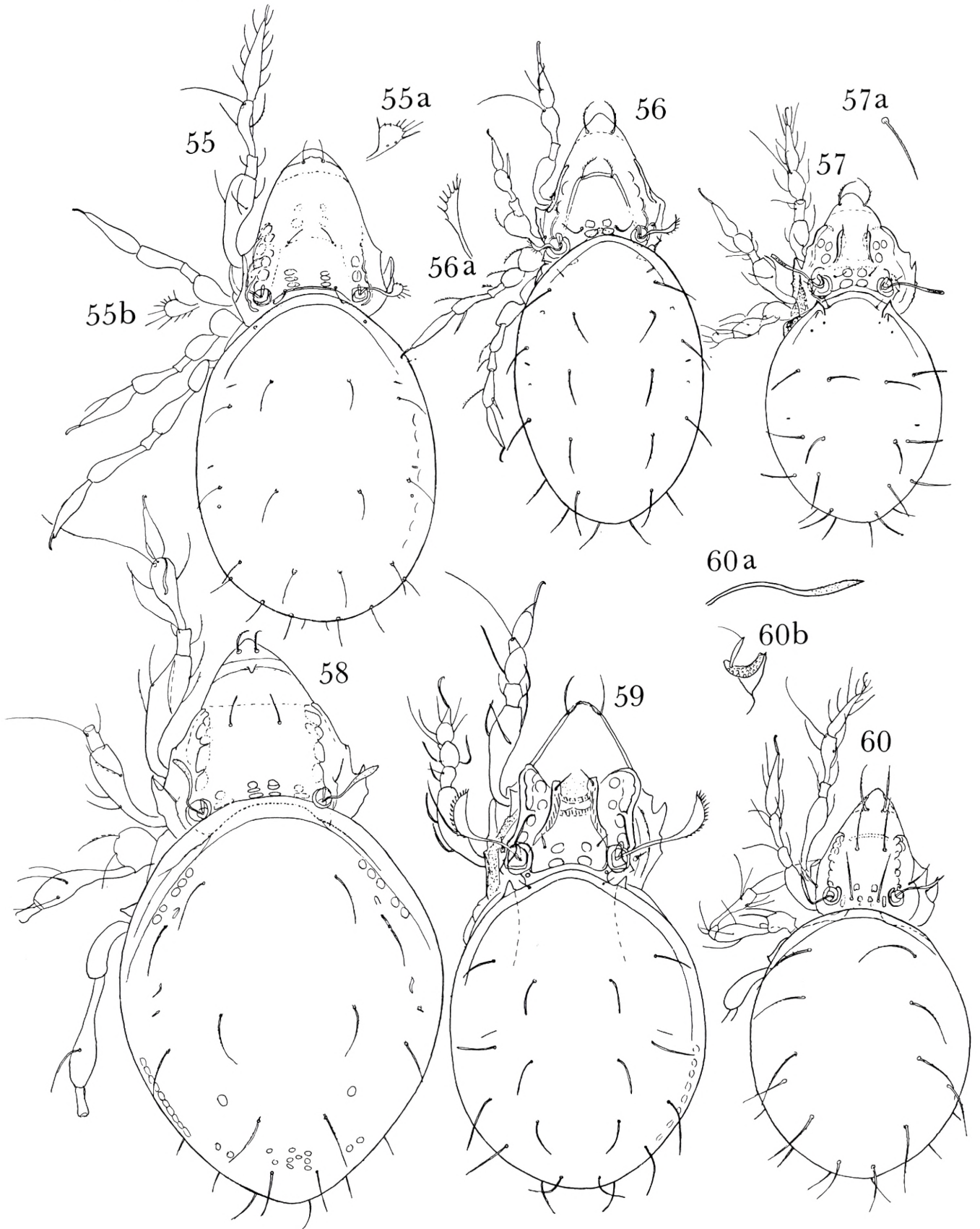


PLATE XIV



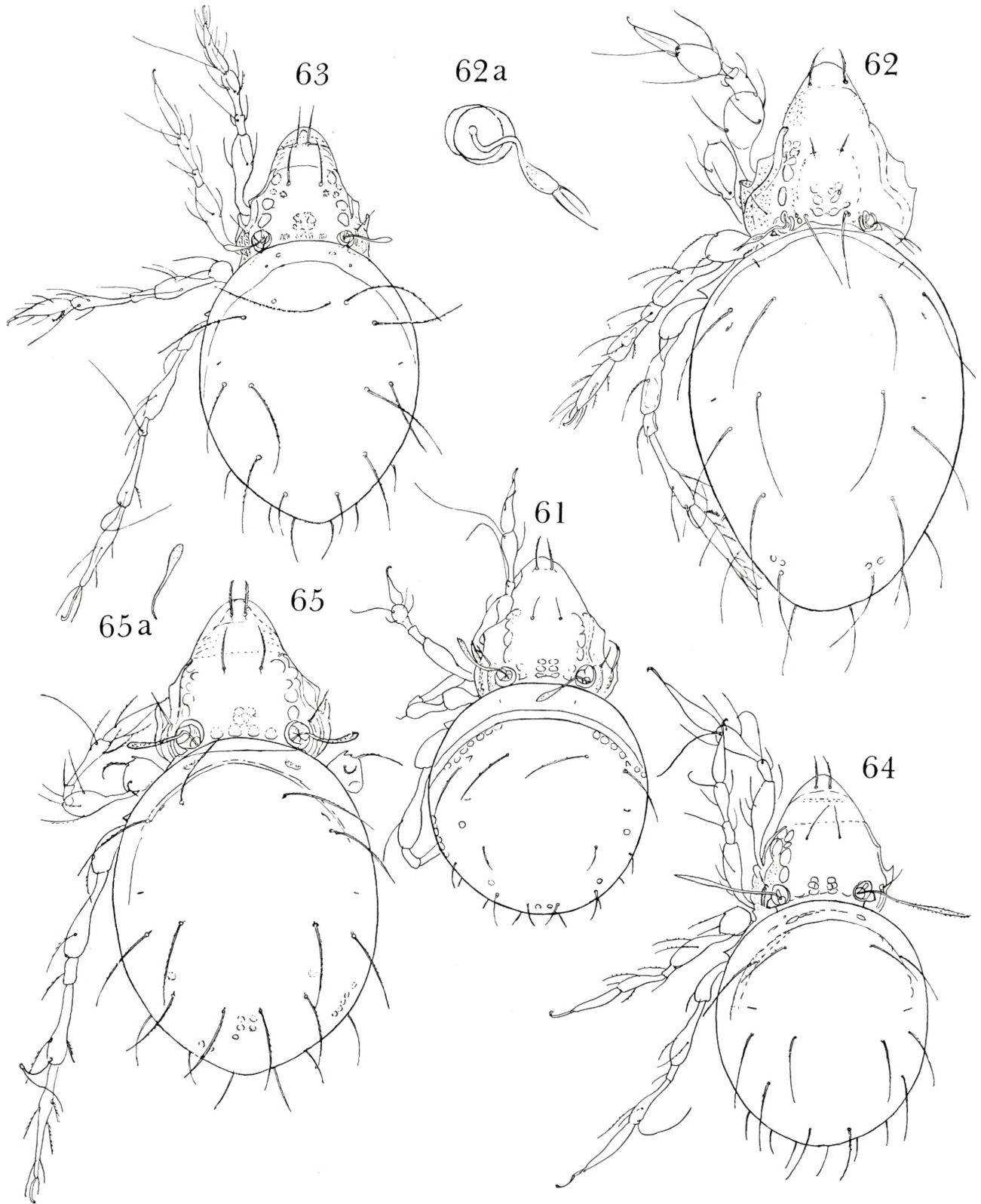
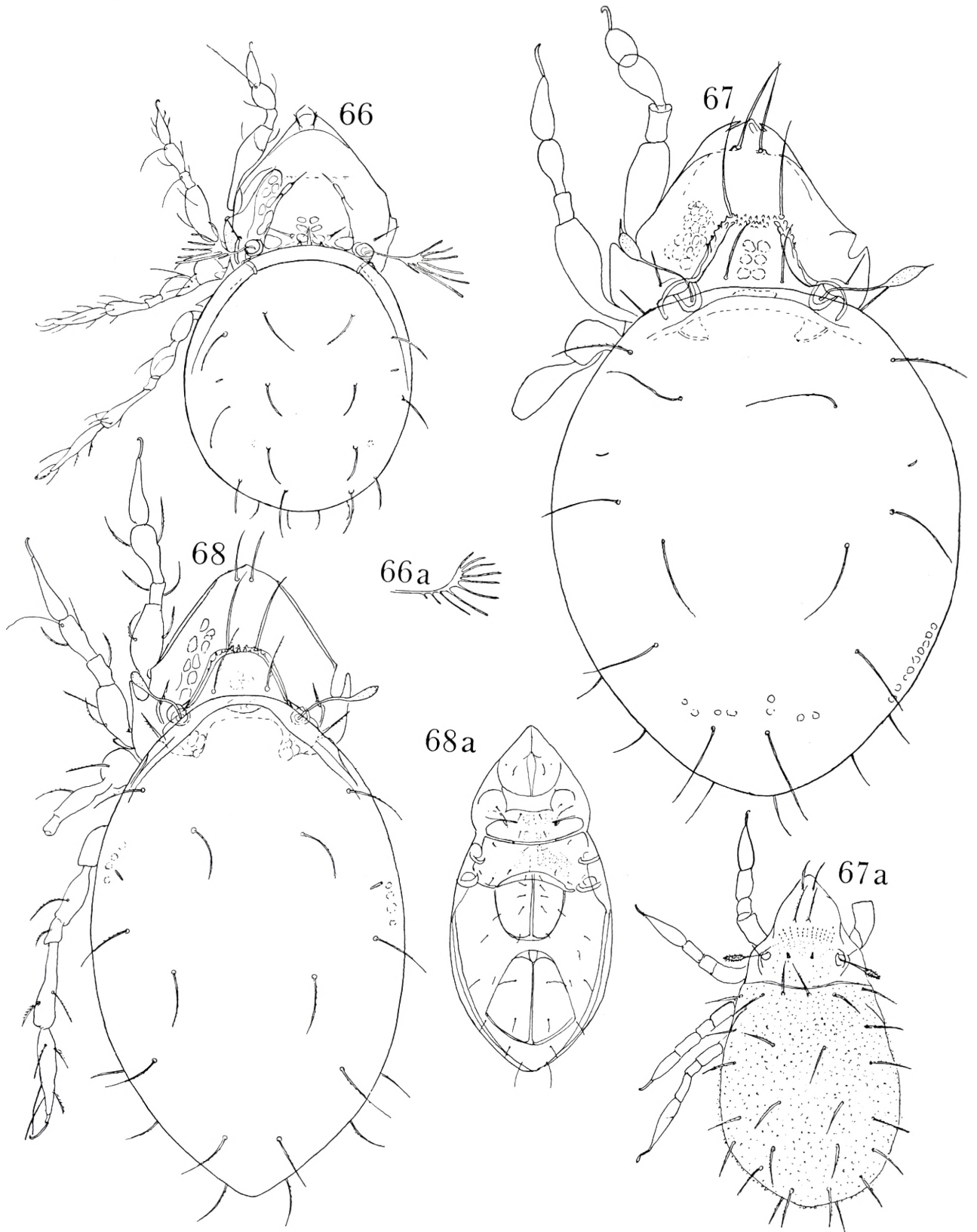
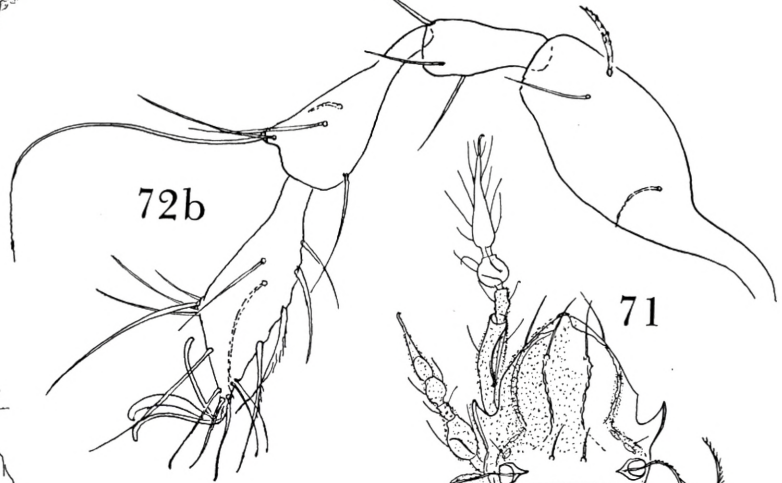
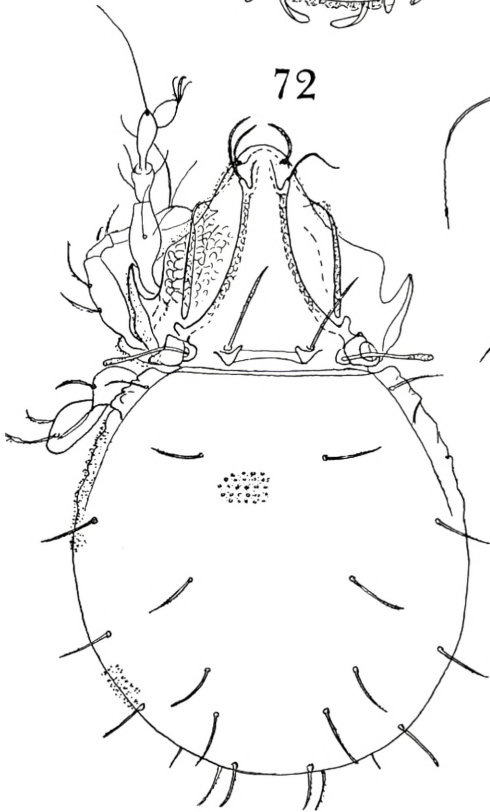
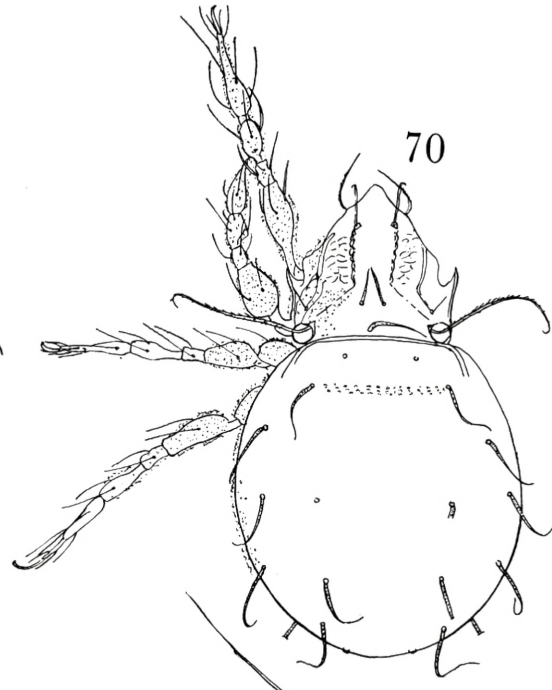


PLATE XVI

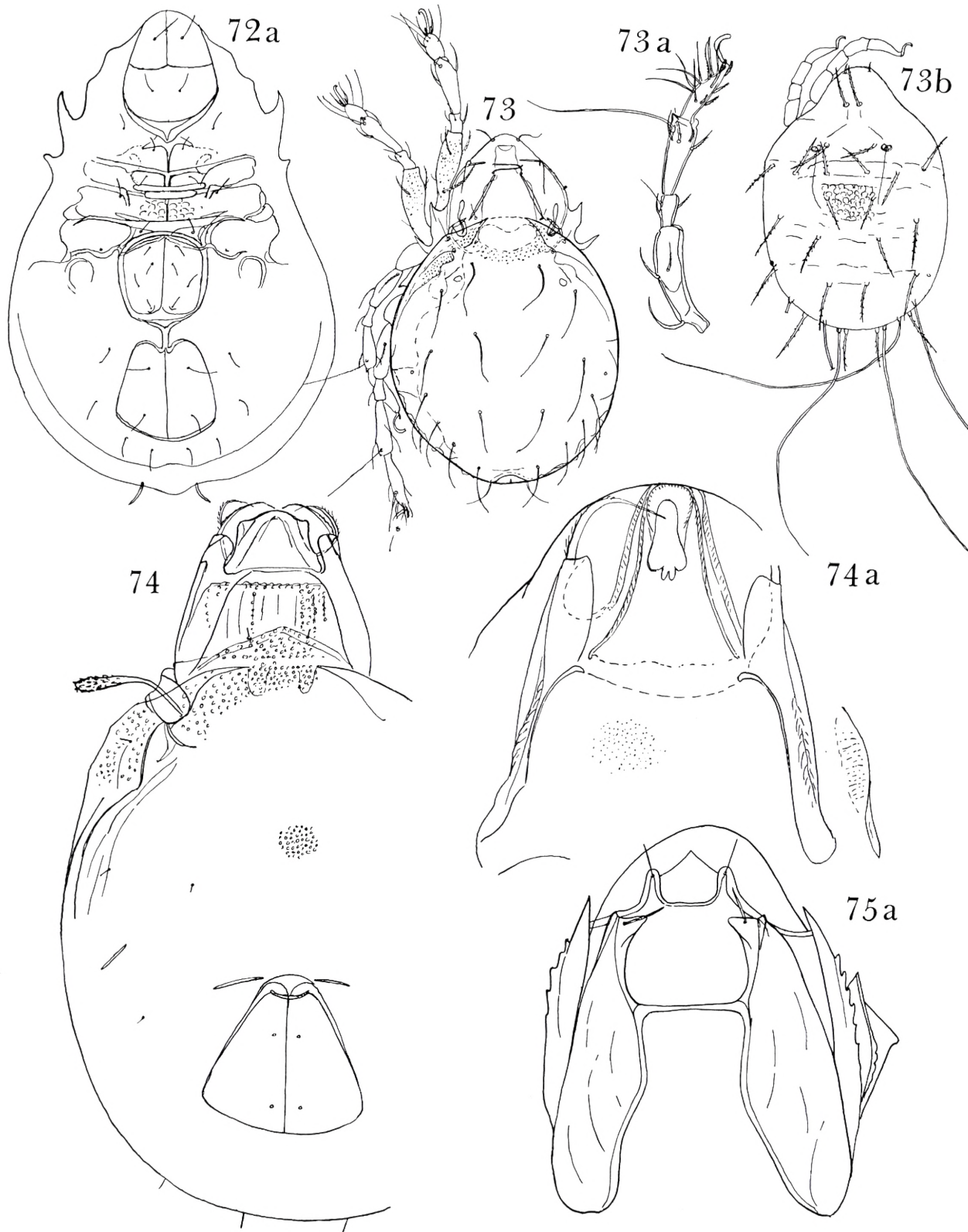


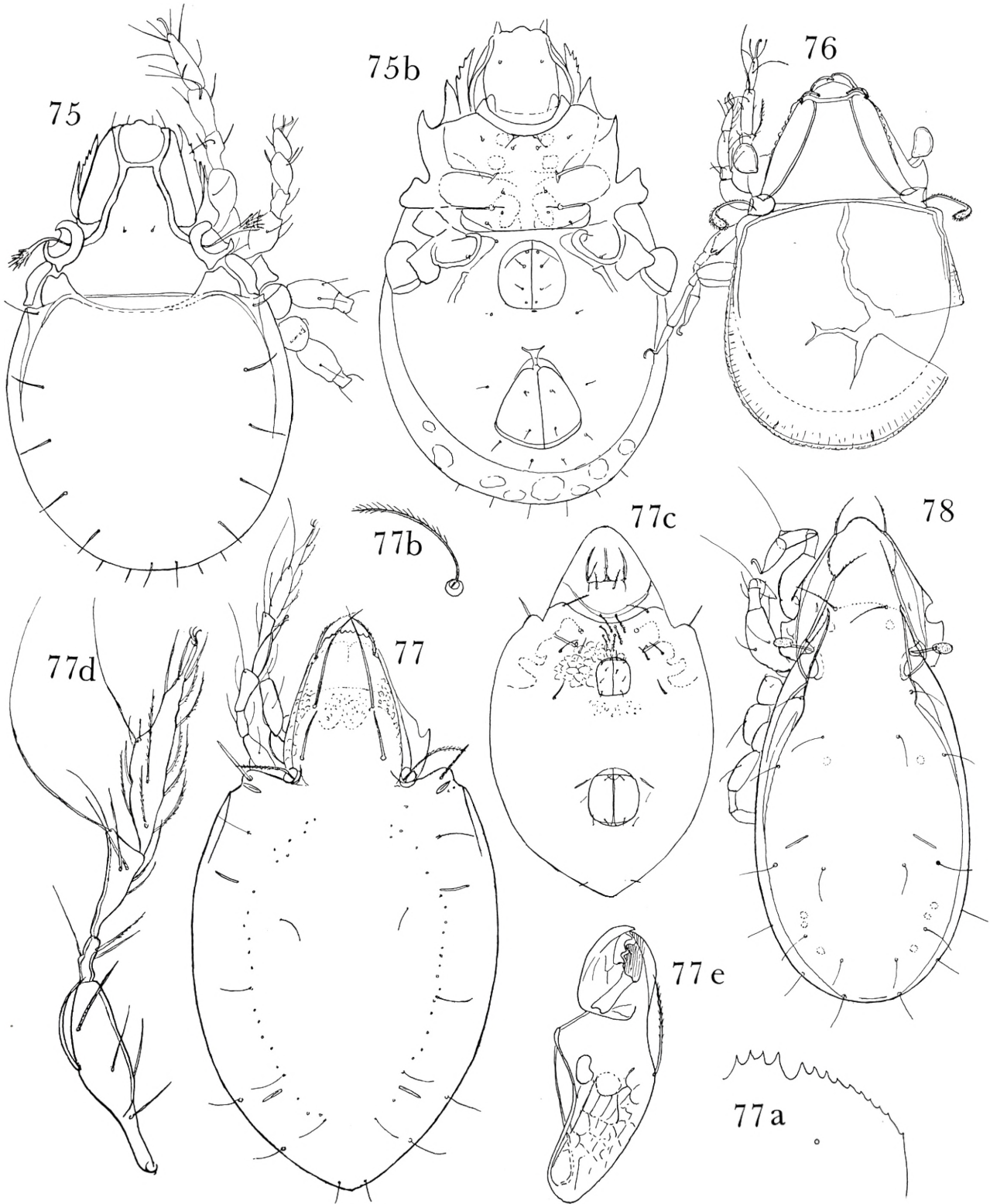


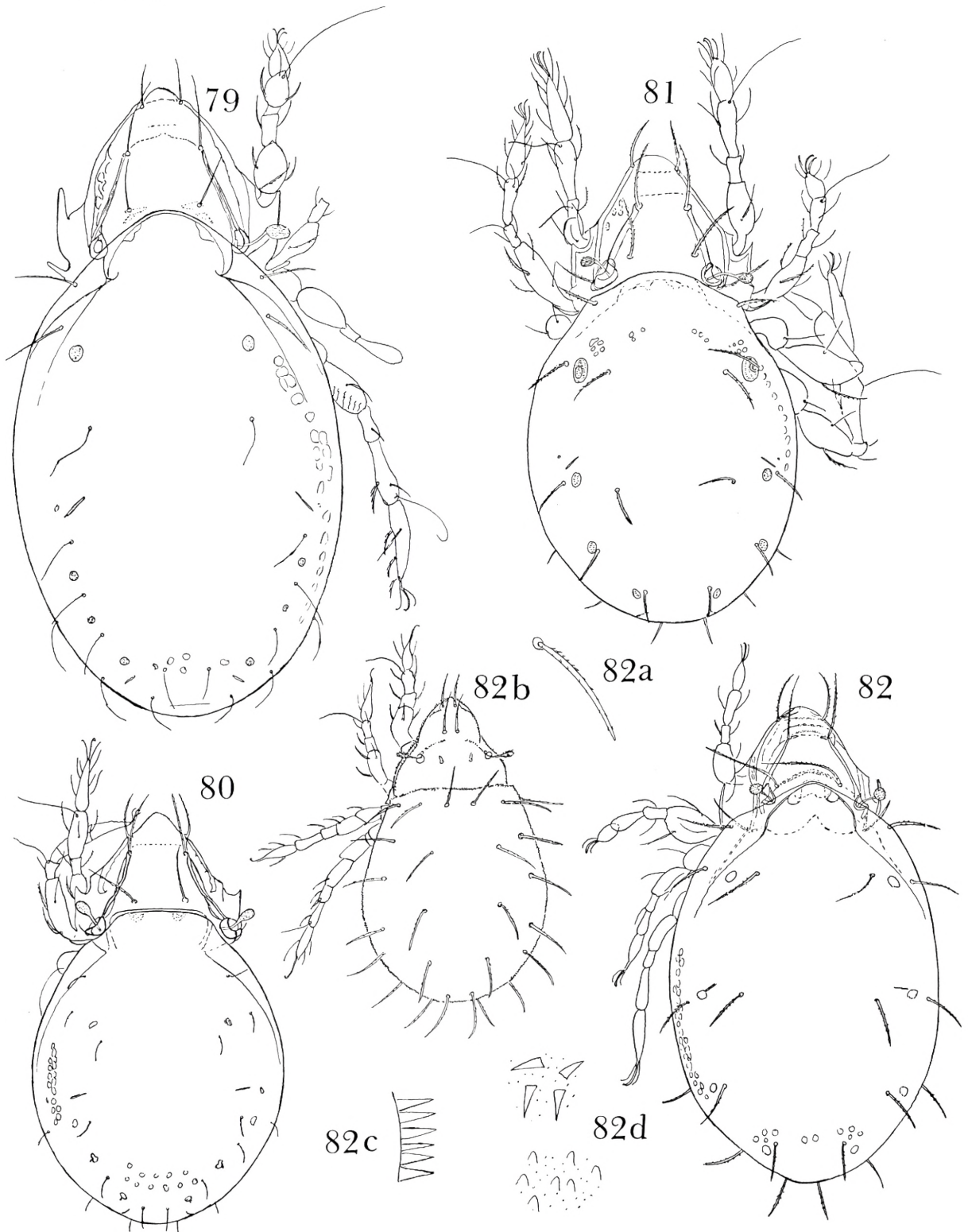
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PLATE XVIII









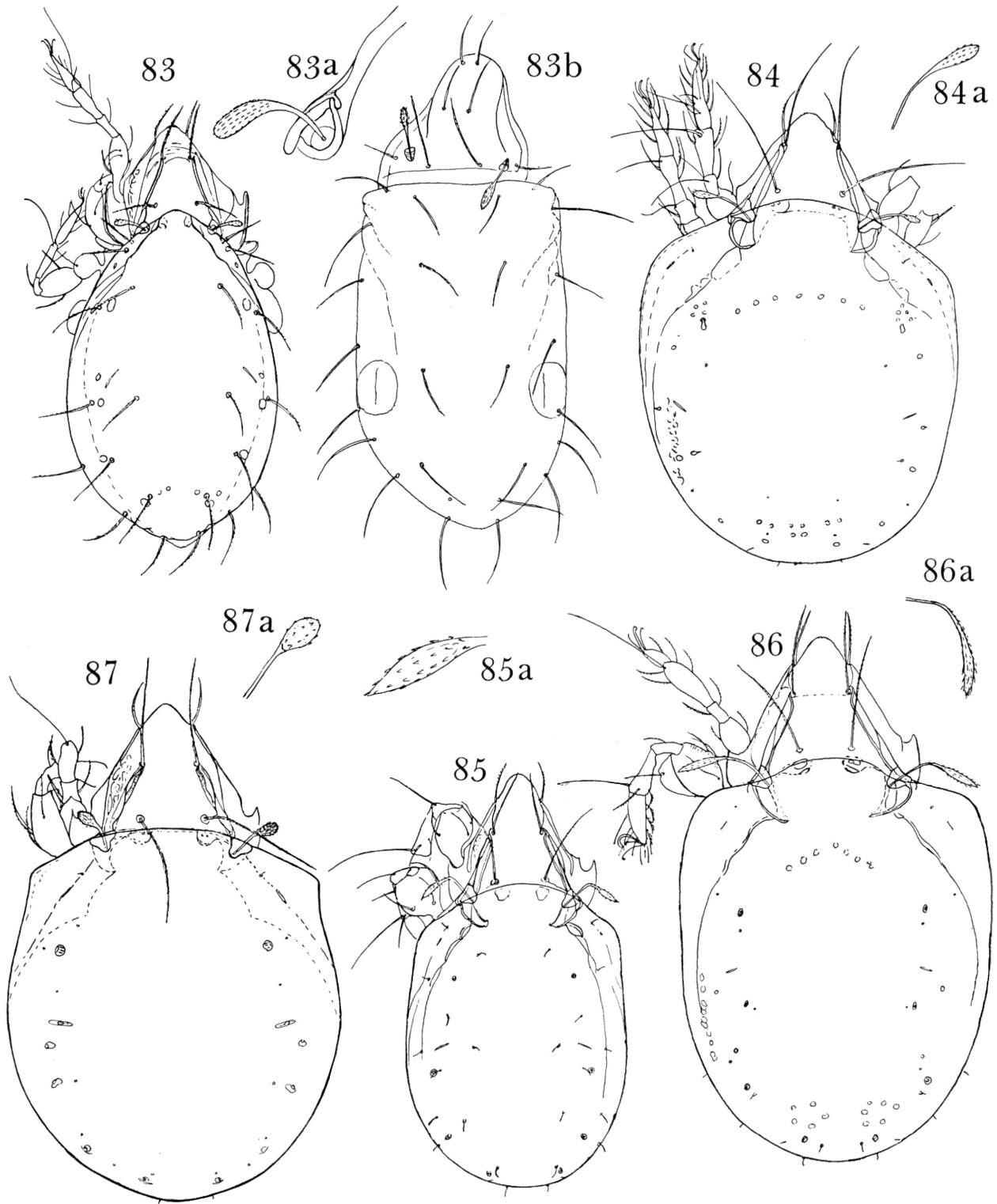
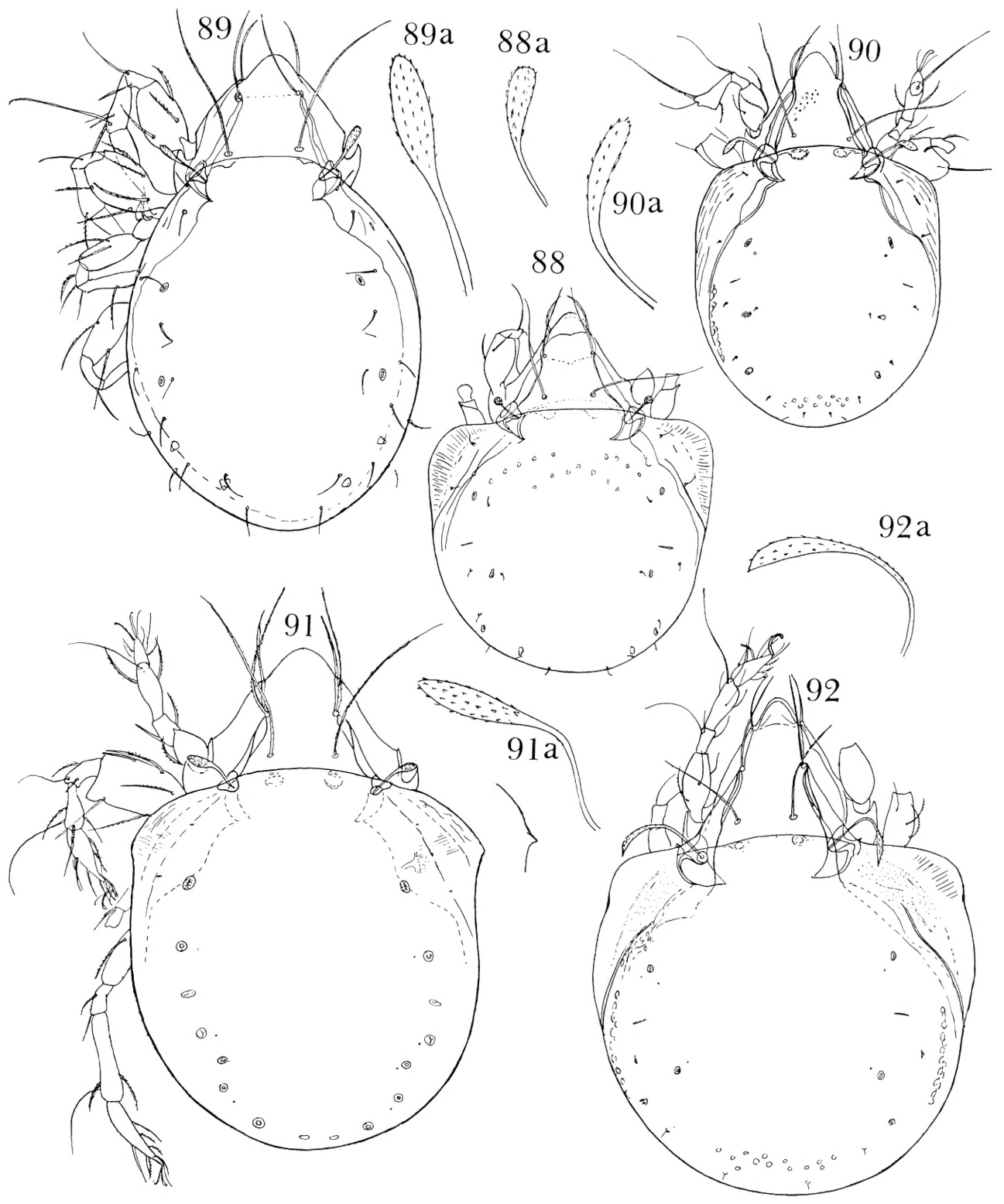


PLATE XXII



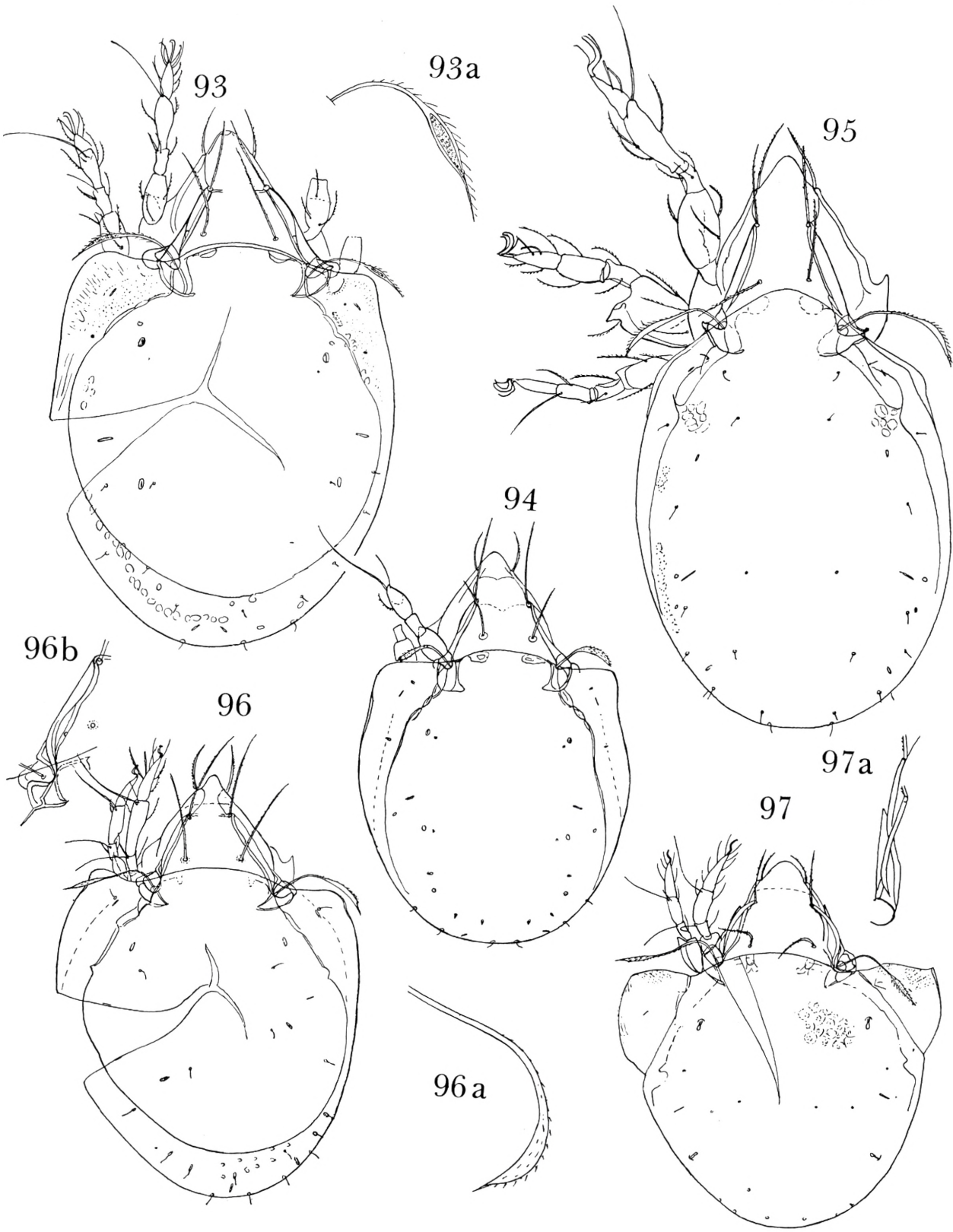
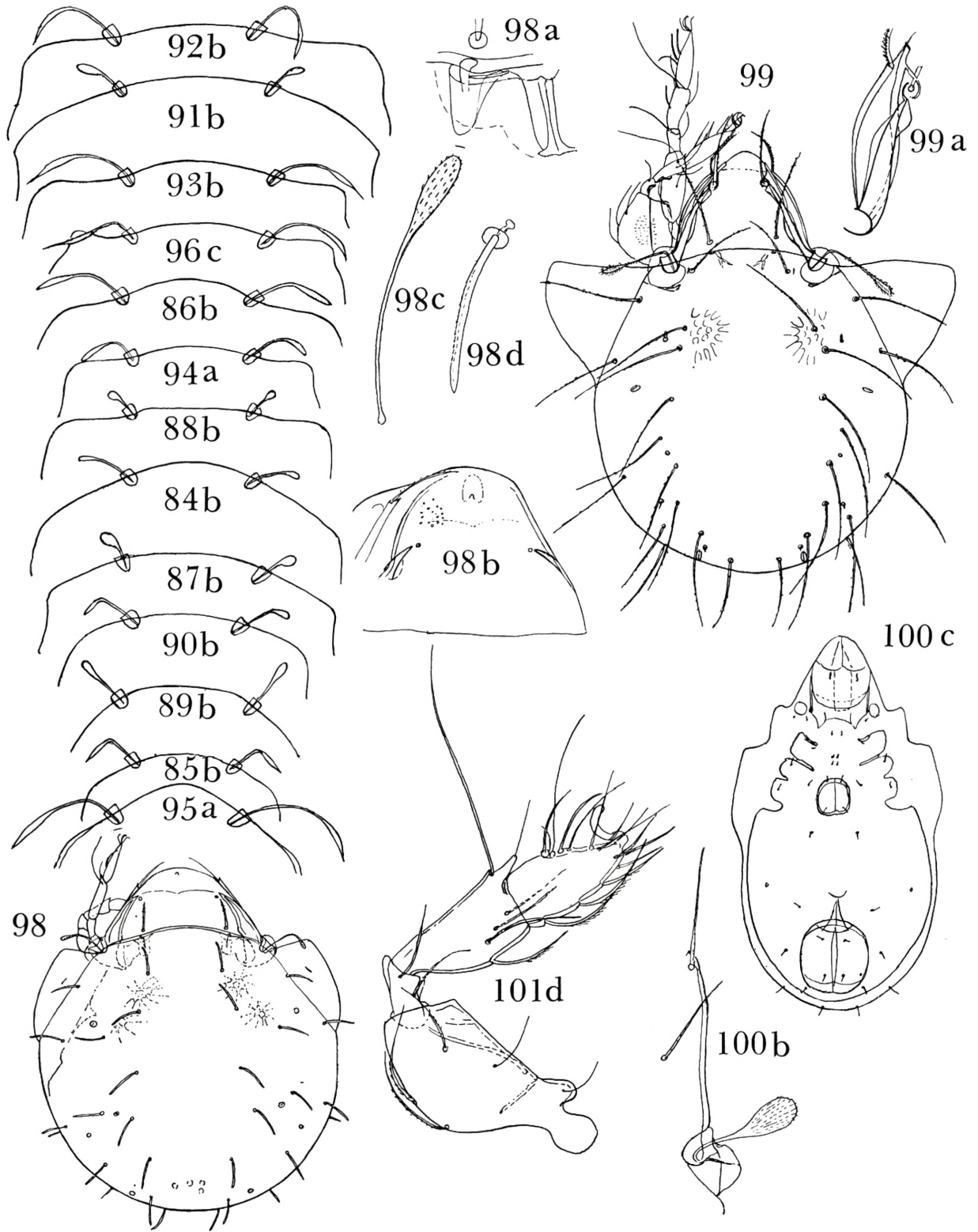
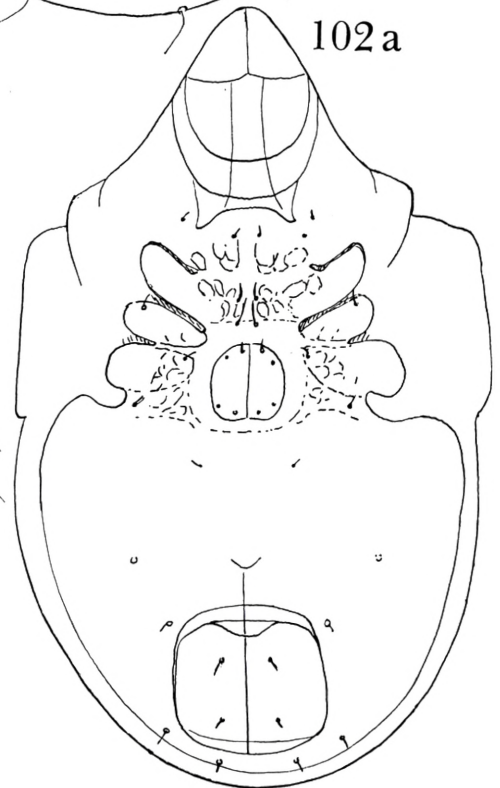
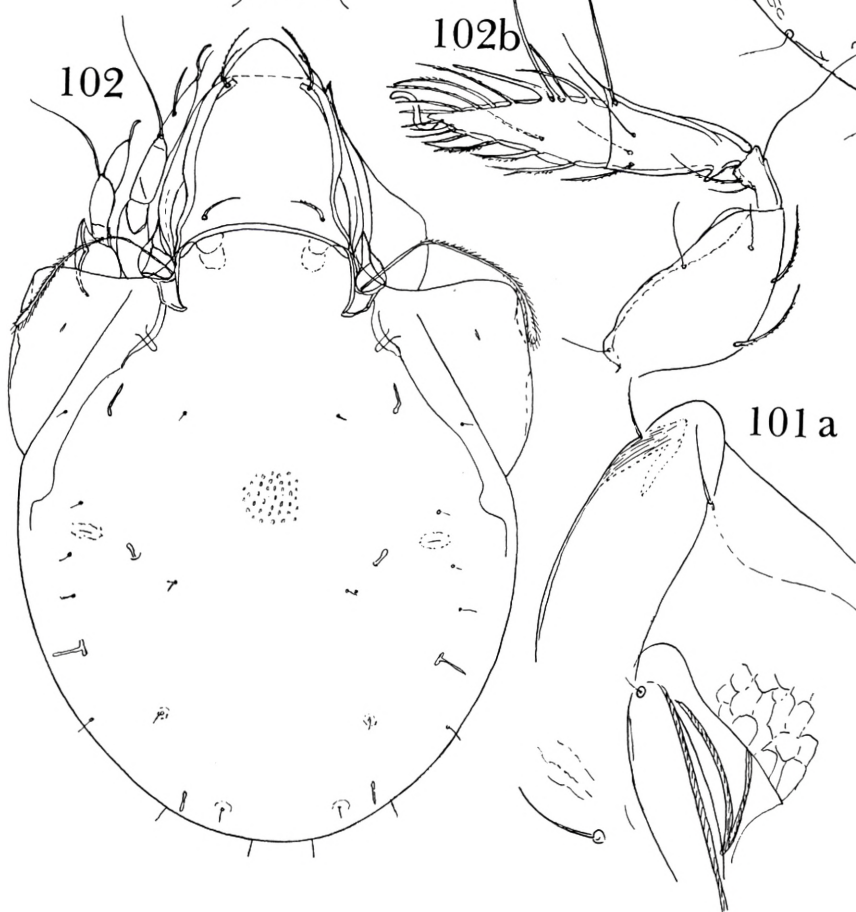
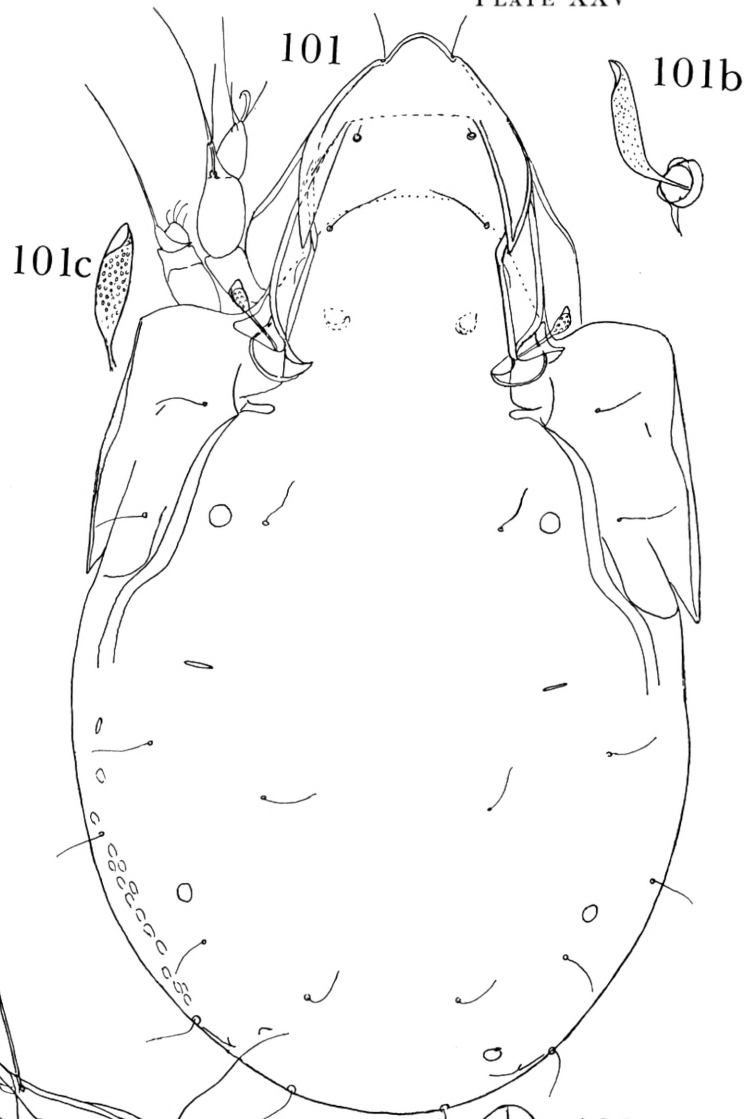
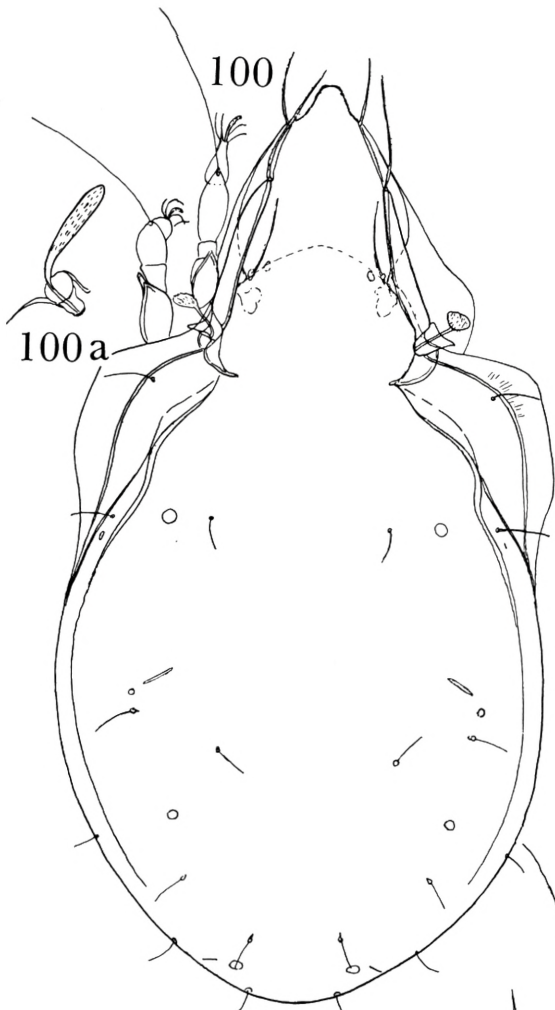
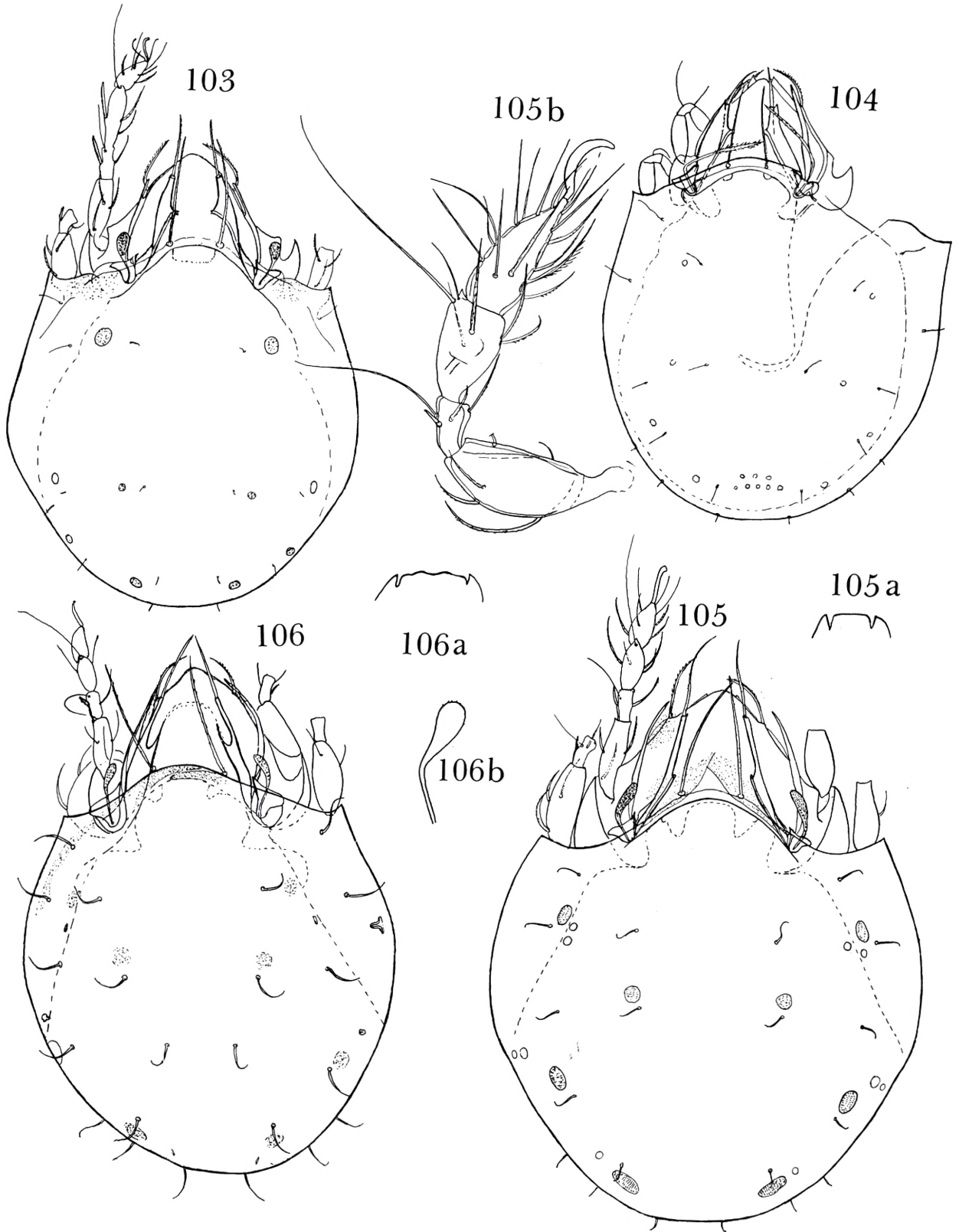


PLATE XXIV







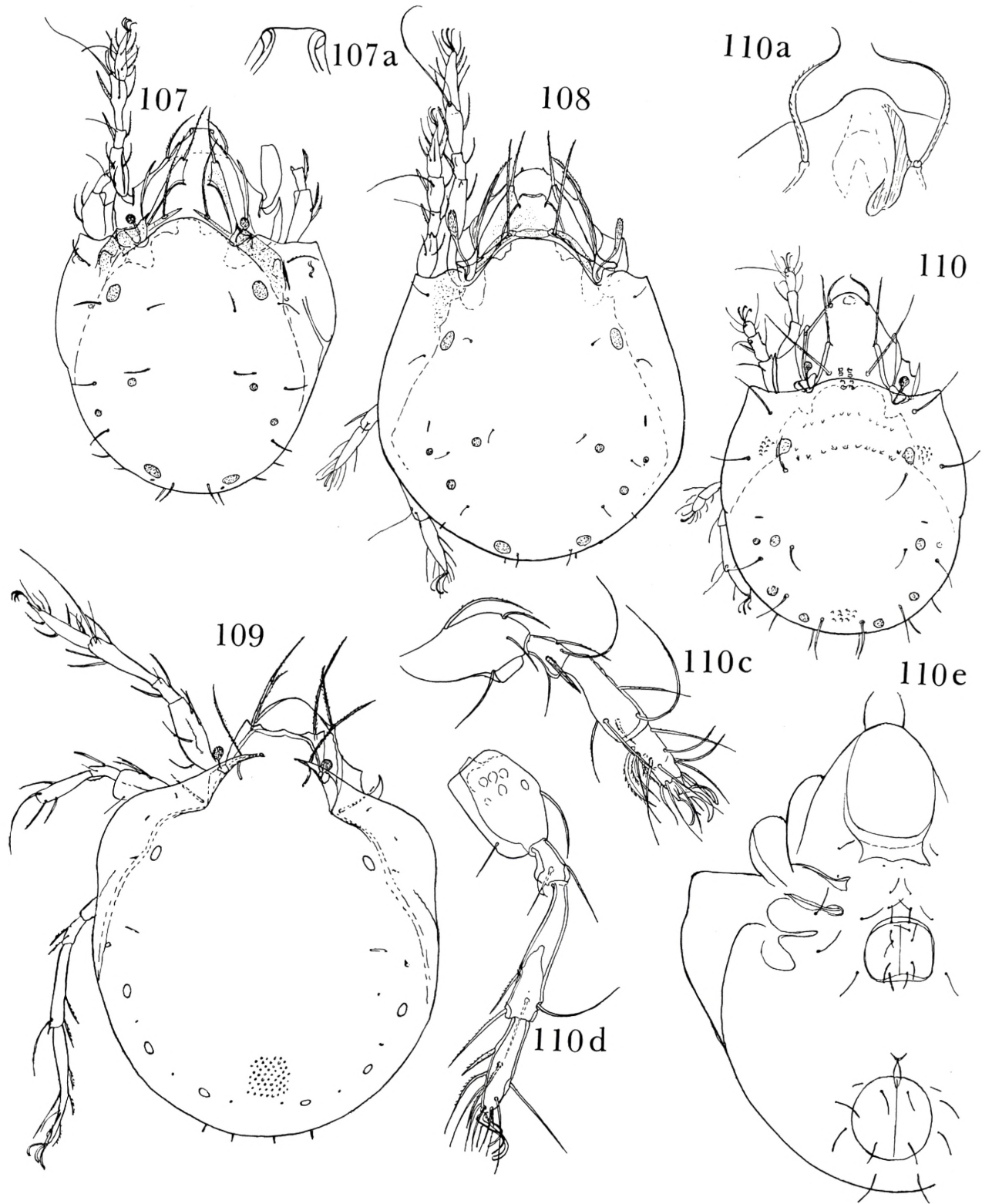
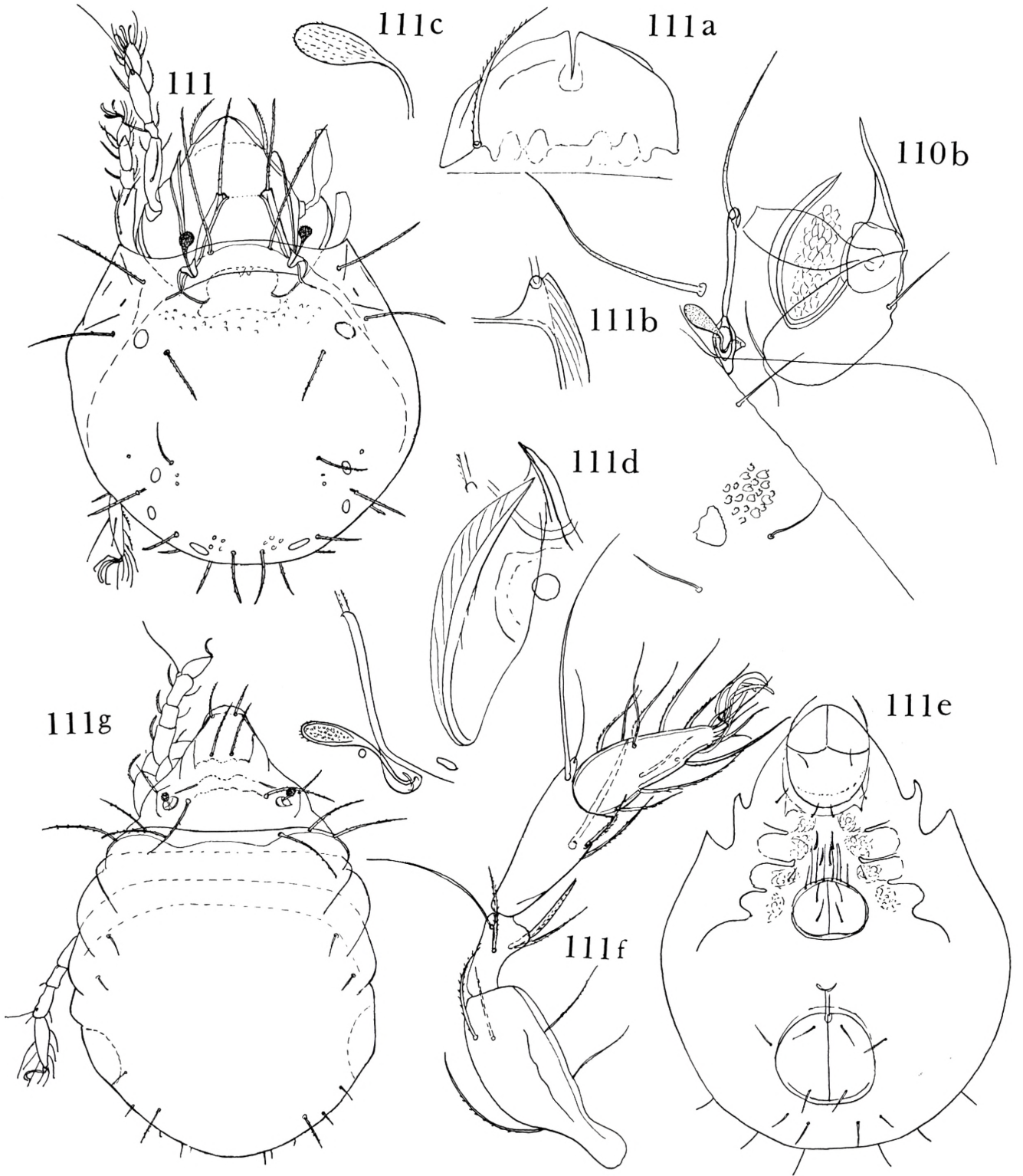


PLATE XXVIII

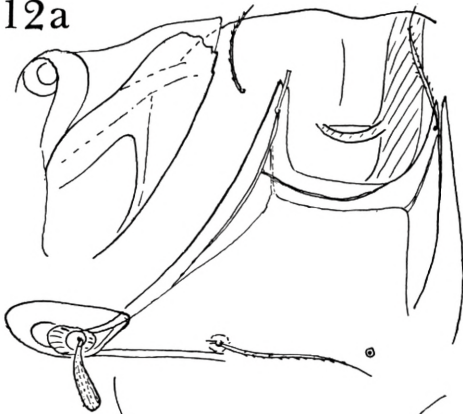




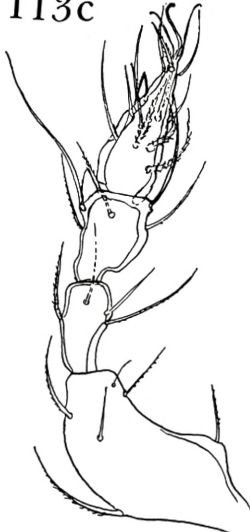
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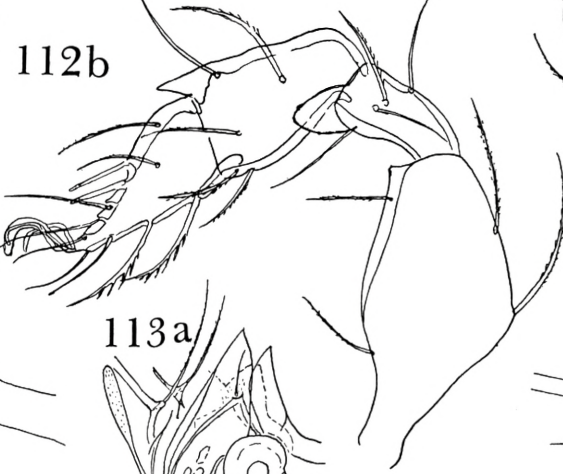
112a



113c



112b



113b



113a



113e



113



114

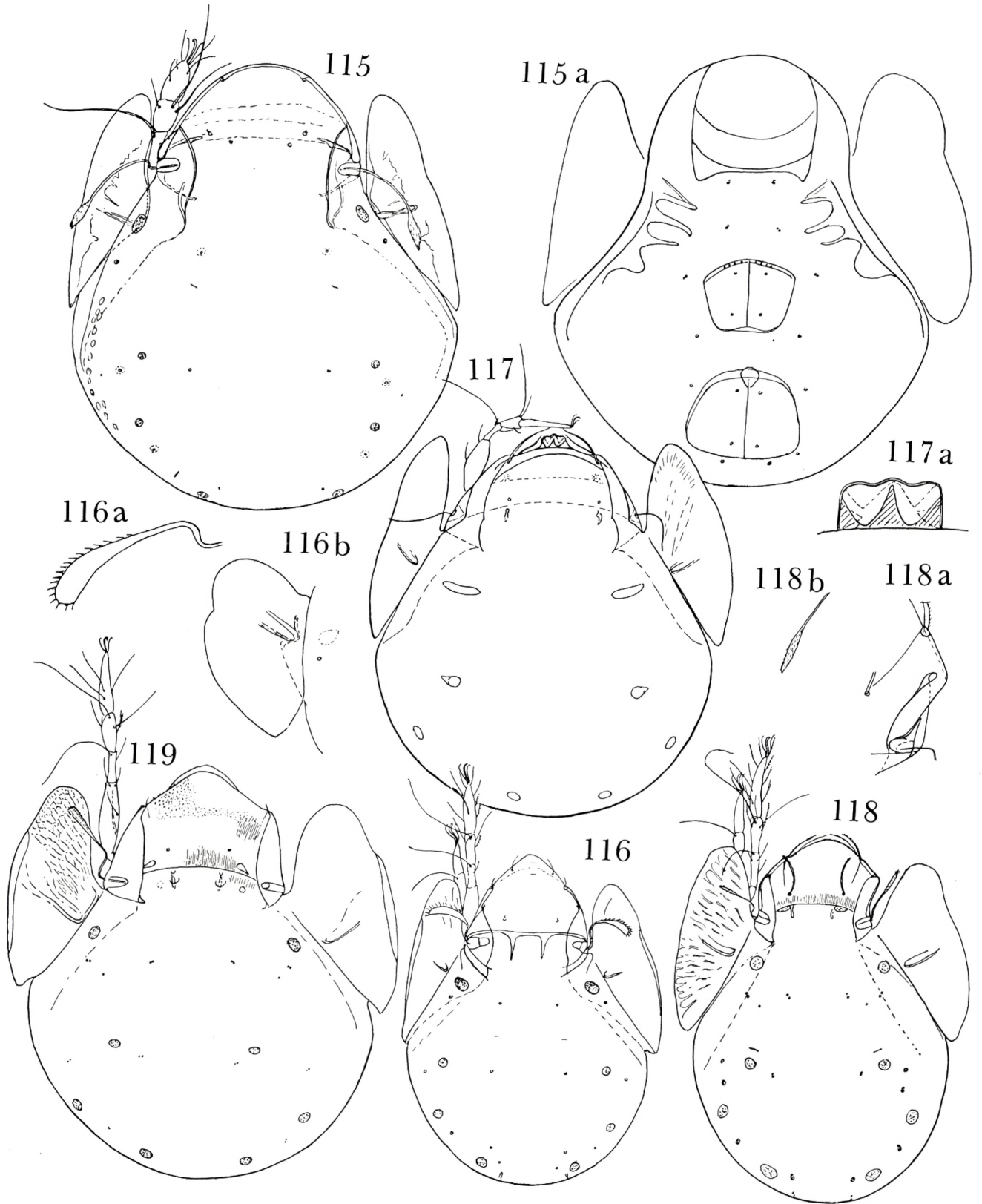


114a



113d





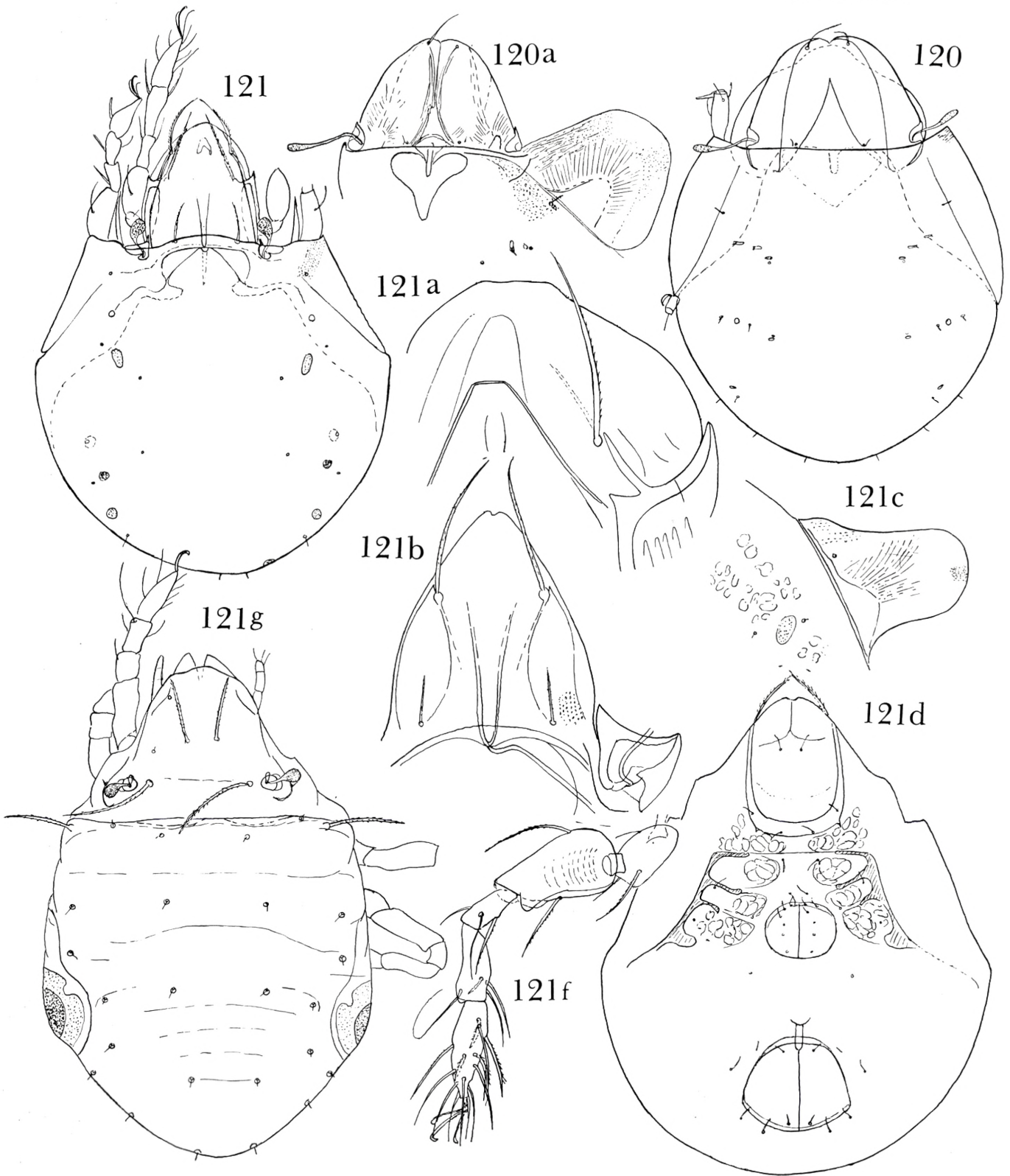
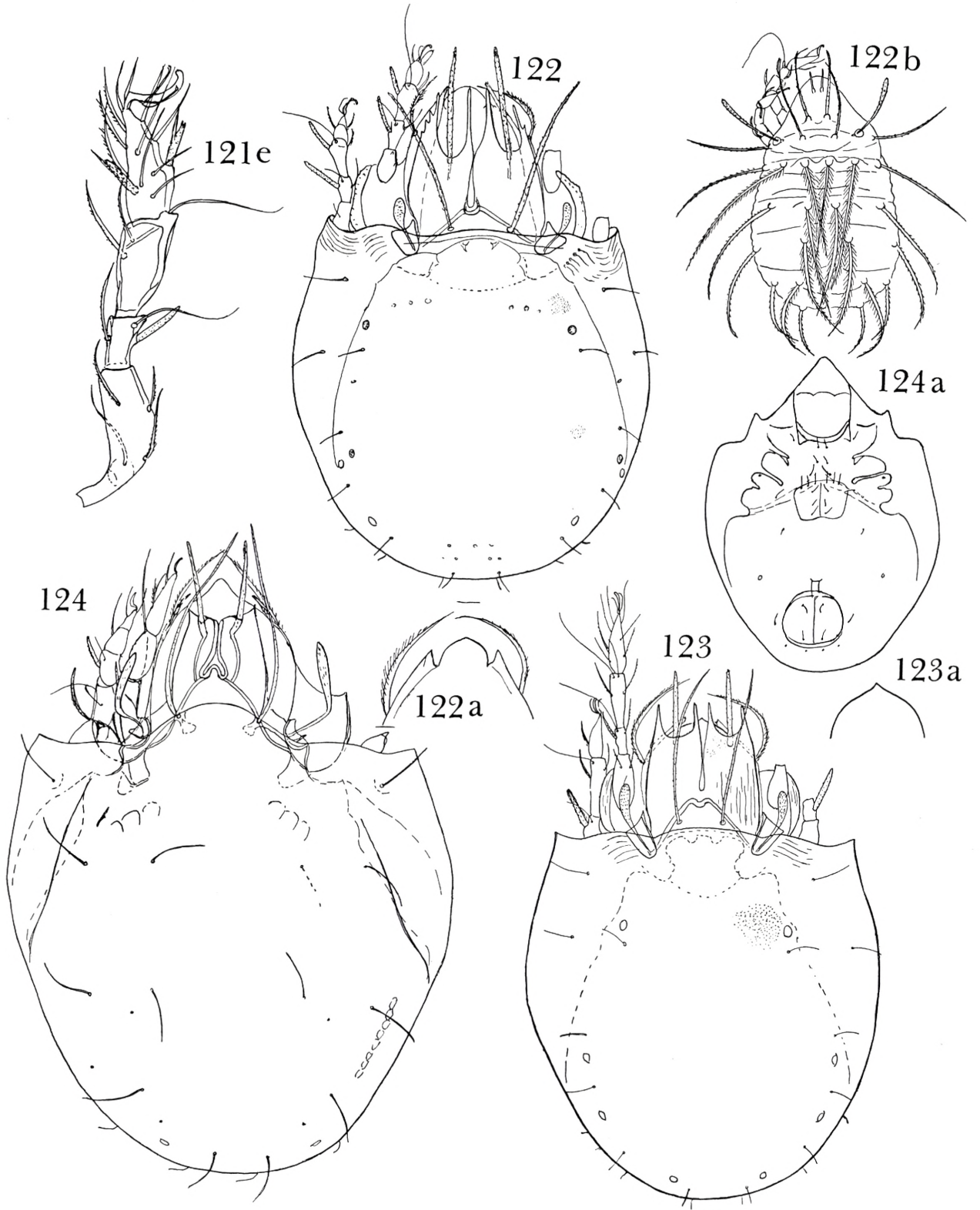


PLATE XXXII



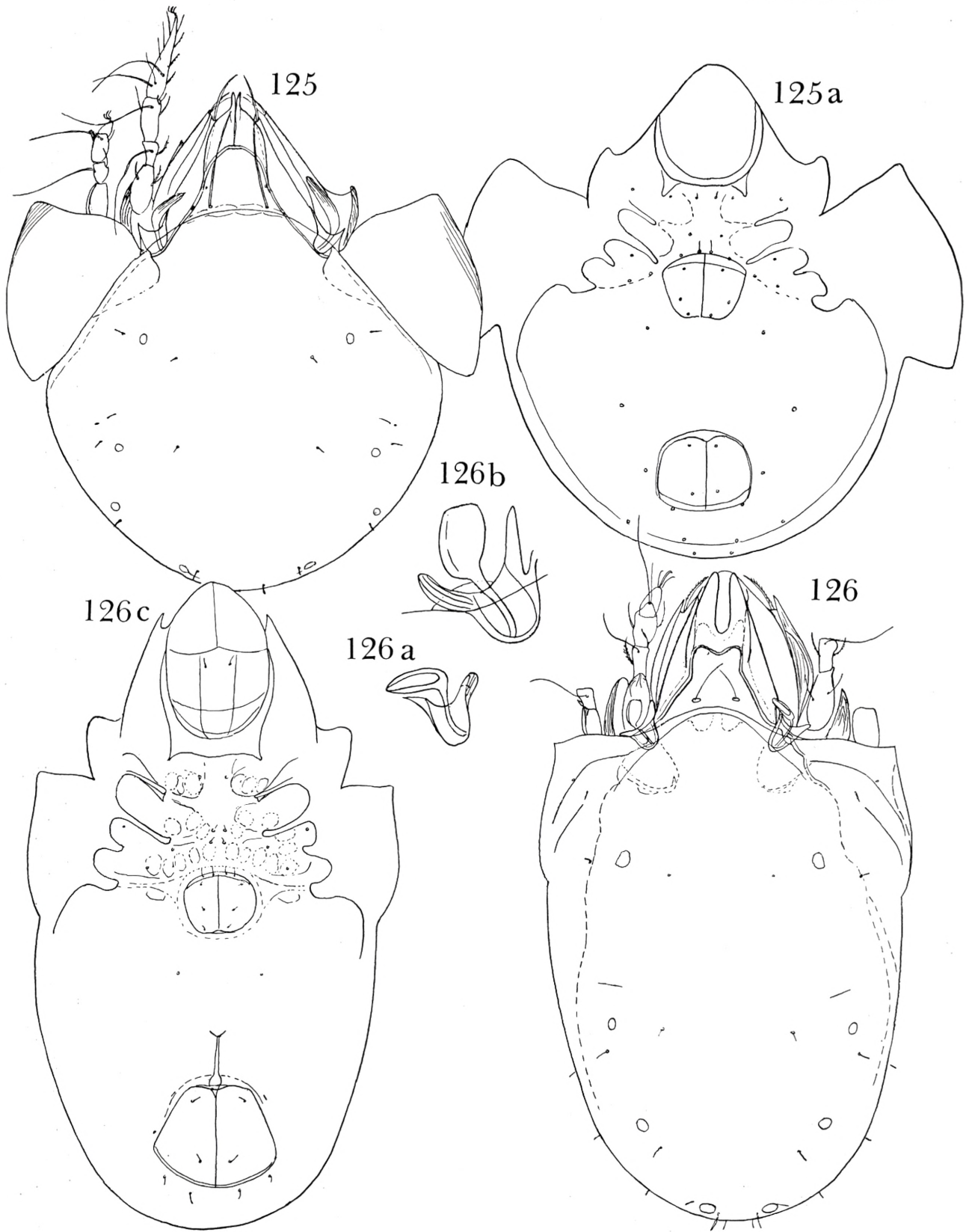
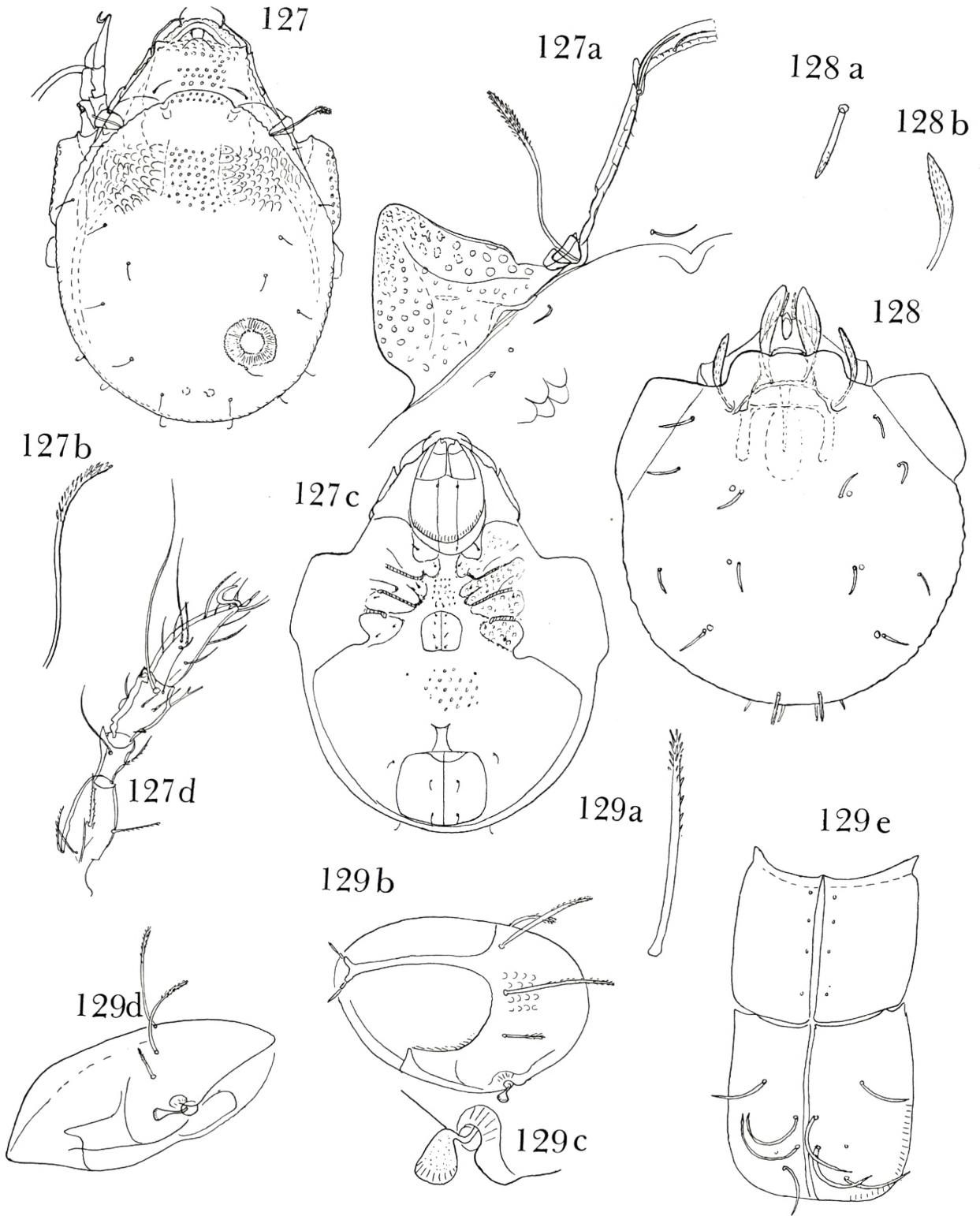


PLATE XXXIV



# Det Kongelige Danske Videnskabernes Selskab

## Biologiske Skrifter

Biol. Skr. Dan. Vid. Selsk.

### Bind 6 (kr. 94,00)

	kr. ø.
1. ORLA-JENSEN, S., ORLA-JENSEN, ANNA D., and SNOG-KJÆR, AGNETE: Biological Researches on the Silage Process. 1948.....	2,00
2. LUND, SØREN: The Marine Algæ of Denmark. Contributions to their Natural History. Vol. II. Phæophyceæ. IV. Sphacelariaceæ, Cutleriaceæ, and Dictyotaceæ. 1950.	10,00
3. TUXEN, S. L.: Über den Lebenszyklus und die postembryonale Entwicklung zweier dänischer Protürengattungen. 1949.....	10,00
4. PAULSEN, OVE: Observations on Dinoflagellates. Edited by Jul. Grøntved. 1949.	9,00
5. THOMSEN, MATHIAS: Weismann's Ring and Related Organs in Larvae of Diptera. 1951.	15,00
6. NIELSEN, ANKER: Contributions to the Metamorphosis and Biology of the Genus <i>Atrichopogon</i> Kieffer (Diptera, Ceratopogonidæ). With Remarks on the Evolution and Taxonomy of the Genus. 1951.....	16,00
7. BÖCHER, TYGE W.: Cytological and Embryological Studies in the Amphi-Apomictic <i>Arabis Holboellii</i> Complex. 1951.....	9,00
8. DEGERBØL, MAGNUS: Recent Discoveries of Remains of Mammals from Glacial Deposits in Denmark. <i>Dicerorhinus kirchbergensis</i> (Jäger), New to the Fauna of Denmark; <i>Megaloceros giganteus</i> (Blumenbach) and <i>Bison priscus</i> (H. v. Meyer). 1952.....	5,00
9. CHRISTENSEN, PAUL J. HOLST: The Embryonic Development of <i>Cochlidion limacodes</i> Hufn. (Fam. <i>Cochlididae</i> , <i>Lepidoptera</i> ). A Study on Living Dated Eggs. 1953.	18,00

### Bind 7 (kr. 95,00)

1. NYGAARD, GUNNAR: Hydrobiological Studies on some Danish Ponds and Lakes. Part II: The Quotient Hypothesis and some new or little known Phytoplankton Organisms. 1949.....	40,00
2. CHRISTENSEN, PAUL J. HOLST: Studien über die postembryonale Entwicklung bei <i>Cochlidion limacodes</i> Hufn. (Fam. <i>Cochlididae</i> , <i>Lepidoptera</i> ). 1950.....	10,00
3. LADEFOGED, KJELD: The Periodicity of Wood Formation. 1952.....	20,00
4. BÖCHER, TYGE W.: Lichen-Heaths and Plant Successions at Østerby on the Isle of Læsø in the Kattegat. 1952.....	5,00
5. THOMSEN, MATHIAS: Neurosecretion in some Hymenoptera. 1954.....	8,00
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