

A NEW GENUS AND SOME OTHER DATA OF ORIBATIDS
FROM THAILAND (ACARI: ORIBATIDA)

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A study on the material collected by S. MAHUNKA and L. MAHUNKA-PAPP (1994), E. HORVÁTH and GY. SZIRÁKI (2001), A. OROSZ and GY. SZIRÁKI (2003) and L. PEREGOVITS (2003) from Thailand is presented here. A list of 23 determined species is given, among them 11 species are represented as new for science, and one of which as new genus (family Microzetidae). Taxonomical notes on hardly known species of this region are given. With 52 figures.

Key words: Acari, Oribatida, new taxa, taxonomy, zoogeography, Thailand

INTRODUCTION

The exploration of the oribatid fauna of Thailand was started by AOKI (1965, 1966), who published two basic papers. This was followed up by the author's and his wife's collecting tour in several national parks of the country (MAHUNKA & MAHUNKA-PAPP 1994). Subsequently, MAHUNKA (1994, 1995*a, b*) described some Oribatida taxa from the region. Later, several Hungarian collectors (E. HORVÁTH, A. OROSZ, L. PEREGOVITS and GY. SZIRÁKI) visited the region and collected samples on the spot, or brought some soils, mosses and other samples that were extracted in the Hungarian Natural History Museum, Budapest.

After the survey of the materials many striking and extraordinary novelties came forward, and the description of which is important not only from the point of view of their taxonomical peculiarities, but also for the clarification of higher relationship they represent. For this reason, the description of a new genus (*Physozetes* gen. n.) might be specifically important for the taxonomic studies of the family Microzetidae GRANDJEAN, 1936, since the system of these taxa need thorough research.

In this paper 23 species are listed from Thailand, furthermore, I describe a new genus and 11 species as new for science. It is worthy to mention that among the listed species only a few of them have been recorded before from Thailand, on the other hand, the distributional area of some species is somewhat expanded. Type material is deposited in the Hungarian Natural History Museum (HNHM) and Musée d'Histoire naturelle de Geneva (MHNG).

In this paper I follow the system of MARSHALL *et al.* (1987) that based on GRANDJEAN's (1954) system, with some modifications introduced by WOAS

(2002), SUBÍAS (2004) and WEIGMANN (2006). In the description, the morphological terminology of GRANDJEAN (in several publications) was used with some modifications of the studied groups or organs (e.g. NORTON *et al.* 1997, MAHUNKA & MAHUNKA-PAPP 2001, 2007, NIEDBAŁA 2002) and other above mentioned authors.

LIST OF COLLECTING SITES

As-695: Erawan National Park (Kanchanaburi), Erawan waterfall. BERLESE sample from litter and roots of scrubs. 14. 02. 1994. Leg. S. MAHUNKA & L. MAHUNKA-PAPP.

As-708: Sri racha (Chon buri), water reservoir. 110 km S of Bangkok. BERLESE sample from grassy soil in a wet hollow. 30. 01. 1994. Leg. S. MAHUNKA & L. MAHUNKA-PAPP.

As-798: Prov. Prachin Buri, Sakaerat Research station, evergreen forest, litter and soil of a *Hoppea ferrea* tree. 02. 06. 2001. Leg. E. HORVÁTH, & GY. SZIRÁKI.

As-802: Prov. Prachin Buri, Sakaerat Research station, evergreen forest, mosses growing on the bark of a large tree. 10. 06. 2001. Leg. E. HORVÁTH, & GY. SZIRÁKI.

As-804: Prov. Prachin Buri, Sakaerat Research station, evergreen forest, mosses growing on the stone in a ravine. 15. 06. 2001. Leg. E. HORVÁTH, & GY. SZIRÁKI.

As-808: Prov. Nakhom Nayok, Khao Yai NP, BERLESE sample from bark and moss in an evergreen forest. 17. 06. 2001. Leg. E. HORVÁTH, & GY. SZIRÁKI.

No. 21: Tham Sakoen National Park headquarters. 29–30. 11. 2003. 19°23'N, 100° 38'E. Leg. L. PEREGOVITS.

As-832: Prov. Trang, Khao Chong Botanical Garden, near to the staff center; mosses. 02. 12. 2003. Leg. A. OROSZ & GY. SZIRÁKI.

As-833: Prov. Trang, Khao Chong Botanical Garden, near to the staff center; mosses. 02. 12. 2003. Leg. A. OROSZ & GY. SZIRÁKI.

LIST OF STUDIED SPECIES

Lohmanniidae BERLESE, 1916

Meristacarus sundensis HAMMER, 1979 – Locality: As-798.

Phyllolohmannia luiseae sp. n.

Phthiracaridae PERTY, 1841

Phthiracarus thaiensis sp. n.

Steganacaridae NIEDBALA, 1986

Hoplophorella cucullata (EWING, 1909) – Locality: As-798.

Rhacaplacarus kugohi (AOKI, 1959) – Locality: As-804.

Euphthiracaridae JACOT, 1930

Acrotrititia comteae (MAHUNKA, 1983) – Locality: As-804.

Hermanniidae SELLNICK, 1928

Phyllhermannia bimaculata HAMMER, 1979 – Locality: As-798.

Microzetidae GRANDJEAN, 1936

Physozetes inflatus gen. n. et sp. n.

Zetorchestidae MICHAEL, 1898

Zetorchestes saltator OUDEMANS, 1915 – Locality: As-802.

Eremobelbidae BALOGH, 1961

Eremobelba editae sp. n.

Eremobelba wittmeri BAYOUMI et MAHUNKA, 1979 – Locality: As-798.

Eremellidae BALOGH, 1961

Archeremella bartlae sp. n.

Tectocepheidae GRANDJEAN, 1954

Tectocepheus velatus (MICHAEL, 1880) – Locality: As-798.

Oppiidae SELLNICK, 1937

Striatoppia opuntiseta (BALOGH et MAHUNKA, 1968) – Localities: As-708, As-833.

Subiasella (Subiasella) extrema sp. n.

Suctobelbidae JACOT, 1938

Flagrosuctobelba setosa HAMMER, 1979 – Locality: As-695.

Austrachipteriidae LUXTON, 1985

Lamellobates molecula (BERLESE, 1916) – Locality: As-798.

Oribatellidae JACOT, 1925

Oribatella szemesi sp. n.

Haplozetidae GRANDJEAN, 1936

Magyaria krisztinae sp. n.

Peloribates szirakii sp. n.

Rostrozetes ovulum (BERLESE, 1908) – Locality: As-708.

Galumnidae JACOT, 1925

Pergalumna amorphia sp. n.

Trichogalumna nabhitabhatai sp. n.

DESCRIPTIONS OF NEW TAXA

Phyllolohmannia luiseae sp. n.

(Figs 1–9)

Diagnosis: Rostrum rounded. Prodorsal and notogastral setae wide, phylliform, covered by short spines. Sensillus with long branches. Sixteen pairs of notogastral setae present. Infracapitulum with two pairs of setae. Epimeral setal formula: 3–1–4–4. Genito-anal setal formula: 10–0–5–5. All legs monodactylous.

Material examined: Holotype: Thailand, Erawan National Park (Kanchanaburi). 14. 02. 1994. Leg. S. MAHUNKA & L. MAHUNKA-PAPP (As-695). Holotype (1750-HO-07): HNHM.

Measurements: Length of body: 662 µm, width of body: 375 µm.

Prodorsum: Truncate, rounded anteriorly. All prodorsal setae large, expanded, covered almost all prodorsal surface (Fig. 1). Whole surface of the setae distinctly aciculate, their margin sometimes serrate. Sensillus with approximately 12–14 long branches.

Notogaster: All notogastral setae, also the lateral ones (*c*₃ and *cp*) nearly round in shape. They overlap each other, so the most part of the notogastral surface is covered by these setae (Fig. 1).

Ventral parts: Infracapitulum with two pairs of wide setae (*h* and *m*), anterior pair of which phylliform, posterior pair fungiform. Epimeral setal formula: 3–1–4–4 (Fig. 2). All setae wide, but

varying in shape (Figs 4–9), mostly phylliform without vein. Genital plates bearing 10 pairs of setae, situated in two rows. Outer ones much wider than the setae in inner position. Both of anal and adanal plates with five pairs of setae in each, anal setae thin with long cilia, adanal ones wide, phylliform (Fig. 3).

Legs: Typical for the genus. Some of the setae also wide, phylliform.

Remarks: This is the fourth species of the genus *Phyllolohmannia* J. et P. BALOGH, 1987. It stands nearest to the species, *P. yinae* HU et AOKI, 1993, however, the notogastral setae of the latter species are much wider than in the new species, and the adanal setae cover the whole surface of the adanal plates (these setae also much narrower in *P. yinae*). Two pairs of anal setae present in *P. yinae*, while five pairs in the new species.

Etymology: I dedicate this marvelous new species to my wife and co-worker, LUISE MAHUNKA-PAPP, who collected it.

Phthiracarus thaiensis sp. n.

(Figs 10–14)

Diagnosis: Rostrum with a small median projection. Lateral carina distinct and long. Sensillus lanceolate, short. Fifteen pairs of fine notogastral setae and two pairs of lyrifissures present. Anal plates with five pairs of long setae, the posterior two pairs of adanal setae shortest of all. The leg chaetotaxy is of the complete type.

Material examined: Holotype: Thailand, Erawan National Park (Kanchanaburi). 14. 02. 1994. Leg. S. MAHUNKA & L. MAHUNKA-PAPP (As-695). 2 paratypes in the same sample. Holotype (1749-HO-07) and 1 paratype (1749-PO-07): HNHM, 1 paratype: MHNG.

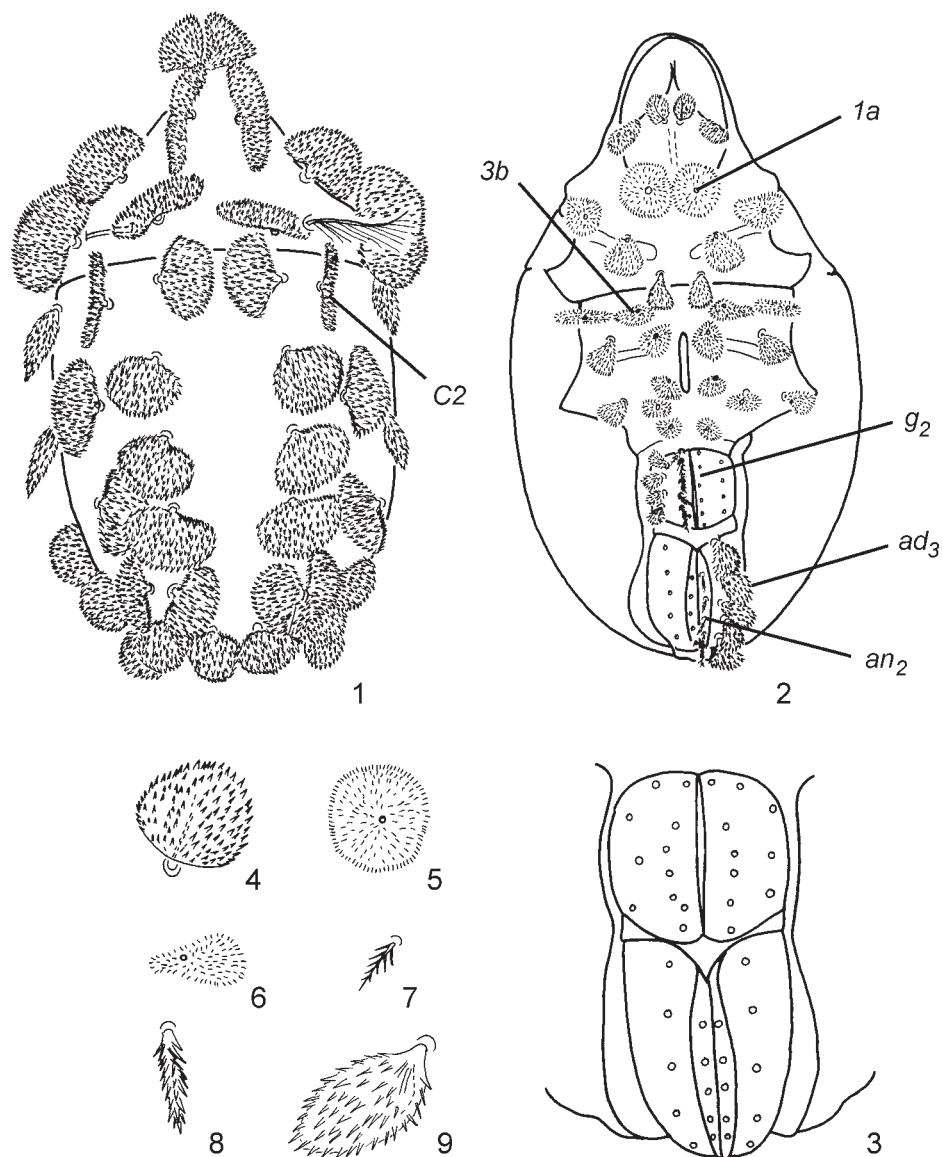
Measurements: Length of aspis: 275–286 μm , length of notogaster: 521–555 μm , height of notogaster: 390–412 μm .

Aspis: Rostral apex with a peculiar, angular projection as seen in lateral view (Fig. 11). Lateral carina long, reaching over the sinus line (Fig. 10). Lateral rim well observable, also long. A fine polygonal striation visible in the lateral surface. The whole dorsal surface ornamented by fine longitudinal striae, stronger in the basal part. Sensillus short, narrow, lanceolate (Fig. 13).

Notogaster: Whole surface striate. All fifteen pairs of notogastral setae long, fine, filiform (Fig. 10). Except setae cp all setae of c series arising near to the collar line, setae c_2 behind, c_1 and c_3 before it. Only two pairs of lyrifissures (ia , im) present. Insertion of the vestigial setae well observable, f_1 located below h_1 . Genito-anal region (Fig. 14): Anal plates with five pairs of setae, two anal pairs longer than the anterior adanal setae (ad_3). Setae ad_1 and ad_2 equal in length, much finer and shorter than the other three pairs. Setation of the genital plates typical for the genus, with 9 (4+5) setae.

Legs: Setation of all legs is of the complete type. Setation of femur I is shown in Fig. 12.

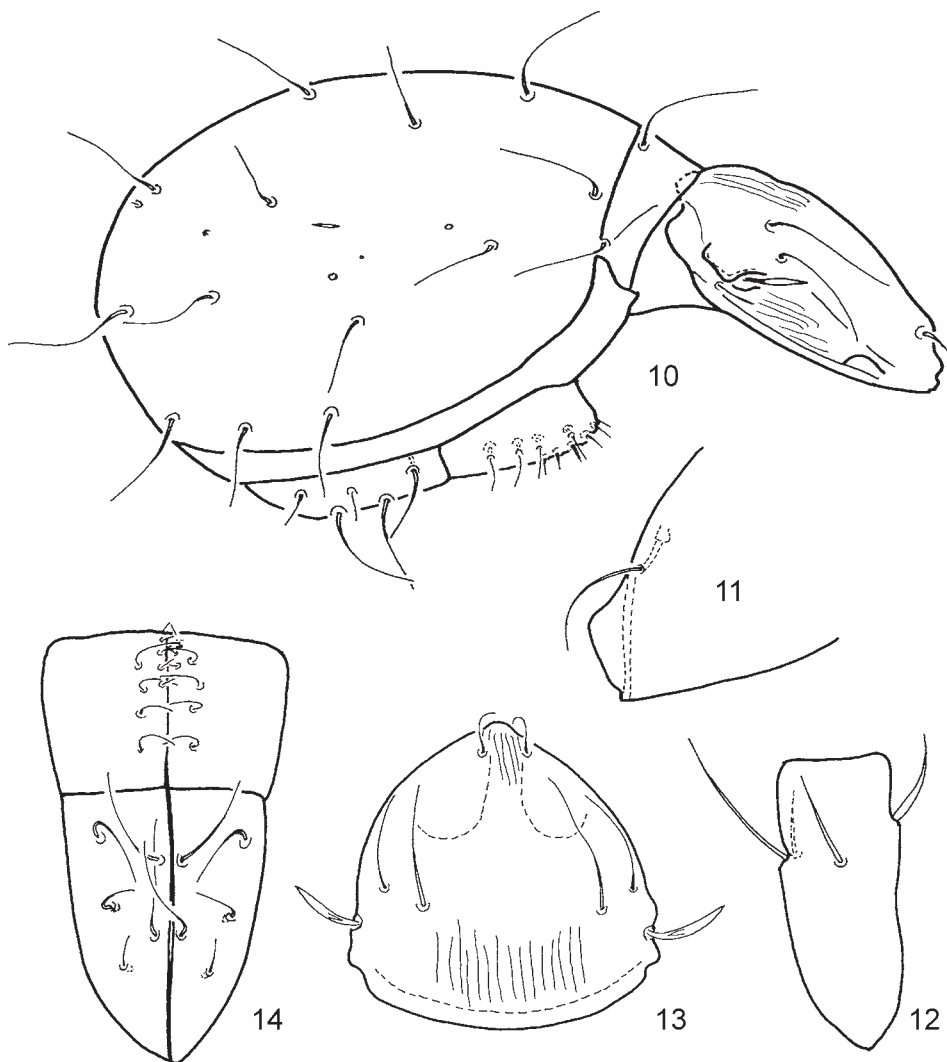
Remarks: The new species is well characterised by the apex of the aspis, the two pairs of notogastral lyrifissures, the position of the setae. It stands nearest to *P. abstemius* NIEDBALA, 1989, however, notogastral surface smooth in *abstemius*,



Figs 1–9. *Phyllolohmannia luisseae* sp. n. – 1 = body in dorsal view, 2 = body in ventral view, 3 = genito-anal region, 4 = seta g_2 , 5 = seta $1a$, 6 = seta ad_3 , 7 = seta an_2 , 8 = seta $3b$, 9 = seta c_1

the latter has only two pairs of lyrifissures and 3 pairs of adanal setae, no peculiar protruding on the aspis in *abstemius* and setae f_1 located above h_1 in *P. abstemius*.

Etymology: The new species is named after its origin.



Figs 10–14. *Phthiracarus thaiensis* sp. n. – 10 = body in lateral view, 11 = rostrum in lateral view, 12 = femur of leg I, 13 = aspis in dorsal view, 14 = anogenital region

Physozetes gen. n.

Diagnosis: Rostrum rounded, bearing short flagellate rostral setae. Rostral part covered by the inflated anterodorsal prodorsum. Lamellae comparatively small, with sharp inner and outer apices. Its median part finely serrated. A narrow translamella present basally. Lamellar setae arising from the basal part of the lamellae; interlamellar setae inserted on the lamellar surface, very long, flagellate. Sensillus long, setiform, directed backwards. Dorsosejugal suture slightly concave; pteromorphae very large. All notogastral setae fine, flagellate. Sejugal and 4th apodemata long and strong, compose a well discernible X-shaped formation in front of the genital aperture. Except for the long genital setae g_1 , all setae in this region short and fine.

Type species: *Physozetes inflatus* sp. n.

Remarks: Excepting the direction of the sensillus, the new taxon stands nearest to the genus *Schalleria* BALOGH, 1962. However on the basis of the form and direction of the sensillus, the form of the dorsosejugal suture and the formation of the apodemata, the new taxon is similar to the genus *Teraja* MAHUNKA, 1995. The new taxon is different from these and also from *Caucasiozetes* STANCHAEVA, 1984 by the position of the interlamellar setae and the X-shaped formation of the sejugal and 4th apodemata and bordures of the epimeral region.

Physozetes inflatus sp. n.

(Figs 15–17)

Diagnosis: Rostral part of the prodorsum covered by a blister-like formation and by the lamellae. Median part of prodorsum is opened; translamella basally present. Interlamellar setae arising laterally, very long. Sensillus setiform, curved backwards. A distinct dorsosejugal suture, very large pteromorphae and nine pairs of fine, flagellate notogastral setae present on the notogaster.

Material examined: Holotype: Thailand: Tham Sakoen National Park headquarters, 29–30. 11. 2003. Leg. L. PEREGOVITS (No. 21). Holotype (1741-HO-2007): HNHM.

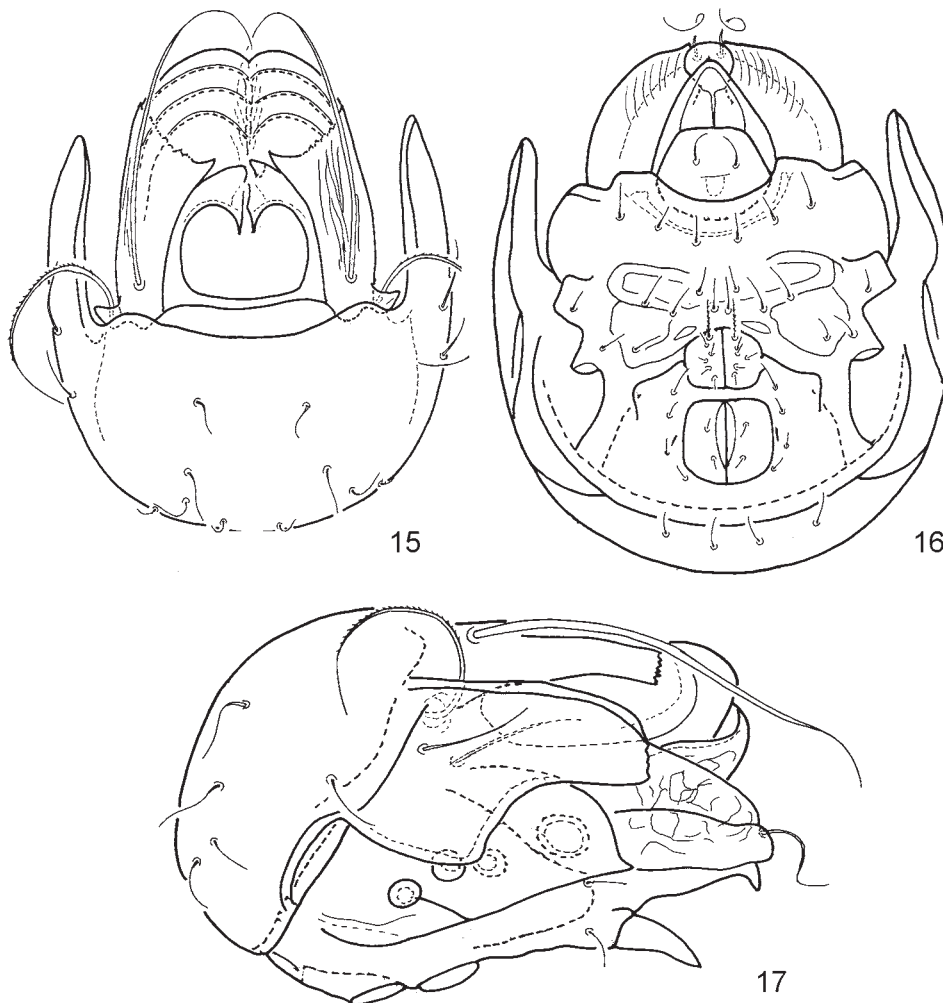
Measurements: Length of body: 307 μm , width of body: 276 μm .

Prodorsum: Rostral apex round, well protruding, narrowed behind the apex, bearing the comparatively short, flagellate rostral setae. Lamellae comparatively small, with sharply pointed inner and outer apices. Their median part concave, well serrated, with minute teeth. Lamellar setae arising from their ventral part. The blister-like formation divided by semicircle borders (Fig. 15). Between

the lamellae a pair of sharp teeth directed backwards, connecting them a narrow translamella basally. This part of prodorsum partly uncovered. Interlamellar setae strong and long, their distal part curved inwards, slightly flagellate. Sensillus setiform, long, curved backwards. Its surface barbed laterally.

Notogaster: Very wide, with large pteromorphae, their anterior part extending far anteriorly. Their dorsal and ventral margin widened, anteriorly undulate. Dorsosejugal suture concave, well observable. Notogastral surface smooth. Nine pairs of thin, partly flagellate notogastral setae present, setae c_2 longest of all. Setae h and p short, all smooth.

Lateral part of podosoma: Rostral apex curved, beak like. Pedotectum 1 very large, exobothridial setae arising at their basis, comparatively long. Circumpedial carina strong, but not reaching to the lateral margin of the ventral plate (Fig. 17).



Figs 15–17. *Physozetes inflatus* gen. et sp. n. – 15 = body in dorsal view, 16 = body in ventral view, 17 = anterior part of prodorsum in lateral view

Ventral parts (Fig. 16): Infracapitulum very large. Epimeral surface smooth, apodemata and epimeral borders well developed. Sejugal and posterior epimeral borders (*bo. 2*) compose one thick, X-shaped transversal band, borders 2 much shorter, not connected medially. All epimeral setae simple, thin. Setae in the genito-anal region, except for the anterior genital setae thin and simple; anterior genital setae much stronger and well pilose. Genital plates smooth, anal plates with longitudinal crest. Anal and adanal setae short and fine.

Legs: All legs monodactylous.

Remarks: The new species is well distinguishable from all heretofore microzetid species by the conspicuous form of pteromorphae. On the other hand: see the remarks after the generic diagnosis.

Etymology: The new species is named after the inflated anterodorsal prodorsum.

Eremobelba editae sp. n.

(Figs 18–22)

Diagnosis: A median, semicircular ridge bearing the interlamellar setae present, behind it a pair of well developed interbothridial tubercles present. Sensillus long, curved backwards. Surface of notogaster with polygonal pattern consisting of roundish tubercles. All notogastral setae flagellate, varying in length.

Material examined: Holotype: Thailand, Province Prachin Buri, Sakaerat Research station. 02. 06. 2001. Leg. E. HORVÁTH & GY. SZIRÁKI (As-798). Holotype (1742-HO-2007): HNHM.

Measurements: Length of body: 335 μm , width of body: 187 μm .

Prodorsum: Rostrum conical, rostral setae setiform, barbed, arising on small tubercles; lamellar setae smaller than rostral ones, barbed, originating near to them, located also on the pair of bigger tubercles. No laths or crests in the lamellar region, but a semicircular ridge, with a pointed median apex exist on it medially. Behind of this ridge a pair of well developed tubercles present basally, directed posteriorly. Interlamellar setae very short, dilate, also well barbed. Bothridium angular posteriorly, sensillus long, their outer margin simply serrate.

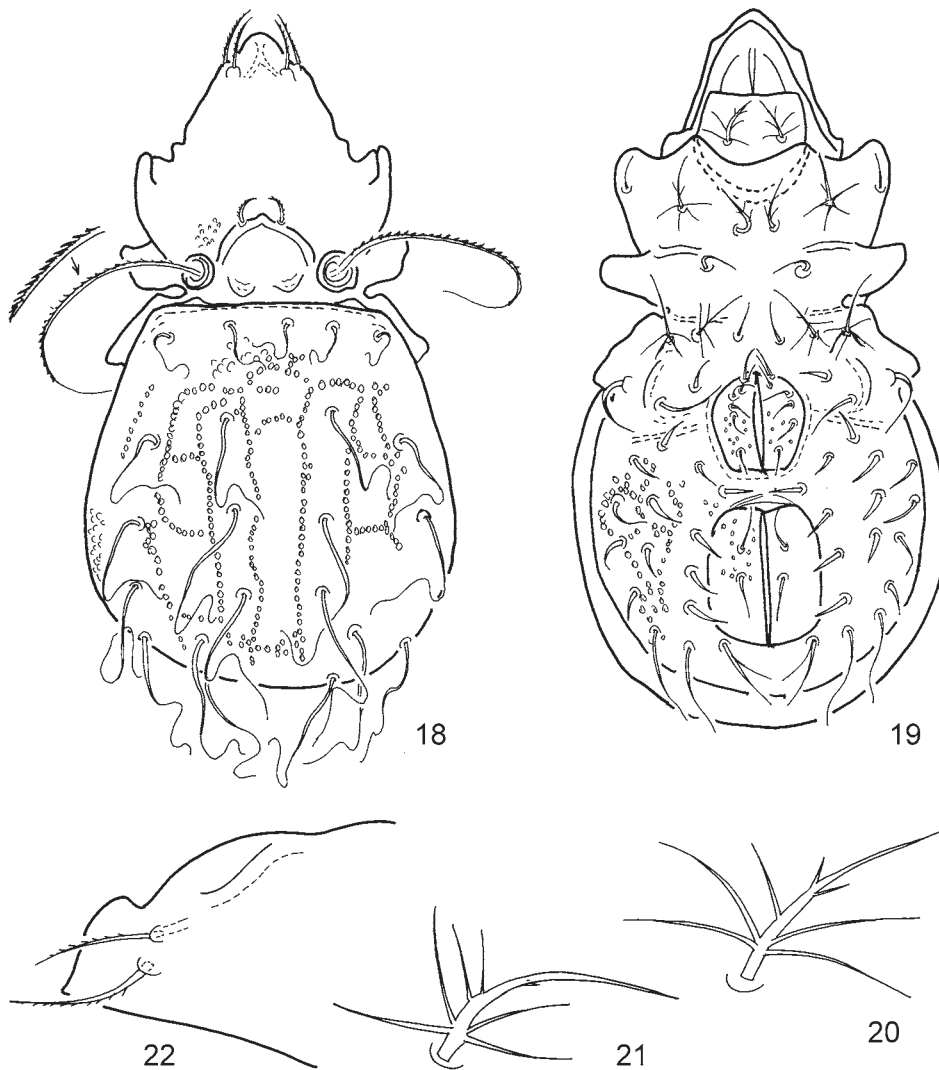
Notogaster: Surface of notogaster ornamented by small, round tubercles, arranged in typical polygonal pattern (Fig. 18). All notogastral setae flagellate, their distal part very thin, sometimes broken. Anterior two pairs much shorter than the others.

Lateral part of podosoma: Behind the rostrum, the prodorsal surface excavated in lateral view (Fig. 22). Pedotecta 1, 2 and 3 large, latter ones rounded laterally. Discidium also large. Setae *Ic* arising on the surface of pedotecta 1.

Ventral parts (Fig. 19): Infracapitulum large, covered by secretion tubercles, its setae with long branches (Fig. 20). Epimeral surface covered by minute tubercles, apodemata or epimeral borders hardly observable. A pair of semicircular ridge present on epimere IV. Epimeral setae show different types, thus setae *1b* (Fig. 21), *3b*, *3c*, bearing long branches at their basis, while setae *1c*, *2c*, *3a*, *4b* and *4c* simple, setiform, only more or less ciliate, in the meantime setae *3a* widened, spiniform. Surface of genital and ventral plates irregularly tuberculate, on the surface of ventral plate some dis-

tinct polygonal fields observable. Six pairs of simple, thin genital, and two pairs of similar, but longer anal setae present. On the ventral plate 12 pairs, mostly spiniform, dilated and 3 pairs of long, thin setae in posteromarginal position observable. Among the posterior setae, two pairs of them filiform, the median ones bifurcate, or 2 setae arising very near to each other on one side.

Legs: Claw of leg I thinner than those on legs 2–4.



Figs 18–22. *Eremobelba editae* sp. n. – 18 = body in dorsal view, 19 = body in ventral view, 20 = seta h, 21 = seta Ib, 22 = rostral part of prodorsum in lateral view

Remarks: The new species is well characterised by the large size of body, the semicircular interbothridial ridge, the flagellate notogastral setae and especially by the bifurcate adanal setae (an_1). These features are unique in the heretofore known species of the genus *Eremobelba* BERLESE, 1908.

Etymology: I dedicate the new species to Miss EDIT HORVÁTH, my co-worker in the Arachnoidea Collection of the Hungarian Natural History Museum, the collector of this very interesting material.

***Archeremella bartlae* sp. n.**

(Figs 23–27)

Diagnosis: Prodorsum with H-shaped costula. Rostral and lamellar setae setiform; interlamellar setae wide, phylliform. Notogastral surface ornamented by large tubercles connected by short lines. Fourteen pairs of phylliform, well spiculate notogastral setae present. Apodemata and epimeral borders weakly developed, partly absent. Epimeral setal formula: 3–1–3–3. Genito-anal setal formula: 6–1–2–3. Surface of anal plates rugose. All legs tridactylous.

Material examined: Holotype: Thailand, Sri racha (Chon buri), water reservoir. 110 km S of Bangkok. 30. 01. 1994. Leg. S. MAHUNKA & L. MAHUNKA-PAPP (AS-708). Two paratypes from the same sample. Holotype (1748-HO-07) and one paratype (1748-PO-07): HHNM, one paratype: MHNG.

Measurements: Length of body: 235–242 μm , width of body: 158–163 μm .

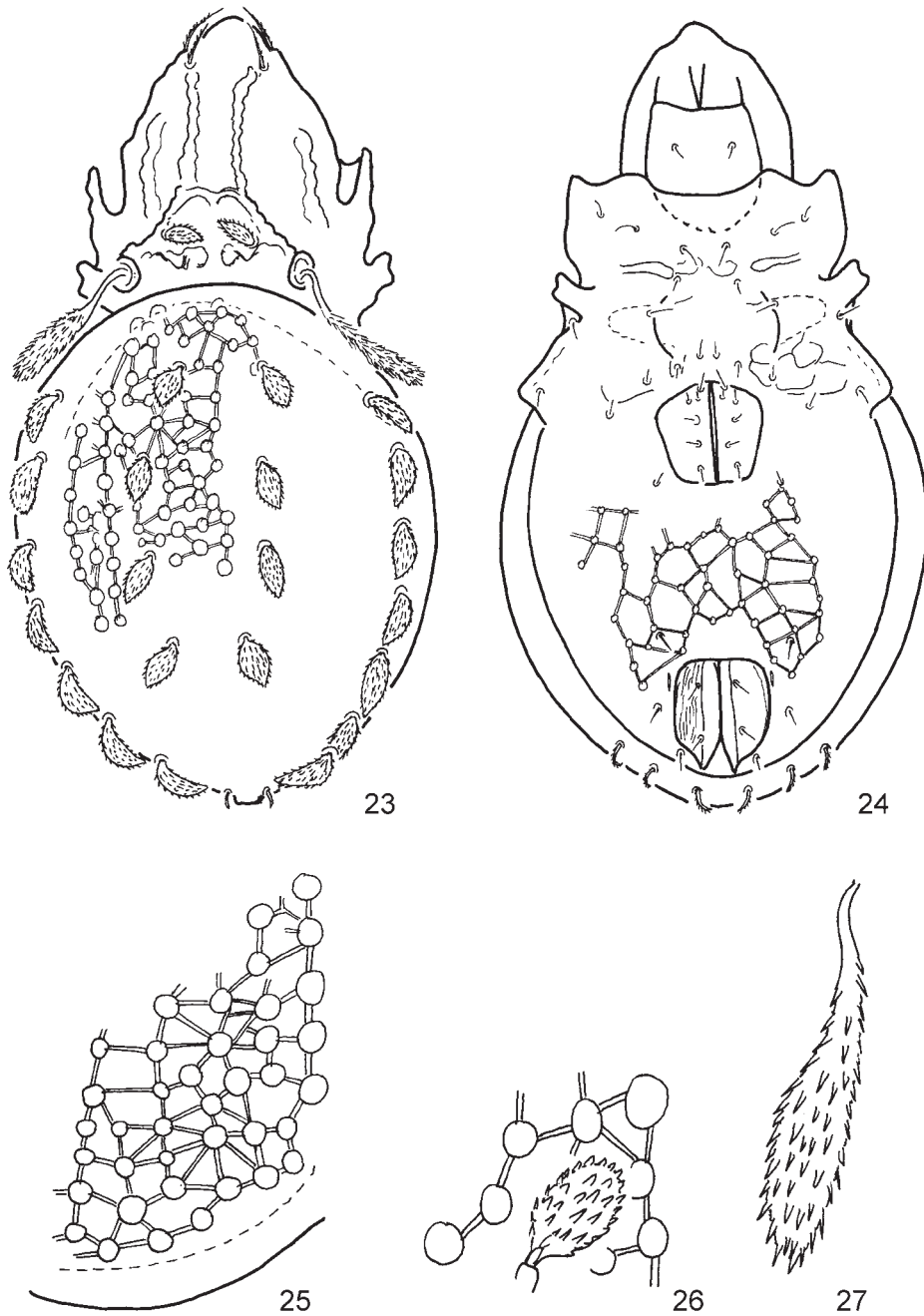
Prodorsum: Rostral part of prodorsum conical, wide. Prodorsum with a well developed, longitudinal costula, directed basally to the bothridium, connected by a short transversal ridge in their basal part. Around the insertion of the interlamellar setae, a pair of short crests, parallel with the median costulae and a pair of longitudinal laths present. Rostral setae arising laterally, insertion of the lamellar setae located near to the distal end of costulae (Fig. 23). Both pairs setiform, distinctly pilose, nearly equal in length. Sensillus (Fig. 25) typical for genus, long, directed backwards, covered by spines, its distal end rounded.

Notogaster: On the surface of notogaster, a peculiar pattern visible, consisted of round tubercles and connected by short or longer lines (Fig. 27). These lines and tubercles located in two pairs of stronger, well observable longitudinal lines, but some irregular tubercles also observable. Fourteen pairs of phylliform, wide notogastral setae (Fig. 26) present, of which three posteromarginal pairs (setae p) much smaller than the others. All setae covered by strong spines or acicules.

Lateral part of podosoma: Pedotecta 1, 2 and 3 large. Tutorium without apex.

Ventral parts (Fig. 24): Short, weakly developed apodemata and epimeral borders present. In the sejugal region, a pair of large, lateral semicircular hollow observable. All epimeral setae short, fine. Six pairs of genital setae present, one pair of which arising on the anterior margin, two pairs behind of them. Anal and adanal setae very short, setae ad_3 in preanal position. Lyrifissures *iad* hardly observable.

Legs: All legs triheterodactylous. Surface of the most joints ornamented by transversal crests and ribs.



Figs 23–27. *Archeremella bartlae* sp. n. – 23 = body in dorsal view, 24 = body in ventral view, 25 = sensillus, 26 = seta *lm*, 27 = sculpture of the anterior part of notogaster

Remarks: The new species is well characterised by the notogastral and ventral sculpture, the number and form of notogastral setae and by the number of claws. On the characteristic sculpture it is well referable to the genus *Archeremella* BALOGH et MAHUNKA, 1974. However it is well distinguishable from the other species of *Archeremella* by the widely phylliform interlamellar and notogastral setae (much narrower in *A. africana* PÉREZ-IÑIGO, 1962 and *A. leowae* BALOGH et MAHUNKA, 1974), and the peculiar pattern of the notogaster and prodorsum.

Etymology: I dedicate the new species to Miss ÉVA BARTL (Budapest) for her assiduous help in my work.

Subiasella (Subiasella) extrema sp. n.

(Figs 28–31)

Diagnosis: Prodorsum with some longitudinal lines such as a short costular and a distinct lateral lines. Two pairs of large maculae in the interbothridial region. Bothridium with long posteromarginal tubercles; sensillus well dilated, fusiform, barbed at its distal margin. Notogastral setae short, mostly straight. Apodemata and epimeral borders partly weakly developed, *bo. 4.* framing posteriorly the genital aperture. Setae of genito-anal region, except for long setae *ad*₁ and *ad*₂ short, simple.

Material examined: Holotype: Thailand, Province Prachin Buri, Sakaerat Research Station, 15. 06. 2001. Leg. E. HORVÁTH & GY. SZIRÁKI (As-804). Three paratypes from the same sample. Holotype (1747-HO-07) and two paratypes (1747-PO-07): HNHM, one paratype: MHNG.

Measurements: Length of body: 222–247 µm, width of body: 100–122 µm.

Prodorsum: Rostral part of prodorsum widely rounded, without distinct apex. Rostral setae arising on its dorsal surface and a pair of very short costulae and some weak transversal lines are observable (Fig. 28). A pair of well sclerotised lateral laths also present, along them the surface ornamented by fine ribs (Fig. 31). Two pairs of interbothridial maculae, between them a short, weak crest visible. Bothridium large, with long posterior tubercles. Sensillus short, directed mostly backwards, its head wide, with short bristles on its posterior margin.

Notogaster: Elongate. A pair of long, well developed crests present. Ten pairs of setiform, characteristically straight notogastral setae present, setae *c*₂ much shorter than others.

Lateral part of podosoma: Exobothridial region without small tubercles, but well sclerotized; a large protuberance behind the bothridium and a longitudinal crest bearing the exobothridial setae observable (Fig. 30). Pedotecta 1 well visible.

Ventral parts (Fig. 29): Epimeral region well framed by crests anteriorly, its surface with irregular pattern. Sejugal and posterior apodemata and epimeral borders well developed, *bo. 4* running behind the genital aperture. Anterior part of sternal apodema reduced, its posterior part present. One pair of strong tubercles bearing setae *3b* visible in the sejugal region. Epimeral setae varying in length.

Genital, aggenital, anal and adanal setae ad_3 short, while ad_1 and ad_2 much longer than former setae. Lyrifissures iad in direct apoanal position.

Legs: All normal oppioid type. Solenidium ϕ , arising on a well developed process of tibia I.

Remarks: The new species is characterised first of all by some peculiar features first of all by the shape of the apodeme furthermore by the prodorsal pattern and the conspicuously large head of the sensillus. On this basis it was not relatable, to any of the heretofore known species in this genus.

Etymology: The new species is named after the conspicuous form of the apodemata and epimeral borders.

Oribatella szemesi sp. n.

(Figs 32–37)

Diagnosis: Rostrum with median incisor. Lamellae long, its median and lateral cusps nearly equal in length. Translamellar region without tooth, a median lath present basally. Sensillus short, not reaching to the anterior end of pedotectum 1. Surface of notogaster and ventral plate foveolated, foveolae with distinct median puncture. Epimeral and genital setae dilated and barbed distally. Setae $4c$ very long, bacilliform, directed inwards. Ventral plates and a part of the epimeral surface ornamented with foveolae like the notogastral surface. Infracapitulum, genital and anal plates with simple foveolae. All legs tridactylous.

Material examined: Holotype: Thailand, Province Nakhom Nayok, Khao Yai NP. 17. 06. 2001, Leg. E. HORVÁTH & GY. SZIRÁKI (As-808). Six paratypes from the same sample. Holotype (1751-HO-07) and five paratypes (1751-PO-07): HNHM, one paratype: MHNG.

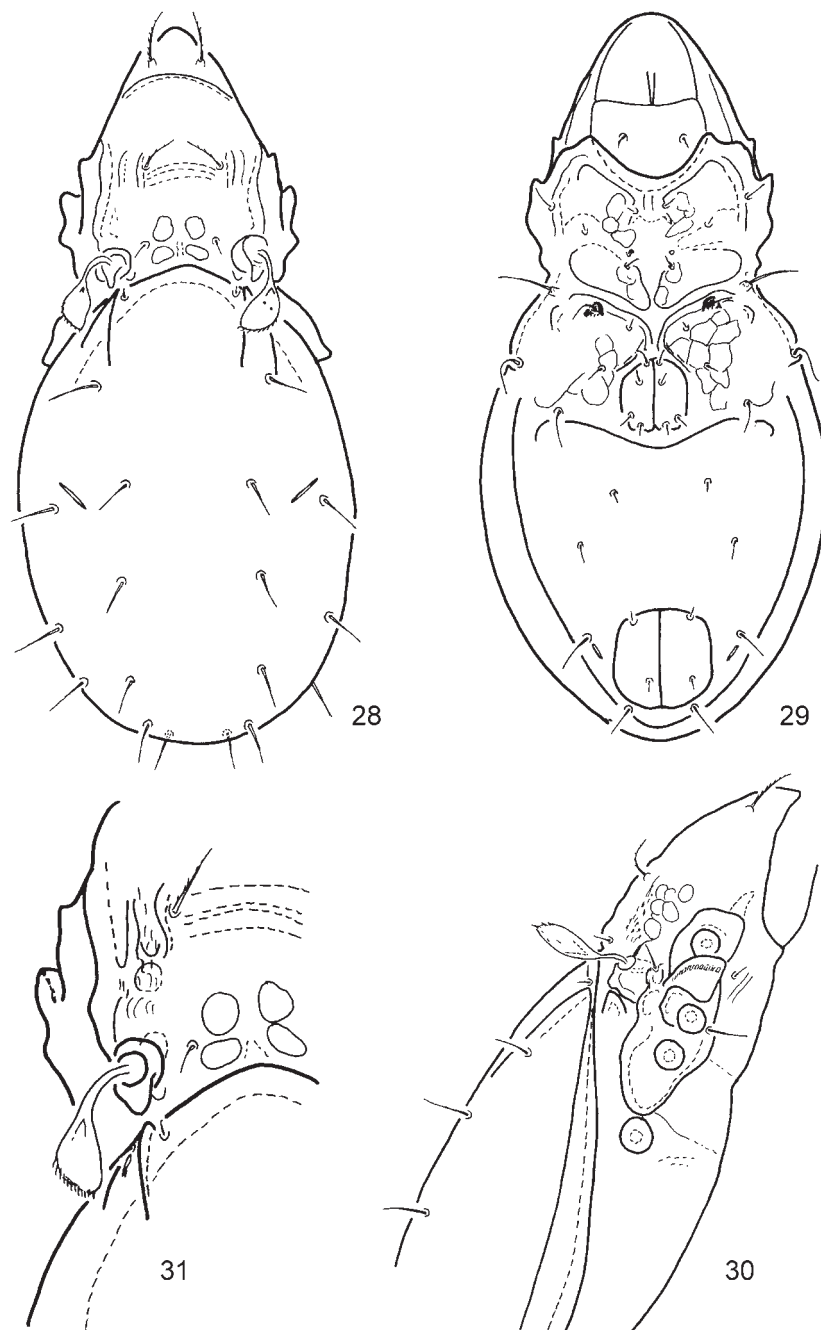
Measurements: Length of body: 466–494 μm , width of body: 307–335 μm .

Prodorsum: Lamellae large, lamellar cusps nearly equal in length (Fig. 32). Outer cusp with small teeth laterally. Lamellae connected with each other, a crest running posteriorly in the middle of basal part of lamellae. Interlamellar setae very long, thinner than lamellar ones. Sensillus (Fig. 33) short, not reaching to the anterior end of pedotectum 1.

Notogaster: The peculiar foveolate patterns well visible over the whole surface of notogaster (Fig. 36). Ten pairs of conspicuously long, well barbed or aciculate notogastral setae present. Their length varying, but all reaching over the insertion of the setae of next rows. Four pairs of well developed porose areas also well observable.

Lateral part of podosoma: Tutorium long, with 4–5 long, finger-shaped dens (Fig. 37). Genal tooth gradually narrowed, with long distal end. Pedotecta 1 very large, covering the whole acetabulum. Discidium large, custodium much shorter than setae $3c$.

Ventral parts (Figs. 34): Infracapitulum ornamented by irregular, narrow, small foveolae. Setae h setiform. Epimeral surface ornamented by large foveolae with median point. This sculpture also present on the ventral plate. Epimeral setae, except for $1c$ dilated and well barbed distally. Setae



Figs 28–31. *Subiasella (Subiasella) extrema* sp. n. – 28 = body in dorsal view, 29 = body in ventral view, 30 = anterior part of prodorsum in lateral view, 31 = basal part of the prodorsum

4c the longest, setae 3c conspicuously longer than the other epimeral setae. Surface of genital and anal plates ornamented by simple foveolae. Genital and aggenital setae thickened distally, anal and adanal setae bacilliform. These setae equal in length, but the setae of males slightly longer than that of females. Lyrifissures *iad* in inverse apoanal position.

Legs: All legs triheterodactylous. Trochanter of leg IV with a peculiar, round and sculptured plate (Fig. 35).

Remarks: The new species is characterised by the lacking of interlamellar tooth, the presence of the interlamellar lath, the notogastral and ventral sculpture, and by the extremely long notogastral setae. This combination of features, especially the peculiar sculpture was unknown in the heretofore described species of this genus.

Etymology: I dedicate the new species to Prof. Dr. IMRE SZEMES (Budapest), the secretary of the Biological Section of the Hungarian Academy of Science, for his incessant help in my work.

Magyaria krisztinae sp. n.

(Figs 38–43)

Diagnosis: Rostrum protruding. Lamellar apex bifurcate, with long inner part. Bothridium with sharply pointed inner and outer margins. Sensillus directed backwards, with lanceolate head. Rostral and lamellar setae setiform, interlamellar setae minute. Pteromorphae linguliform, movable. Whole notogastral surface with polygonal pattern. Ten pairs of alveoli or minute notogastral setae present. Surface of epimeral region, whole ventral plate and anal plates ornamented by polygonal pattern. Genito-anal setal formula: 4–1–2–3. Setae *ad*₃ in preanal position. All legs monodactylous.

Material examined: Holotype: Thailand: Tham Sakoen National Park headquarters, 29–30. 11. 2003. Leg. L. PEREGOVIKS (No. 21). Holotype (1743-HO-2007): HNHM.

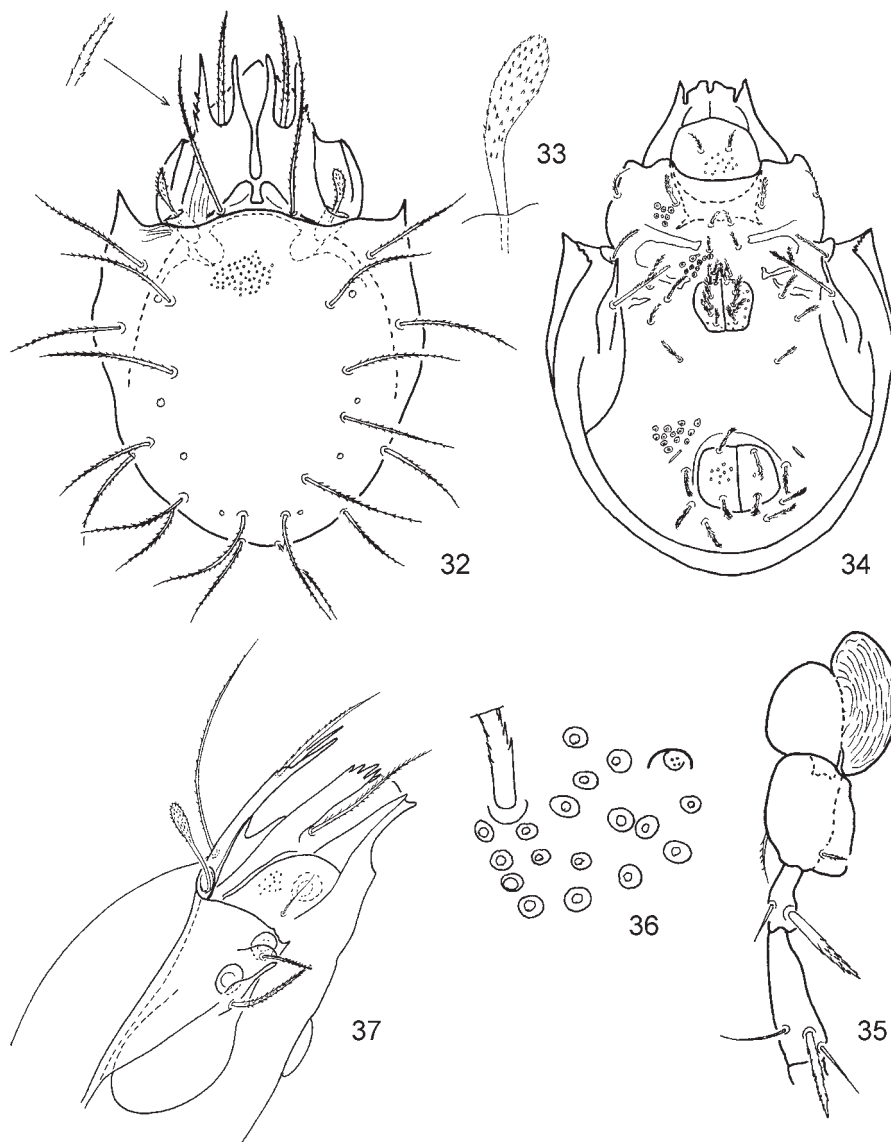
Measurements: Length of body: 433 μ m, width of body: 289 μ m.

Prodorsum: Rostral apex rounded medially, excavated laterally. Surface of the anterior part of rostrum punctate, behind of which polygonate pattern observable on the prodorsum (Fig. 43). Lamellar apex bifurcate, its outer part with two minute teeth, inner ones narrow, directed anteriorly. Rostral and lamellar setae setiform, distinctly barbed laterally, rostral ones slightly shorter than lamellar setae. Interlamellar setae minute. Bothridium large, its inner and outer margins bearing large, spiniform projection. Sensillus (Fig. 40) curved backwards, its peduncle long, sensillar head comparatively small, lanceolate, covered by short bristles.

Notogaster: Pteromorphae large, auriculate in dorsal-, linguliform in lateral view. Dorsosejugal suture convex. Surface of pteromorphae and notogaster ornamented by poplygonal pattern. A narrow band anteriorly with narrower lines, the other part with thicker lines separated from each other

(Fig. 42). Ten pairs of minute notogastral setae and 4 pairs of small sacculi present. Some setae represented only by their alveoli. Surface of genital plates ornamented by elongate alveoli.

Lateral part of podosoma: Tutorium large, well punctate, rostral setae arising on its cusp. Pedotecta 1 narrow, small, on its basal part ciliate exobothridial seta situated. Circumpedal carina reaching to the lateral margin of ventral plate (Fig. 43).



Figs 32–37. *Oribatella szemesi* sp. n. – 32 = body in dorsal view, 33 = sensillus, 34 = body in ventral view, 35 = basal parts of leg IV, 36 = sculpture of notogaster, 37 = rostral part of prodorsum in lateral view

Ventral parts (Fig. 39): Infracapitulum ornamented by alveoli anteriorly and polygonal pattern basally. Setae *h* minute. Epimeral surface with polygonal pattern. Apodemata weakly developed, sejugal apodema reaching to the genital aperture. Epimeral borders hardly observable. Epimeral setae short and setiform, setae *1c* and *3c* longer than others. Genito-anal setal formula: 4–1–2–3. Anterior genital setae much longer than the others. Whole surface of ventral plate ornamented also by polygonal pattern, but consisting of mostly round polygons. Aggenital and anterior adanal setae located near to each other. Anal plates also with polygonate pattern. Posterior adanal setae arising in posterolateral position.

Legs: Strongly damaged, not studied.

Remarks: The new species is well characterised by the closed pattern of the notogastral surface, the bilateral large bothridial spines, the elongate alveoli on the genital plates, and by the pattern of the ventral plate. This combination of the features is unknown in the heretofore species of the genus *Magyaria* BALOGH, 1958.

Etymology: I dedicate the new species to Mrs. KRISZTINA TEMESVÁRI-POZSÁR, researcher of the Zootaxonomical Research Group of Hungarian Academy of Sciences and Eötvös University, for her help in my scientific work.

***Peloribates szirakii* sp. n.**

(Figs 44–46)

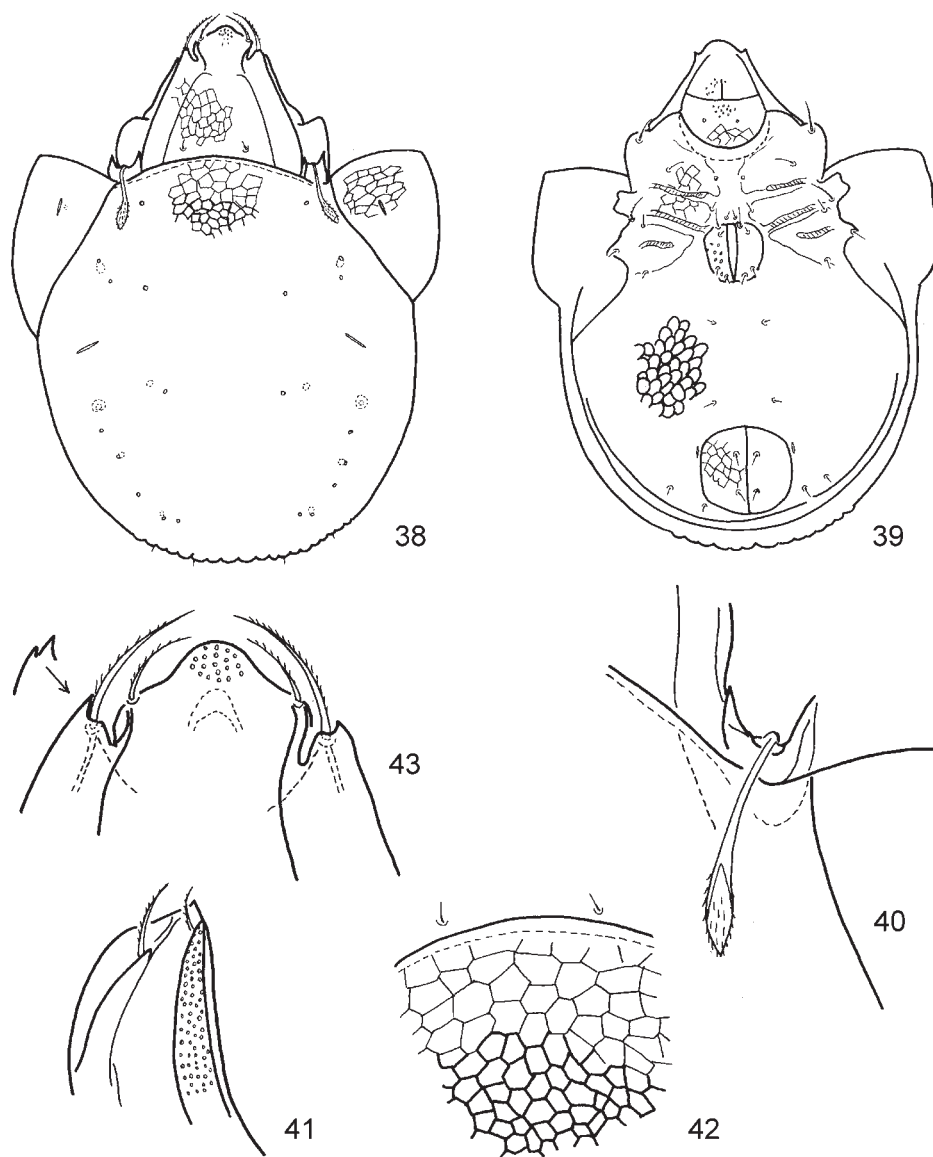
Diagnosis: Rostrum wide, rounded. Lamellae short, but well developed, bearing conspicuously long lamellar setae being much longer than the interlamellar ones. Sensillus long directed outwards or backwards, its head comparatively large, fusiform. Notogastral and pteromorph surface well foveolate. Fourteen pairs of nearly equal, setiform, well barbed notogastral setae present. Four pairs of simple sacculi hardly observable. Epimeral setae setiform, thin, mostly ciliate. Custodium conspicuously long, sharply pointed, directed inwards. Genito-anal setal formula: 5–1–2–3. Anal setae short, posterior adanal ones (setae *ad*₁) much thicker than other anal or adanal setae. All legs tridactylous.

Material examined: Holotype: Thailand, Province Prachin Buri, Sakaerat Research Station. 02.06.2001. Leg. E. HORVÁTH & GY. SZIRÁKI (As-798). Four paratypes from the same sample. Holotype (1744-HO-2007) and three paratypes (1744-PO-2007): HNHM, one paratype: MHNG.

Measurements: Length of body: 370–390 μm , width of body: 263–289 μm .

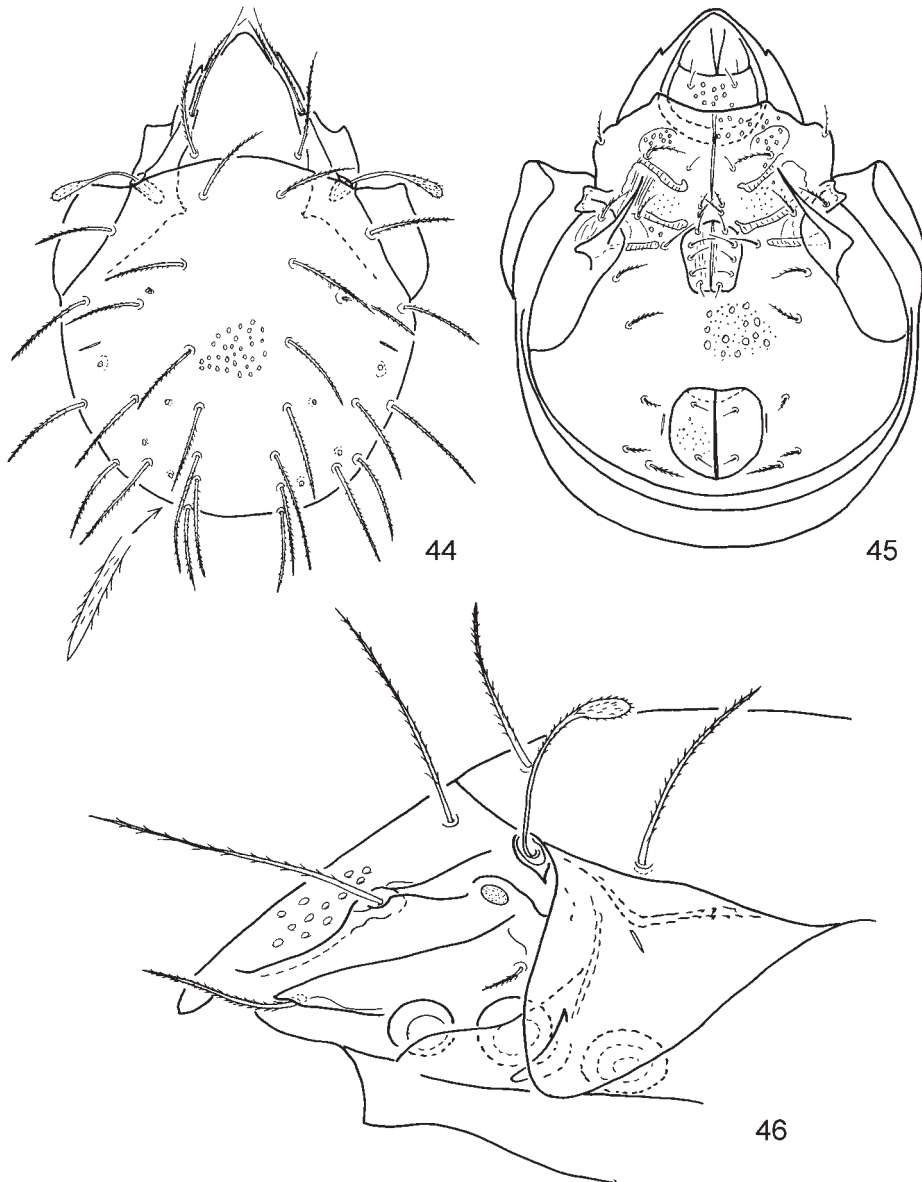
Prodorsum: Wide, its apex rounded. Prodorsal surface rarely foveolate. Lamellae short, bearing conspicuously long lamellar setae being much longer than the rostral or interlamellar ones. Rostral setae distinctly, lamellar and interlamellar ones sparsely ciliate. Peduncle of the sensillus very long, its head fusiform, rounded distally, slightly ciliate (Fig. 44).

Notogaster: Dorsejugal suture distinct, convex. Notogastral surface ornamented by small foveolae, the distance among them much greater than the diameter of the foveolae. Fourteen pairs of long, well ciliate, setiform notogastral setae (Fig. 44) and four pairs of small sacculi present.



Figs 38–43. *Magyarica krisztinae* sp. n. – 38 = body in dorsal view, 39 = body in ventral view, 40 = trichobothrium, 41 = rostrum in lateral view, 42 = sculpture of notogaster, 43 = rostral part of prodorsum in dorsal view

Lateral part of podosoma: Rostrum beak shaped in lateral view. Prelamella long, well developed, however, not reaching the rostral margin (Fig. 46). Tutorium very long, with sharply pointed apex and dilated basal part. Rostral setae arising at the apex.



Figs 44–46. *Peloribates szirakii* sp. n. – 44 = body in dorsal view, 45 = body in ventral view, 46 = rostral part of prodorsum in lateral view

Ventral parts (Fig. 45): Infracapitulum and the anterolateral part of the epimeral region foveolate, behind it, the 2nd epimeral surface punctate; 3rd and 4th epimeral surfaces also foveolate. Apodemata and epimeral borders mostly well developed, long. Epimeral setae setiform, comparatively long, thin, but mostly well ciliate. Discidium large, custodium with very long, thin distal process, directed inwards. Circumpedal carina long, reaching the lateral margin of ventral plate. Surface of genital plates ornamented by longitudinal scratches. Five pairs of short, thin genital setae present. Ventral plate ornamented by larger foveolae, but the areas among them punctate. Surface of anal plates irregularly punctate, anal setae short, fine. Adanal setae longer than anal setae, among them setae ad_1 longest, setae ad_3 , shortest of all, all well ciliate.

Legs: All legs triheterodactylous. Femur II and trochanter and femur of leg IV well foveolate. Femur II with projecting anteroventral part.

Remarks: The new species is well distinguishable from the heretofore known *Peloribates* species by the long lamellar setae, the form of the sensillus, the ratio of the adanal setae and especially by the long and spiniform custodium.

Etymology: I dedicate to Dr. GY. SZIRÁKI, the renowned neuropterologist of the Hungarian Natural History Museum, who helped to collect this material in Thailand, and also in some other collecting trip in the tropical regions.

Pergalumna amorpha sp. n.

(Figs 47–49)

Diagnosis: All prodorsal setae, except for exobothridial ones long, interlamellar setae straight. Sensillus setiform, pilose. Dorsosejugal suture absent. Porose areas hardly observable, without borders, their form indistinct. Whole surface of body distinctly punctate. Both prodorsal lines curved.

Material examined: Holotype: Thailand, Province Prachin Buri, Sakaerat Research Station. 02.06.2001. Leg. E. HORVÁTH & GY. SZIRÁKI (As-798). Twelve paratypes from the same sample. Holotype (1745-HO-2007) and 10 paratypes (1745-PO-2007): HNHM, two paratypes: MHNG.

Measurements: Length of body: 332–377 μm , width of body: 245–276 μm .

Prodorsum: Rostral part wide, conical, without peculiar apex. Lamellar and sublamellar lines well observable also in dorsal view. Rostral and lamellar setae setiform, finely, but distinctly pilose, setae *le* longer than *ro*. Interlamellar setae longer and thicker than other prodorsal setae and well pilose. Sensillus long, filiform, directed laterally and posteriorly, with long cilia. Sejugal porose areas not visible.

Notogaster: Dorsosejugal suture very short, thin, incomplete. Notogaster well punctate, pteromorphae ornamented by radiate sculpture. Porose areas not clearly visible on the punctate notogastral surface, only the densest part show their position (Fig. 47). Probably only three pairs of porose areas present, *Aa* seems to be elongated, located medially, far from the pteromorphae. Ten pairs of setal alveoli. Opisthosomal gland opening well observable.

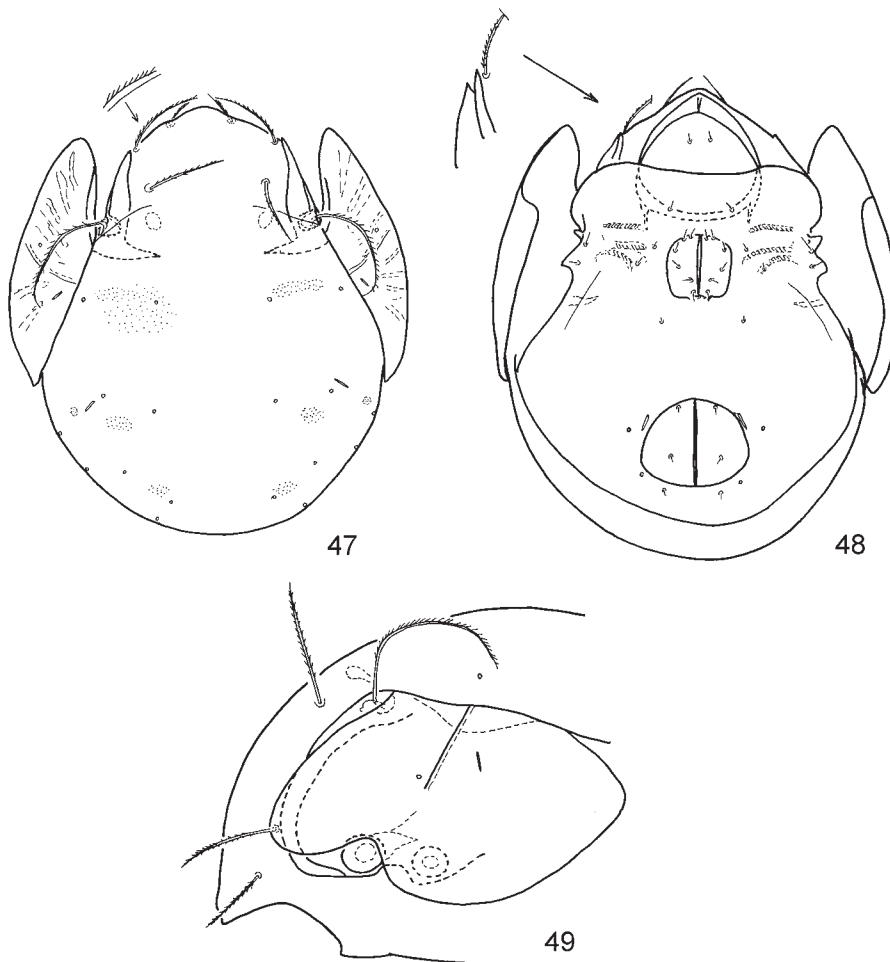
Lateral part of podosoma: Lamellar and sublamellar lines running parallel, distance between them short (Fig. 49).

Ventral regions (Fig. 48): Apodemata and epimeral borders weakly developed. Epimeral setal formula: 1-0-1-1, all very short. Two pairs of setae arising on the anterior margin of genital plates, all equal in length. Aggenital, anal and adanal setae minute, simple, ad_2 and ad_3 represented only by their alveoli. Lyrifissures iad located at the level a little posterior to anterior margin of anal aperture, postanal area porosa absent.

Legs: All legs triheterodactylous.

Remarks: The new species well is characterised by the long and straight interlamellar setae, by the form of the sensillus, and especially the indistinct porose areas.

Etymology: Named after the indistinct porose areas.



Figs 47–49. *Pergalumna amorpha* sp. n. – 47 = body in dorsal view, 48 = body in ventral view, 49 = rostral part of prodorsum in lateral view

***Trichogalumna nabhitabhatai* sp. n.**
(Figs 50–52)

Diagnosis: Rostrum wide, rounded. Lamellar and sublamellar lines well developed, running parallel. Prodorsal setae setiform, lamellar setae the longest and strongest, interlamellar setae the shortest and thinnest of all. Sensillus fusiform, with distal spines. Dorsosejugal suture absent. Ten pairs of well developed notogastral setae and four pairs of small, round porose areas present. An unpaired posteroanal porose area observable. All legs tridactylous.



Figs 50–52. *Trichogalumna nabhitabhatai* sp. n. – 50 = body in dorsal view, 51 = body in ventral view, 52 = rostral part of prodorsum in lateral view

Material examined: Holotype: Thailand, Province Prachin Buri, Sakaerat Research Station, 15. 06. 2001. 06. 15. Leg. HORVÁTH, E. & SZIRÁKI, GY. (As-804). 22 paratypes from the same sample. Holotype (1746-HO-2007) and 20 paratypes (1746-PO-2007): HNHM, two paratypes: MHNG.

Measurements: Length of body: 314–333 μm , width of body: 238–252 μm .

Prodorsum: Rostal part of prodorsum wide, without characteristic apex. Lamellar and sublamellar lines long, well observable. Rostral and interlamellar setae short, latter ones very fine. Lamellar setae situated in relatively far distance from the lamellar lines, thicker than the preceding ones, distinctly pilose. Peduncle of sensillus long, its head large, asymmetric, with a large ventral and some small distal spines (Fig. 50).

Notogaster: Outer surface of pteromorphae with some stronger lines, pteromorph setae comparatively long. Dorsosejugal suture absent. Sejugal porose area small. Ten pairs of well visible, fine setae and four pairs of areae porosae present. All porose areae round, small, equal in size, A_2 and A_3 relatively nearly situated to each other.

Lateral part of podosoma: Both prodorsal lines well developed, gradually arching toward the margin of the coxisternal region (Fig. 52), running parallel to each other. Pedotecta 1 narrow.

Ventral regions (Fig. 51): Epimeral borders and apodemata weakly developed, short. Epimeral surface ornamented by some large irregular spots. Four pairs of minute epimeral setae present. Three pairs setae inserted on the anterior margin of genital plates. Lyrifissures *iad* located at the level of anterior margin of anal aperture. An unpaired of small, round areae porosae A_p present.

Legs: All legs triheterodactylous.

Remarks: The new species well characterised by the long lamellar and short, fine interlamellar setae, the form of the sensillus, and especially by the four pairs of equal notogastral and one unpaired postanal porose areas. This form of the porose areas was unknown in the heretofore known *Trichogalumna* species. It stands nearest to *T. madagassica* (MAHUNKA, 1996) however; the form of the porose areas is different in the latter species.

Etymology: I dedicate the new species to JARUJIN NABHITABHATA, director of the Natural Science Research Division of the National Science Museum, Patumthani, Thailand for his help in the collecting activities of EDIT HORVÁTH and Dr. GYÖRGY SZIRÁKI.

*

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