

**NEW SPECIES OF THE CHIGGER MITE GENUS
NEOTROMBICULA (ACARIFORMES, TROMBICULIDAE)
FROM MIDDLE ASIA AND MONGOLIA.**

**НОВЫЕ ВИДЫ КРАСНОТЕЛОК РОДА NEOTROMBICULA
(ACARIFORMES, TROMBICULIDAE)
ИЗ СРЕДНЕЙ АЗИИ И МОНГОЛИИ.**

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КЛЮЧЕВЫЕ СЛОВА: Trombiculidae, краснотелки, новые
виды *Neotrombicula*.

ABSTRACT

Eight new species of chigger mites of the genus *Neotrombicula* are described: *N.bondari* sp.n., *N.uraliensis* sp.n., *N.villosa* sp.n. from Kazakhstan; *N.irata* sp.n., *N.karashoriensis* sp.n., *N.lucida* sp.n. from Kyrgyzstan; *N.lubrica* sp.n. from Tadjikistan and *N.scrupulosa* sp.n. from Mongolia. Larvae parasitized different species of rodents of the genera *Apodemus*, *Cricetulus*, *Meriones*, *Rhombomys*, *Alticola*, *Clethrionomys*.

РЕЗЮМЕ

Описано 8 новых видов, относящихся к роду *Neotrombicula*: из Казахстана - *N.bondari* sp.n., *N.uraliensis* sp.n., *N.villosa* sp.n.; из Кыргызстана - *N.irata* sp.n., *N.karashoriensis* sp.n.,

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N. lucida sp.n.; из Таджикистана - *N. lubrica* sp.n. и из Монголии - *N. scrupulosa* sp.n. Личинки паразитировали на различных видах грызунов из родов *Apodemus*, *Cricetulus*, *Meriones*, *Rhombomys*, *Alticola*, *Clethrionomys*.

This study is based on the author's collection from Middle Asia in 1966-1968 and from Mongolia in 1976-1978 as well as on the collection of the Zoological Museum of Moscow State University. New species of the genus *Neotrombicula* are described which in the earlier publications were attributed to different species. All measurements in the text and in the tables are in micrometers. The terminology used for Trombiculidae is the usual one, the same as in a number of the earlier reports [Wharton et al., 1952; Vercammen-Grandjean et Langston, 1976; Kudryashova, 1979; Goff et al., 1982]. The holotypes of the new species are deposited in the Zoological Museum of Moscow State University.

Neotrombicula lubrica Kudryashova, sp.n.

Fig. 1.

Neotrombicula minuta: Kudryashova, 1973, p.5-7 (part., Fauna of Tadjikistan, West Pamir).

Type material. Holotype larva, slide number R-137-48, ex *Alticola argentatus*, Tadjikistan, West Pamir, 137 km east of Khorog, 2.VII.1967, coll. N.I.Kudryashova. - Paratypes: 40 specimens ex 8 *A. argentatus*, 1-4.VIII.1967, other data same as in holotype.

Description of larva. SIF=7BS-N-3-2-1-1-1-1-0-0-0; fPp=B/B/NNB; fsp=7-7-7; fCx=1-1-1; fSt=2-2; (PT', PT'', ST, pST)=N; fSc:PL>AL>AM; fDS=2H-6-6-6-2-4-4=30; VS=23; NDV=53; Ip=874.

Scutum trapezoidal, punctate, posterior margin convex, with mid portion angulate. SB in line with PL setae. Sensillae flagelliform with barbs in the distal 2/3. Eyes 2+2. Arrangement of special setae on the legs as in Fig. 1. Standard data of the holotype: AW=70; PW=90; SB=31; ASB=31; PSB=27; SD=58;

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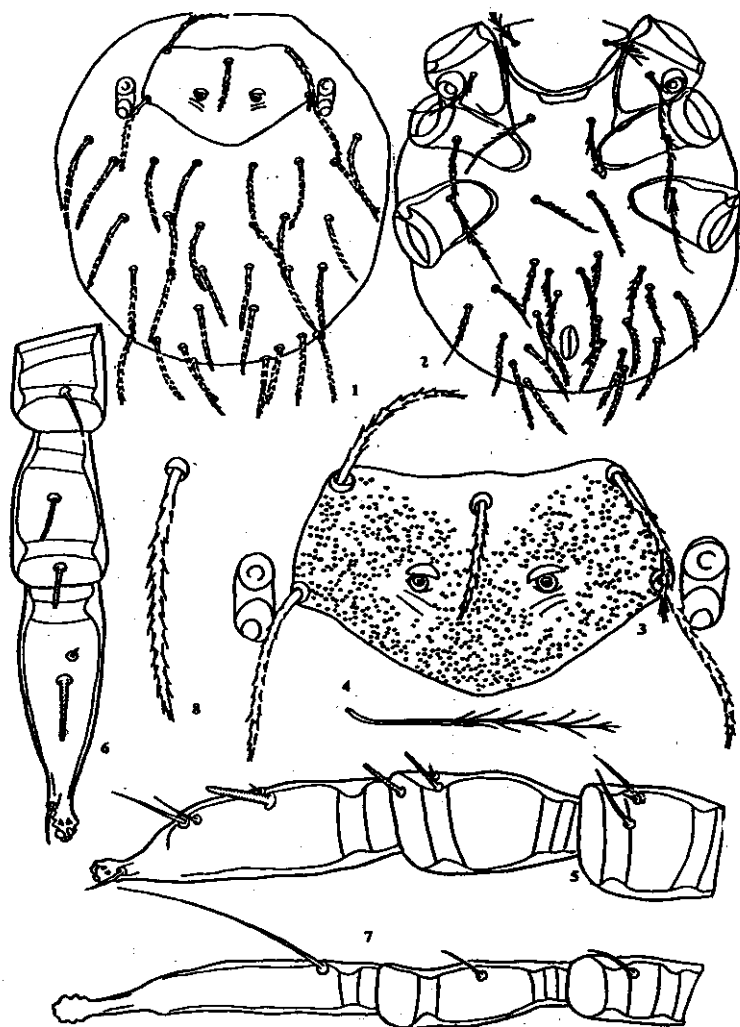


Fig. 1. Holotype of *Neotrombicula lubrica* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4 - sensillae; 5, 6, 7 - legs I, II, III; 8 - dorsal seta.
 Рис. 1. Голотип *Neotrombicula lubrica* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4 - сенсилла; 5, 6, 7 - ноги I, II, III; 8 - спинная щетинка.

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P-PL=27; AP=27; AM=31; AL=38; PL=47; Sens(paratype)=63; H=49; D=36-43; V=27-38; pa=301; pm=272; pp=301; tarsus III - 76x14.

This species is closest to *Neotrombicula minuta* Schluger, 1966, but separable in having smaller number of ventral setae (23-24 instead of 30), scutum with posterior margin convex and broadly rounded (P-PL=27 vs. 22, and SD=58 vs. 54), somewhat longer PL, D, and legs (Ip=874 vs. 796).

Neotrombicula irata Kudryashova, sp.n.

Fig.2.

Type material. Holotype larva, slide number K-3-467-1, ex *Cricetulus migratorius*, Kyrgyzstan, Osh Region, neighborhood of Kara-Shoro, spruce-birch forest, 20.IX.1974. - Paratypes: 8 larvae with same data as holotype, 8 larvae ex 4 *Apodemus sylvaticus*, 20-21.IX.1974, other data as in the holotype. All collected by S.N.Rybin.

Description of larva. SIF=7BS-N-3-2-1-1-1-1-0-0-0; fsp=7-7-7; fCx=1-1-1; fSt=2-2; (PT', PT'', ST, pST)=N; fSc:PL>AL=AM; fDS=2H-6-6-6-4-4-4=32; VS=26; NDV=58; Ip=879.

Scutum trapezoidal, punctate, posterior margin convex and broadly rounded. SB anterior to the line of PL bases. Sensillae flagelliform with barbs in the distal 2/3. Eyes 2+2. Arrangement of special setae on the legs is shown in Fig. 2. Standard data of the holotype: AW=72; PW=86; SB=29; ASB=29; PSB=25; SD=54; P-PL=23; AP=27; AM=45; AL=45; PL=54; Sens=72; H=54; D=38-49; V=31-40; pa=301; pm=265; pp=313; tarsus III-85x18.

This new species is closest to *Neotrombicula digenuala* Schluger, 1967, but separable in having a larger number of dorsal and ventral setae (NDV 58 vs. 51), less long legs (Ip=879 vs. 952), AM=AL instead of AL>AM in *N.digenuala*, and by the form of scutum.

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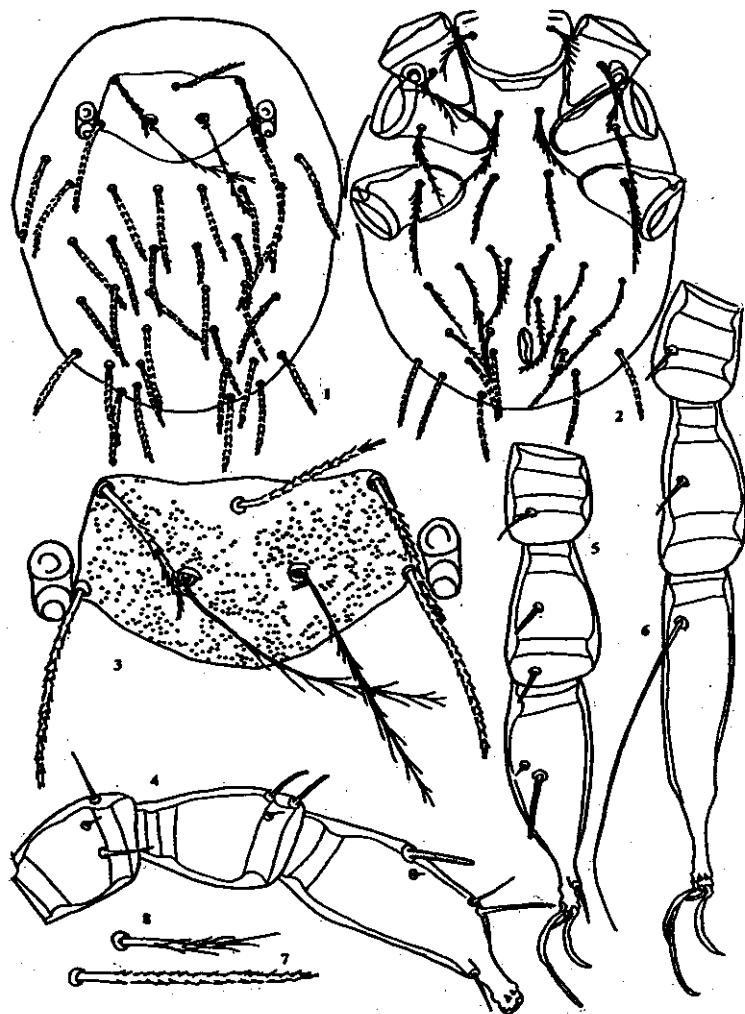


Fig. 2. Holotype of *Neotrombicula irata* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4, 5, 6 - legs I, II, III; 7 - dorsal seta; 8 - ventral seta.

Рис. 2. Голотип *Neotrombicula irata* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4, 5, 6 - ноги I, II, III; 7 - спинная щетинка; 8 - брюшная щетинка.

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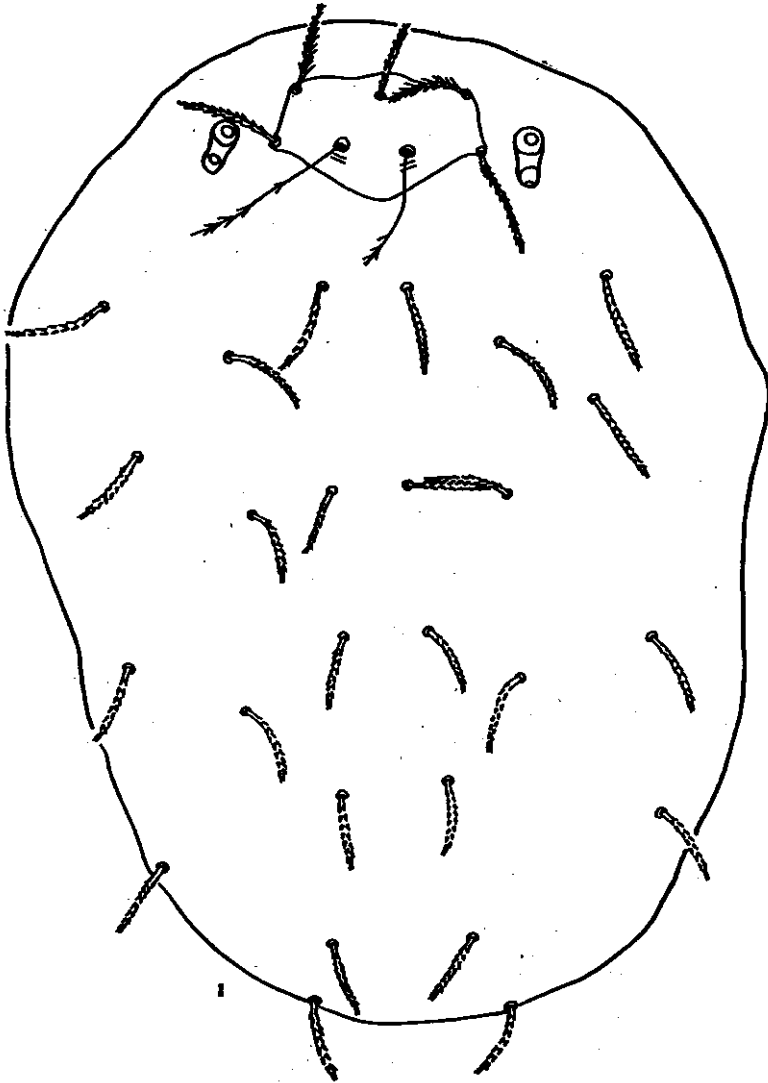


Fig. 3. Holotype of *Neotrombicula lucida* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4, 5, 6 - legs I, II, III; 7 - galeal seta; 8 - dorsal seta; 9 - ventral seta.

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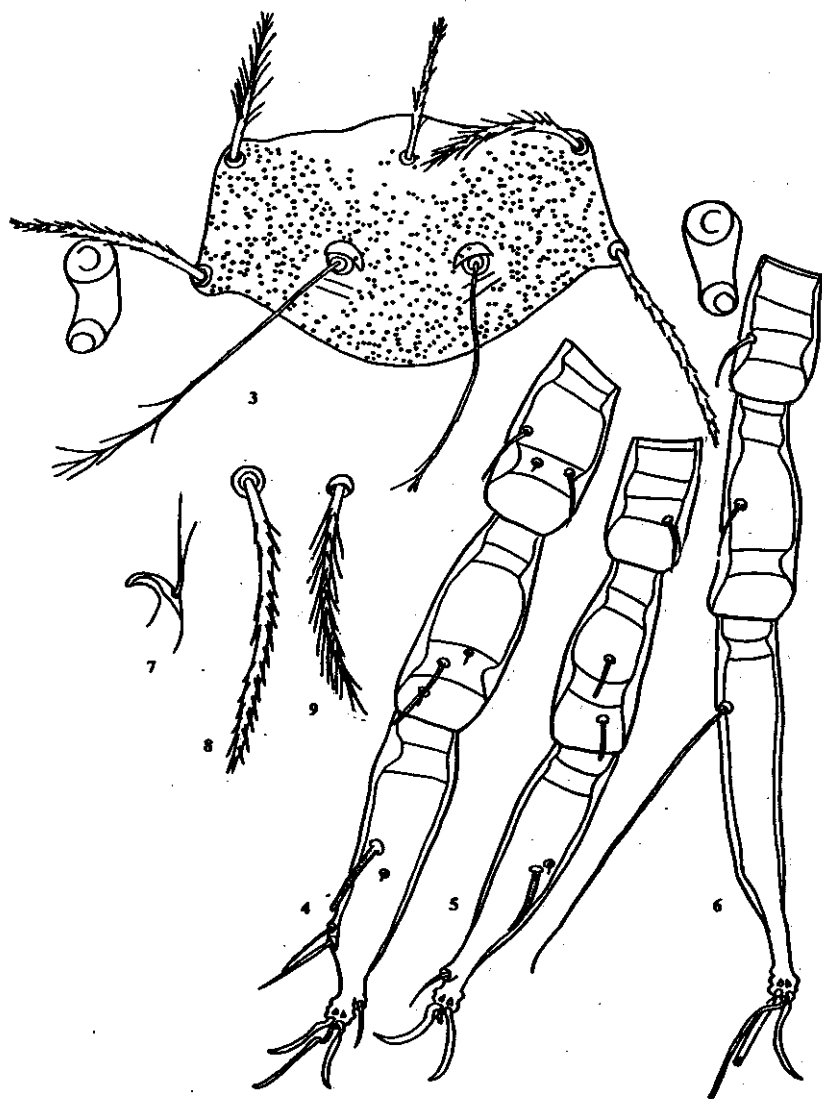


Рис. 3. Голотип *Neotrombicula lucida* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4, 5, 6 - ноги I, II, III; 7 - галевальная щетинка; 8 - спинная щетинка; 9 - брюшная щетинка.

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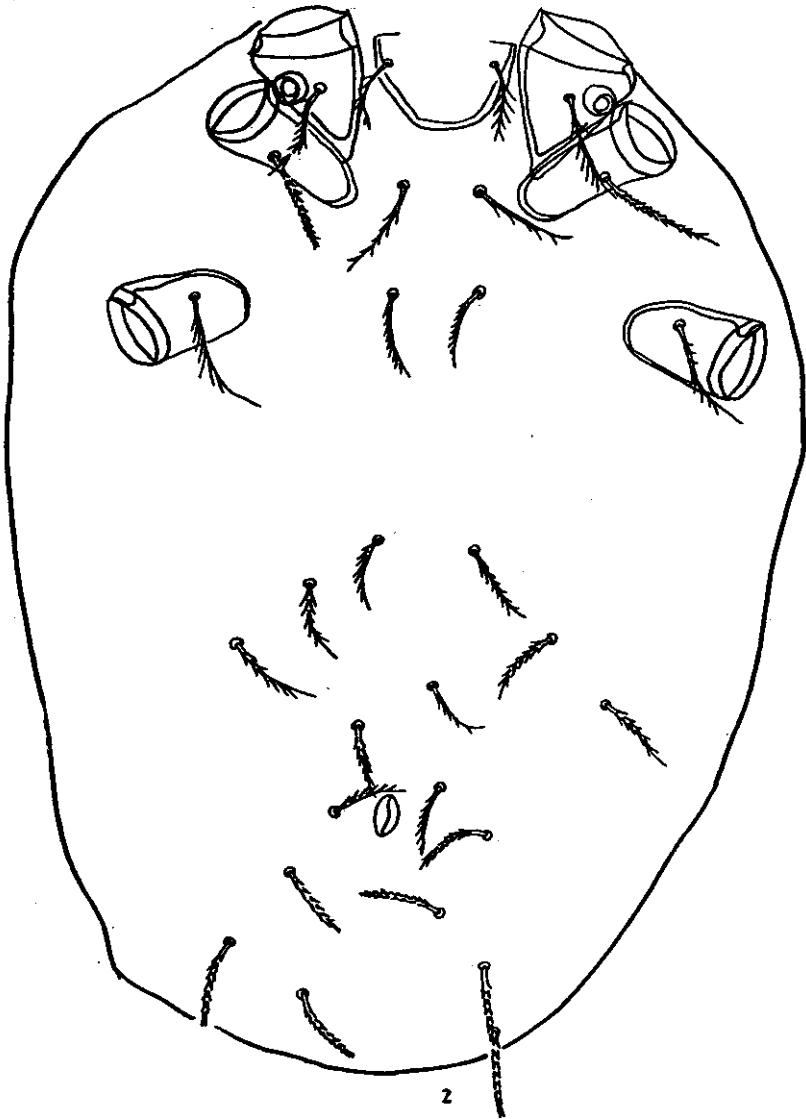


Fig. 3
Рис. 3 (окончание)

New species of chiggers of genus *Neotrombicula*

Neotrombicula lucida Kudryashova, sp.n.

Fig.3.

Type material. Holotype larva, slide number K-195-1409, ex *Meriones erythrourus*, Kyrgyzstan, 7 km SW of Osh city, wormwood desert, 11.X.1967. - Paratypes: 4 larvae with same data as the holotype. All collected by S.N.Rybin.

Description of larva. SIF=7BS-B'-3-2-1-1-1-1-0-0-0; fPp=B/B/NNB; fsp=7-7-7; fCx=1-1-1; fSt=2-2; (PT', PT'', ST, pST)=N; fSc:PL>AL=>AM; fDS=2H-6-6-6-2-2-2=26; VS=18; NDV=44; Ip=980.

Scutum trapezoidal, punctate, posterior margin broadly rounded. SB in line with PL setae (PSB=P-PL). Sensillae flagelliform with barbs in the distal 2/3. Eyes 2+2. Galeal seta usually with 1 barb, but occasionally seems nude. Arrangement of special setae on the legs is shown in Fig. 3. Standard data of the holotype: AW=77; PW=94; SB=32; ASB=32; PSB=22; SD=54; P-PL=22; AP=27; AM=34; AL=36; PL=50; Sens=81; H=49; D=36-47; V=32-40; pa=340; pm=302; pp=338; tarsus III - 86x14, S₁=18; S₂=18(16).

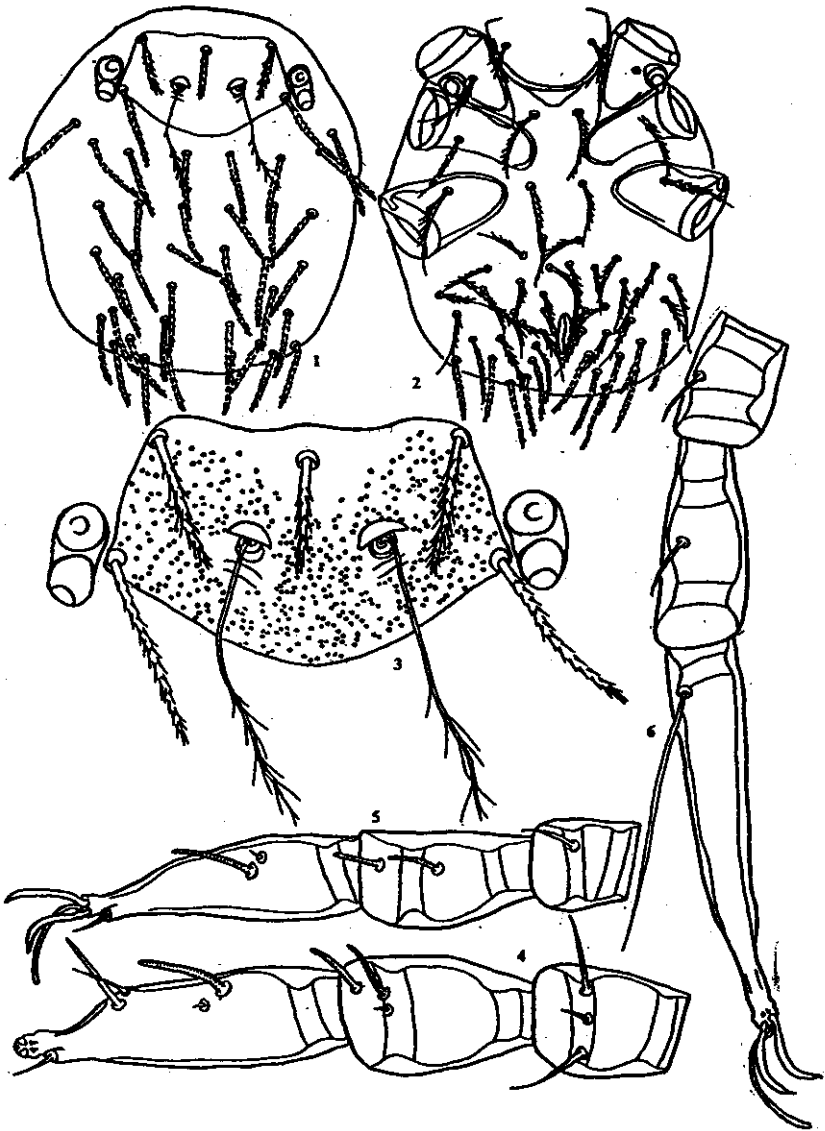
Among the species of the *minuta* group, the new species has the least number of VS (18-20) and the lowest NDV (44-48 vs. more than 50), galeal seta forked instead of nude.

Neotrombicula uraliensis Kudryashova, sp.n.

Fig.4.

Type material. Holotype larva, slide number KG-45-1, ex *Rhombomys opimus*, Kazakhstan, Guryev Region, 40 km NE of Makhambet, 3.X.1968, salt marshes of Caspian lowland on the left bank of Ural River. - Paratypes: 3 larvae with same data as holotype; 9 larvae ex 7 *R.opimus*, ibid. Additional material: Kazakhstan, Mangyshlak Region, neighborhood of Kuibyshevo, 2-14 km NE (Karatau ridge and the adjacent salt-wormwood plain); 2 larvae ex *R.opimus* and 6 ex 4 *Meriones erythrourus*; 10-11.X.1968, territory of Ensili; 56 ex 15 *R.opimus* and 16 ex 7 *M.erythrourus*, 15-22.X.1968, territory of Tas-Zhol. All collected by N.I.Kudryashova.

Description of larva. SIF=7BS-N-3-2-1-1-1-1-0-0-0; fPp=B/B/NNB; fsp=7-7-7; fCx=1-1-1; fSt=2-2; (PT', PT'', ST, pST)=N; fSc:PL>AL>AM; fDS=2H-6-6-6-6-4(5)-4-2(4)=36-39; VS=37-42; NDV=76-78; Ip=933-1030.



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Fig. 4. Holotype of *Neotrombicula uraliensis* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4, 5, 6 - legs I, II, III.

Рис. 4. Голотип *Neotrombicula uraliensis* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4, 5, 6 - ноги I, II, III.

Scutum trapezoidal, punctate, posterior margin broadly rounded. SB distinctly anterior to the line of PL setae. Sensillae flagellate with barbs in the distal 1/2. Eyes 2+2. Arrangement of special setae on legs as in Fig. 4. Standard data of the holotype: AW=72; PW=90; SB=32; ASB=29; PSB=29; SD=58; P-PL=23; AP=29; AM=29; AL=32; PL=47; Sens=72; H=47; D=32-41; V=27-38; pa=319; pm=283; pp=331; tarsus III 90x16, S₁=S₂=22. - Paratype KG-599-1: AW=68; PW=90; SB=29; ASB=31; PSB=31; SD=62; P-PL=25; AP=32; AM=36; AL=38; PL=45; H=50; D=36-43; V=27-36; pa=373, pm=308; pp=349, tarsus III 97x16.

This new species is close to *N. minuta* Schluger, 1966, but separable in having more DS and VS (NDV=78 vs. 64), larger scutum (SD=58-62 vs. 54) and large legs (Ip=933-1030 vs. 796).

Neotrombicula villosa Kudryashova, sp.n.

Fig. 5.

Type material. Holotype larva, slide number KA-24, ex *Clethrionomys frater*, Kazakhstan, Zailiyskiy Alatau Ridge, neighborhood of Big Alma-Ata Lake, 23.VI.1968, coniferous forest with bush on steep sides in subalpine meadow zone. - Paratypes: 2 larvae ex 2 *C. frater* with same data as the holotype, and 1 ex *Cricetulus migratorius*, from the same locality but collected on 26.VI.1968, on the left bank of Suren-bulak River near the water. All collected by N.I. Kudryashova.

Description of larva. SIF=7BS-B-3-3-1-1-1-1-0-0-0; fPp=B/B/BBB; fsp=7-7-7; fCx=1-1-2, fSt=2-2; (PT, PT', ST, pST)=N; fSc; PL>AM>=AL; DS=80; VS=66; NDV=146; Ip=1132.

Scutum large (SD=70), punctate, posterior margin convex, rounded. SB in line with PL setae. Sensilla flagellate with barbs in the distal 2/3. Eyes 2+2. Dorsal setae arranged irregularly, the rows of DS form definable groups within which DS bases are situated on different levels but close to each other. In the holotype

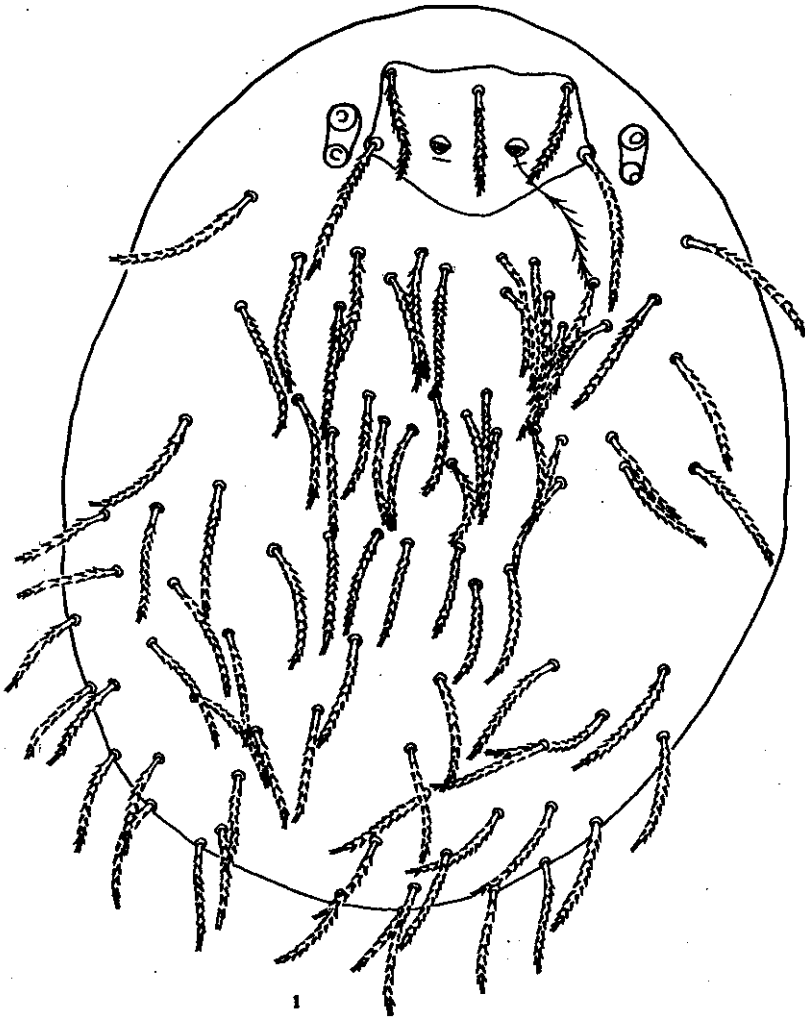


Fig. 5. Holotype of *Neotrombicula villosa* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4, 5, 6 - legs I, II, III.

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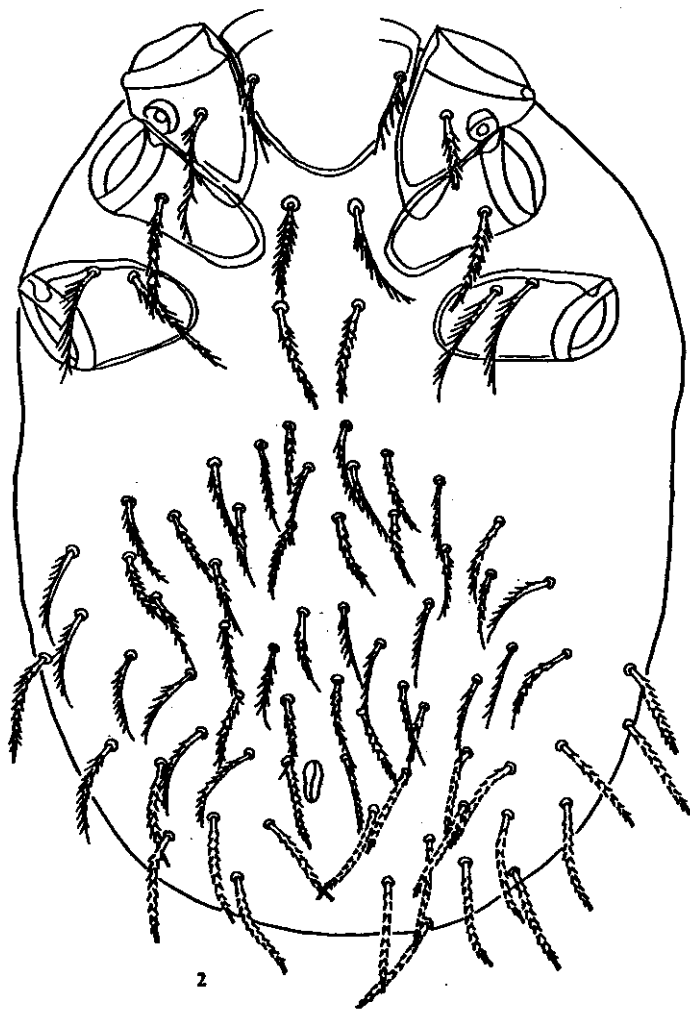


Рис. 5. Голотип *Neotrombicula villosa* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4, 5, 6 - ноги I, II, III.

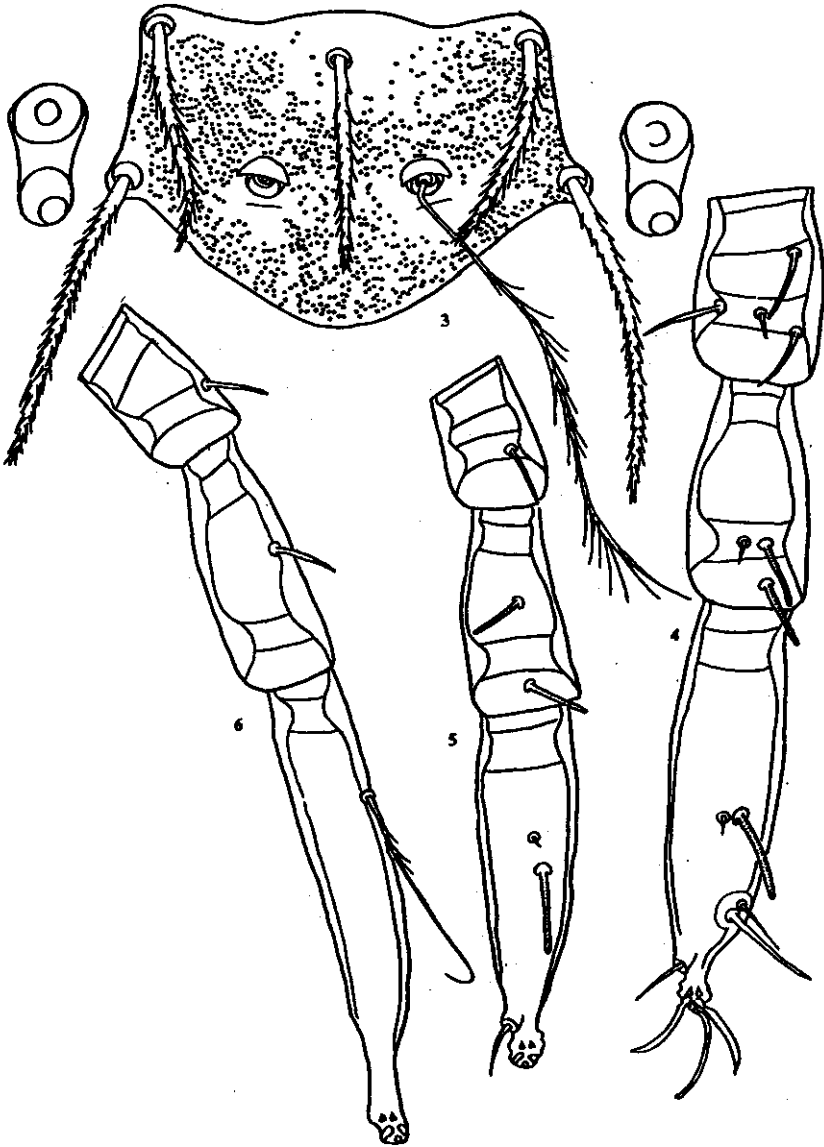


Fig. 5
Рис. 5 (окончание)

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fDS=2H-16-20-12-8-10-6-2-4=80. Arrangement of special setae on legs as in Fig. 5. Mastitarsala III with 2-3 barbs near the stem base. Standard data of the holotype: **AW=85, PW=103, SB=36, ASB=36, PSB=34, SD=70, P-PL=34, AP=32, 34, AM=52, AL=50, 52, PL=72, 74, Sens=81, H=72, D=47-67, V=36-50, pa=385, pm=342, pp=405, tarsus III 101x18, S₁=S₂=20.**

This species is separable in having large size, longer idiosomal setae, and high NDV.

Neotrombicula bondari Kudryashova, sp.n.

Fig. 6.

Type material. Holotype larva, slide number KA-23, ex *Clethrionomys frater*, Kazakhstan, neighborhood of Big Alma-Ata Lake, 23.VI.1968, coniferous forest on steep sides in subalpine meadow zone. - Paratype: 1 larva ex *Marmota baibacina*, Kazakhstan, Alma-Ata Region, Narynkol Dist., 10.VII.1968, east steppe slopes in the middle flow of Minor Kokpak River. Both collected by N.I.Kudryashova.

Description of larva. **SIF=7BS-N-3-3-1-1-1-1-0-0-0, fPp=B/B/NNB, fsp=7-7-7, fCx=1-1-1, fSt=2-2, (PT', PT'', ST, pST)=N, fSc: PL>AL>=AM, fDS=2H-8-8-7-4(3)-2-4(1)=35(31), VS=37(38), NDV=72(69), Ip=801.**

Scutum trapezoidal, punctate, posterior margin convex, rounded. SB anterior to the line of PL setae (2-4 mkm). Sensillae flagellate with long barbs in the distal 2/3 and short barbs in the proximal 1/3 of stem. Eyes 2+2. Arrangement of special setae on legs as in Fig. 6. Standard data of the holotype: **AW=72, PW=88, SB=31, ASB=31, PSB=29, SD=60, P-PL=27, AP=31, AM=36, AL=36, PL=43, Sens=58, H=47, D=32-40(43), V=27-36, pa=281, pm=245, pp=275, tarsus III 65x16, S₁=S₂=14.**

This species is close to *N.nagayoi* Sasa et al., 1950, but separable in having shorter scutal and dorsal setae, **AL>=AM** (vs. **AM>AL** in *nagayoi*), larger DS number. The species is named in honor of Dr. E.P.Bondar, who rendered me a great assistance in the collection of small mammals during our investigations in Middle Asia.

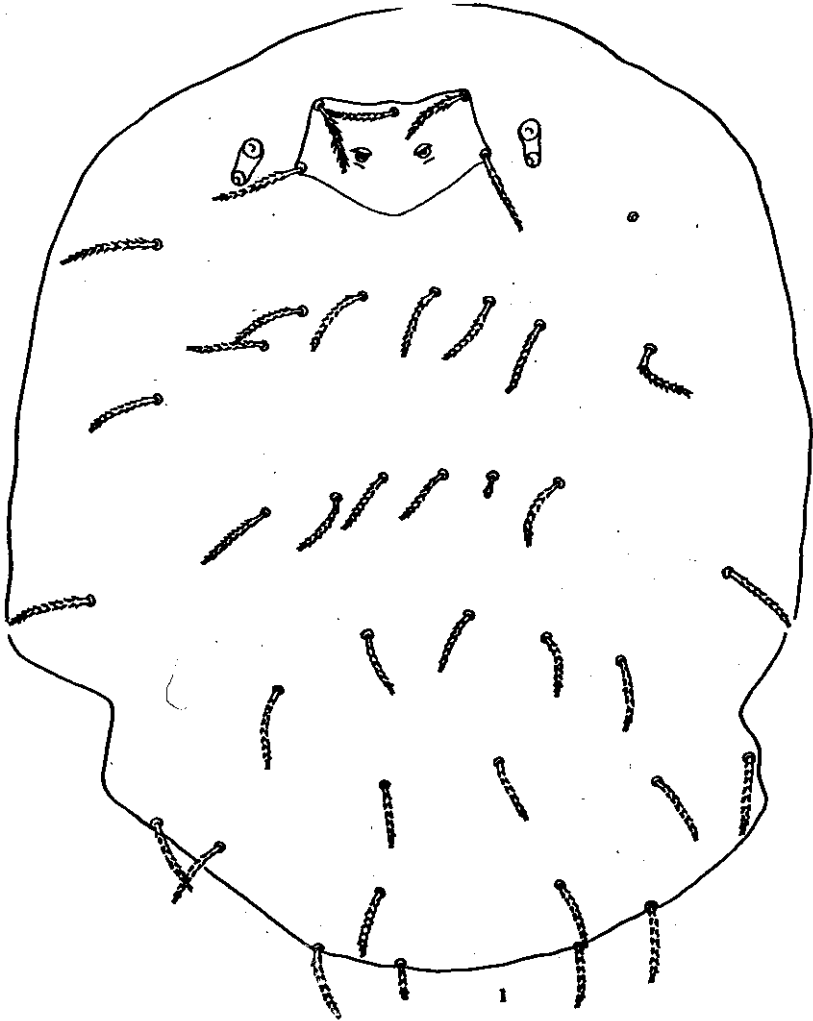


Fig. 6. Holotype of *Neotrombicula bondari* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4 - sensillae; 5, 6, 7 - legs I, II, III.

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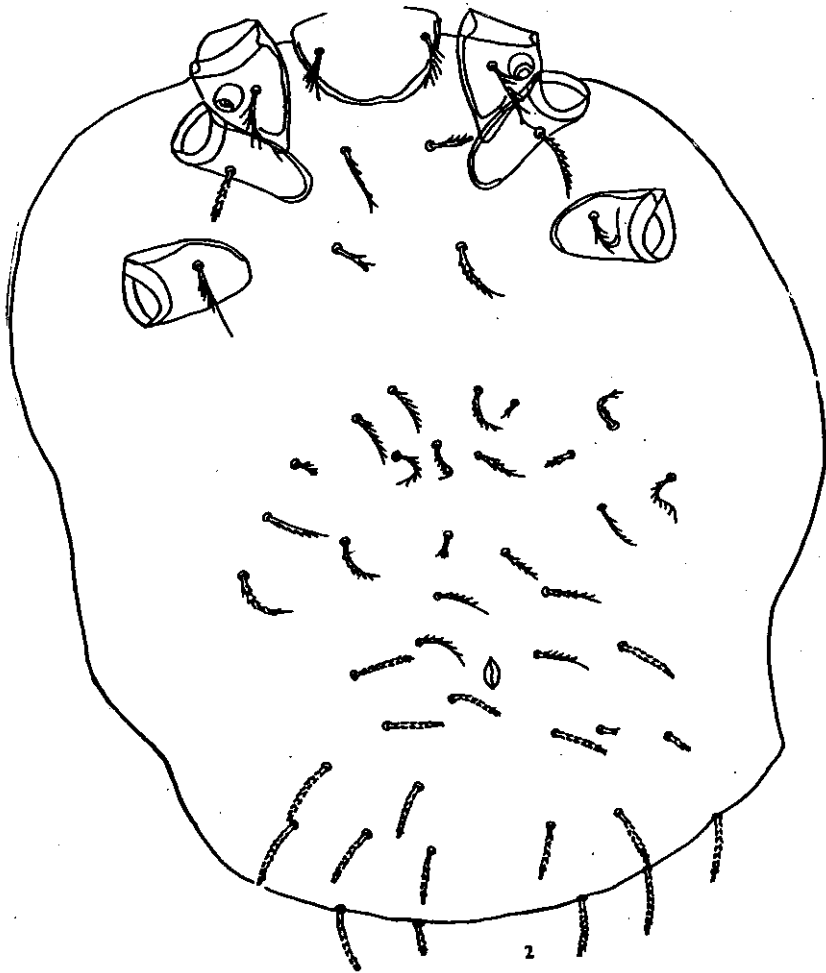


Рис. 6. Голотип *Neotrombicula bondari* sp. n.: 1- идиосома со спинной стороны; 2- идиосома с брюшной стороны; 3- щит; 4- сенсиль; 5, 6, 7- ноги I, II, III.

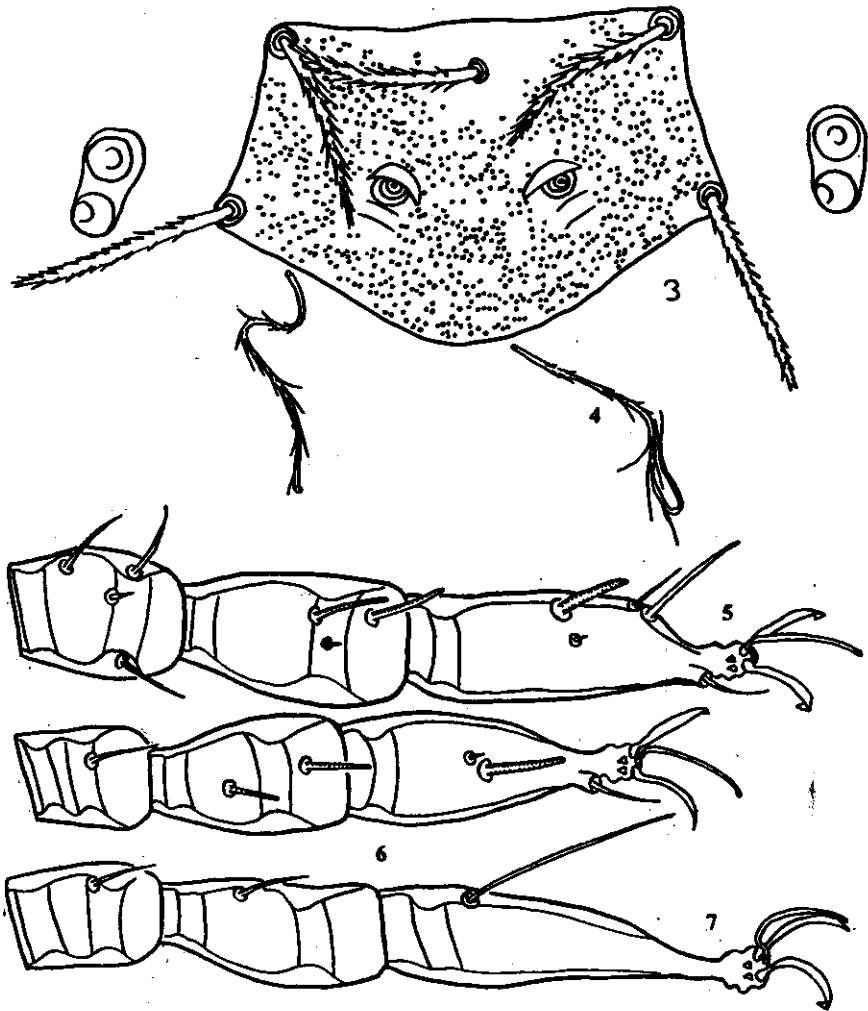


Fig. 6
Рис. 6 (окончание)

New species of chiggers of genus *Neotrombicula*

Neotrombicula karashoriensis Kudryashova, sp.n.

Fig.7.

Type material. Holotype larva, slide number K-3-495, ex *Apodemus sylvaticus*, Kyrgyzstan, Osh Region, neighborhood of Kara-Shoro, 20.IX.1974, birch-spruce forest. - Paratypes: 234 larvae ex *Cricetulus migratorius* and 3 ex 2 *A.sylvaticus*, ibid.. All collected by S.N.Rybin.

Description of larva. SIF=7BS-N-3-3-1-1-1-1-0-0-0, fPp=B/B/NNB, fsp=7-7-7, fCx=1-1-1, fSt=2-2, (PT', PT'', ST, pST)=N, fSc:PL>AL>AM, fDS=2H-8-8-4-8-6-6-2-2-2=48, VS=39, NDV=87, Ip=909.

Scutum trapezoidal, punctate, posterior margin convex, rounded. SB in line with PL setae. Sensillae flagellate with barbs in the distal 3/4. Eyes 2+2. Arrangement of special setae on legs as in Fig. 7. Standard data of the holotype: AW=65, PW=90, SB=31, ASB=31, PSB=25, SD=56, P-PL=25, AP=31, AM=36, AL=41, PL=50, Sens=67, H=49, D=36-45, V=27-36, pa=315, pm=272, pp=322, tarsus III 86x14, S₁=S₂=18.

This species is close to *N.nagayoi* Sasa et al., 1950, but separable in having higher NDV number (87 vs. 74 in *nagayoi*), AL>AM (instead of AM>AL), and by some of the standard data.

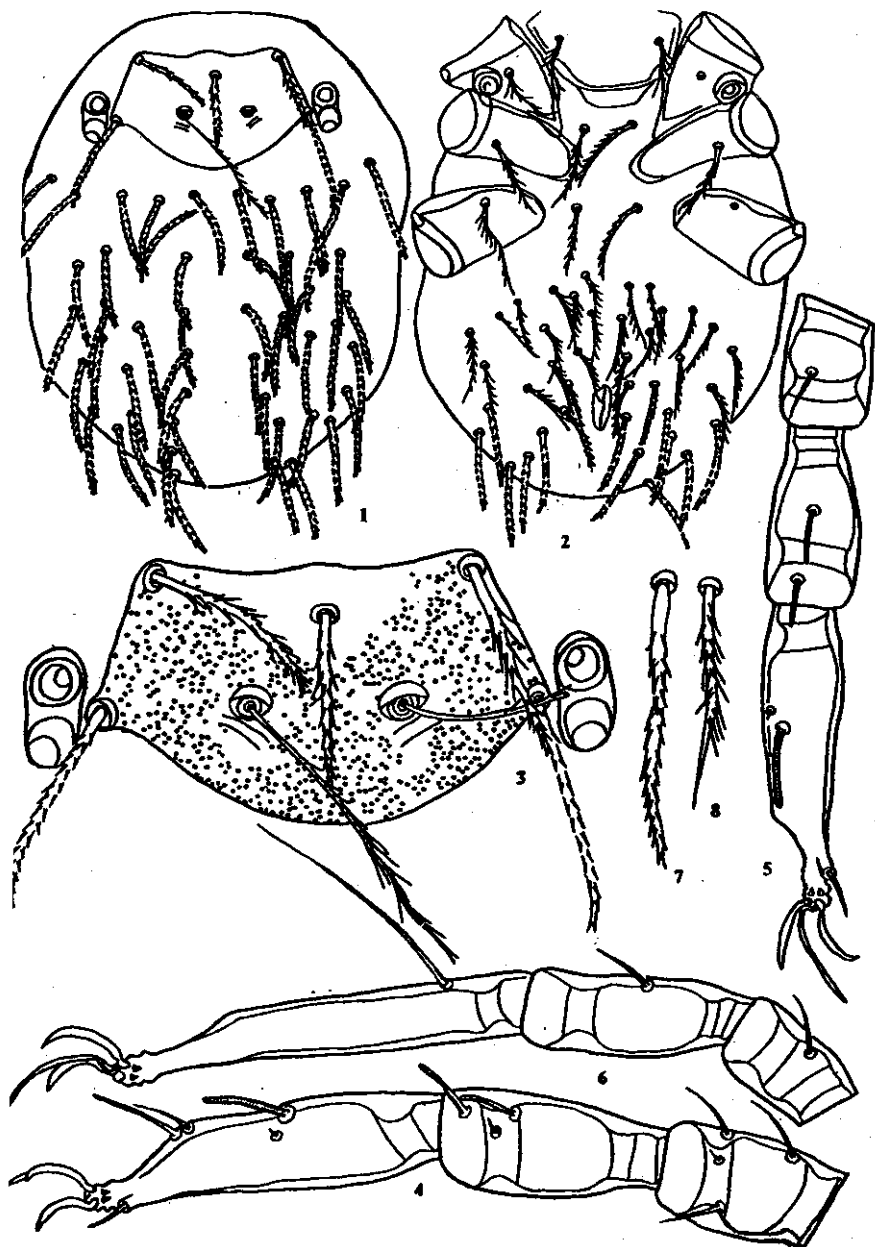
Neotrombicula scrupulosa Kudryashova, sp.n.

Fig.8.

Type material. Holotype larva, slide number M-144-1, ex *Allicola argentatus*, Mongolia, Middle-Gobi Aimak, 20 km N of the Bayan-Djargalan somon, 2.VIII.1976, rock remains surrounded by steppe. - Paratypes: 73 larvae with same data as the holotype, 9 larvae ex 2 *A.argentatus*, ibid. All collected by N.I.Kudryashova.

Description of larva. SIF=7BS-N-3-2-1-1-1-1-0-0-0, fPp=B/B/NNB, fsp=7-7-7, fCx=1-1-1, fSt=2-2, (PT', PT'', ST, pST)=N, fSc:PL>AL>AM, fDS=2H-6-6-6-4-4-2+5=35, VS=23, NDV=58, Ip=814.

Scutum trapezoidal, punctate, posterior margin convex, rounded (P-PL=25). SB anterior to the line of PL setae. Sensillae flagellate with barbs in the distal 2/3. Eyes 2+2. Arrangement of special setae



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Fig. 7. Holotype of *Neotrombicula karasboriensis* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4, 5, 6 - legs I, II, III; 7 - dorsal seta; 8 - ventral seta.

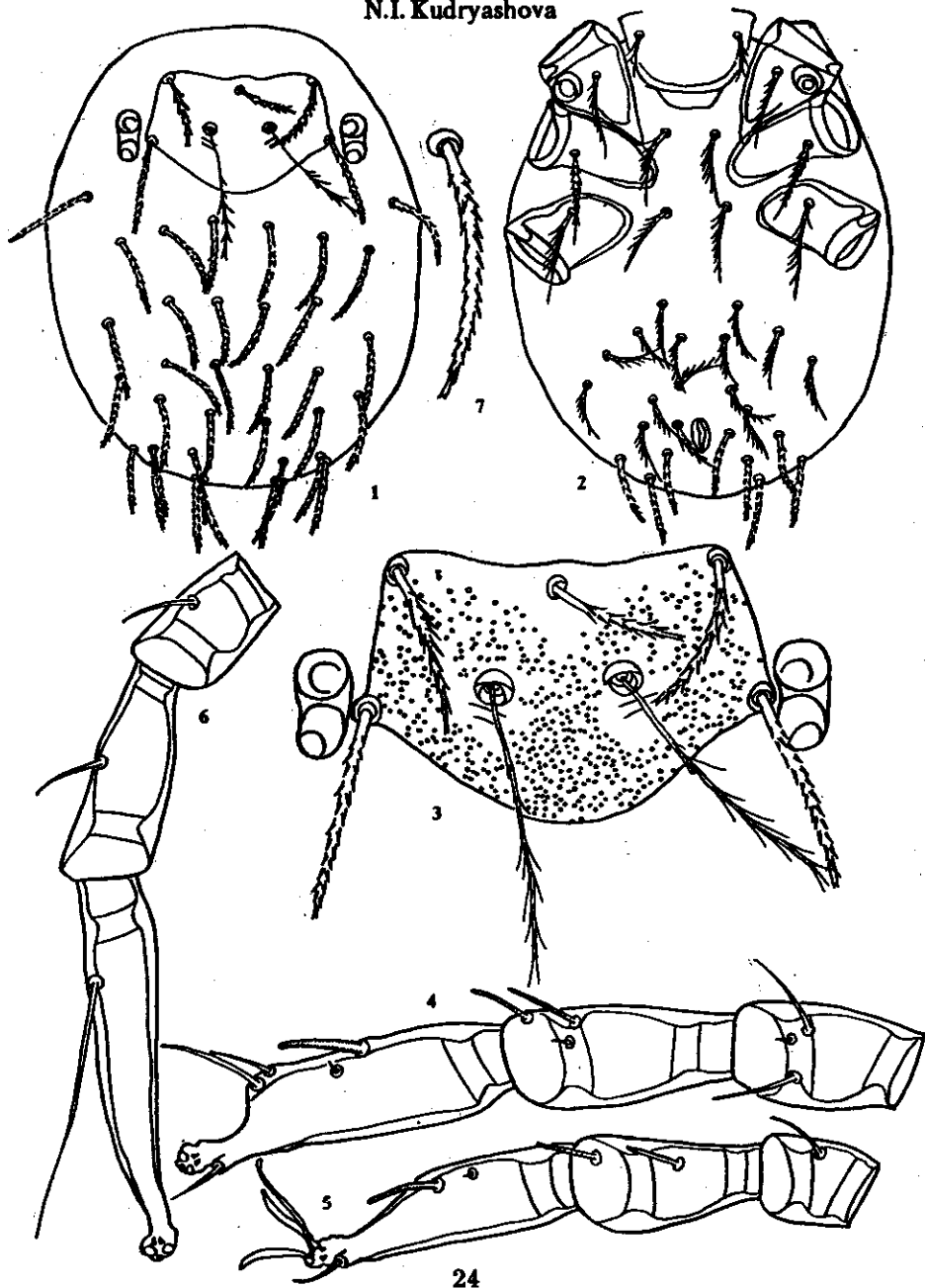
Рис. 7. Голотип *Neotrombicula karasboriensis* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4, 5, 6 - ноги I, II, III; 7 - спинная щетинка; 8 - брюшная щетинка.

on legs as in Fig. 8. Standard data of the holotype: AW=67, PW=83, SB=27, ASB=27, PSB=29, SD=56, P-PL=25, AP=29, AM=27, AL=36, PL=45, Sens=63, H=43, D=32-38, V=23-36, pa=283, pm=256, pp=275, tarsus III 59x14, S₁=18, S₂=14.

The new species is close to *N. uraliensis* sp.n., but separable in having lower NDV (58 vs. 76-78), longer legs (Ip=814 vs. 933-1030), and by some of the standard data.

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New species of chiggers of genus *Neotrombicula*

Fig. 8. Holotype of *Neotrombicula scrupulosa* sp.n.: 1 - dorsal aspect of idiosome; 2 - ventral aspect of idiosome; 3 - scutum; 4, 5, 6 - legs I, II, III.

Рис. 8. Голотип *Neotrombicula scrupulosa* sp.n.: 1 - идиосома со спинной стороны; 2 - идиосома с брюшной стороны; 3 - щит; 4, 5, 6 - ноги I, II, III.

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