

SHORT COMMUNICATION

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D. S. Aristov¹, S. Yu. Storozhenko². A NEW GENUS OF THE FAMILY MESORTHOPTERIDAE (GRYLLOBLATTIDA) FROM THE TRIASSIC OF KYRGYZSTAN. – Far Eastern Entomologist. 2013. N 264: 7–12.

Summary. New genus *Sharovites* gen. n. (type species – *Sh. alexanderi* sp. n.) is described in the family Mesorthopteridae from the Upper Triassic Madygen locality in Kyrgyzstan.

Key words: Grylloblattida, Mesorthopteridae, taxonomy, key, new genus, Upper Triassic, Kyrgyzstan.

Д. С. Аристов¹, С. Ю. Стороженко². Новый род семейства Mesorthopteridae (Grylloblattida) из триаса Киргизстана // Дальневосточный энтомолог. 2013. N 264: 7–12.

Резюме. В семействе Mesorthopteridae описан новый род *Sharovites* gen. n. (типовой вид – *Sh. alexanderi* sp. n.) из верхнетриасового местонахождения Мадыген в Киргизстане.

INTRODUCTION

Family Mesorthopteridae was established by R.J. Tillyard (1916). Originally it includes only the genus *Mesorthopteron* Tillard, 1916 with its type species *M. locustoides* Tillard, 1916 from the Upper Triassic of Australia (Tillyard, 1916). This species was redescribed and illustrated by R.J. Tillyard (1922) and E.F. Riek (1956). Second species of this genus, *M. similis* Riek, 1974, was described from the Upper Triassic of South Africa (Riek, 1974). The genus *Austroidelia* Riek, 1954 was established for *A. perplexa* Riek, 1954 from the Upper Triassic of Australia (Riek, 1954). The revision of the family Mesorthopteridae was published by the second co-author (Storozhenko, 1996). The follow taxa was described from the Middle and Upper Triassic of Central Asia: *Austroidelia asiatica* Storozhenko, 1996, genus *Mesoidelia* Storozhenko, 1996 with three species (*M. ignorata* Storozhenko, 1996, *M. faceta* Storozhenko, 1996, *M. semota* Storozhenko, 1996), genus *Parastenaropodites* Storozhenko, 1996 with three species (*P. fluxa* Storozhenko, 1996, *P. longiuscula* Storozhenko, 1996, *P. nervosa* Storozhenko, 1996), all from Madygen locality in Kyrgyzstan, and genus *Mesorthopterina* Storozhenko, 1996 with two species (*M. pulchra* Storozhenko, 1996, *M. bona* Storozhenko, 1996), both from Kizyl-Tam locality in Kazakhstan (Storozhenko, 1996, 1998). Genus *Palaeomesorthopteron* Aristov, Grauvogel-Stamm et Marchal-Papier, 2011 was established for *P. pullus* Aristov, Grauvogel-Stamm et Marchal-Papier, 2011 from the Middle Triassic of France (Aristov *et al.*, 2001). Finally, new species of *Mesoidelia* from the Upper Permian of Russia will be described in separate paper (Aristov, 2013).

Mesorthopteridae is the dominant family of the order Grylloblattida in the Ladinian fauna of Madygen locality in Central Asia, but rare in the almost the same age faunas of Europe (Aristov *et al.*, 2011). In 2011 the second co-author was invited by Prof. D. Ren for primary sorting of grylloblattids in the collection of College of Life Science, Capital Normal University (Beijing). Majority of the few hundreds examined imprints of grylloblattids from the Middle Jurassic Daohugou locality in the Inner Mongolia (North-East China) are well preserved parts of body and isolated wings of Mesorthopteridae. Unfortunately all of them are undescribed still now. Thus, in Asia the Mesorthopteridae was the dominant family of grylloblattids not only in the Middle and Upper Triassic, but also in the Middle Jurassic.

New genus of the family Mesorthopteridae from the Middle Triassic locality Madygen is described in present paper. Key to all known genera of Mesorthopteridae is given below, therefore the section 'diagnosis' in the description of new genus is omitted.

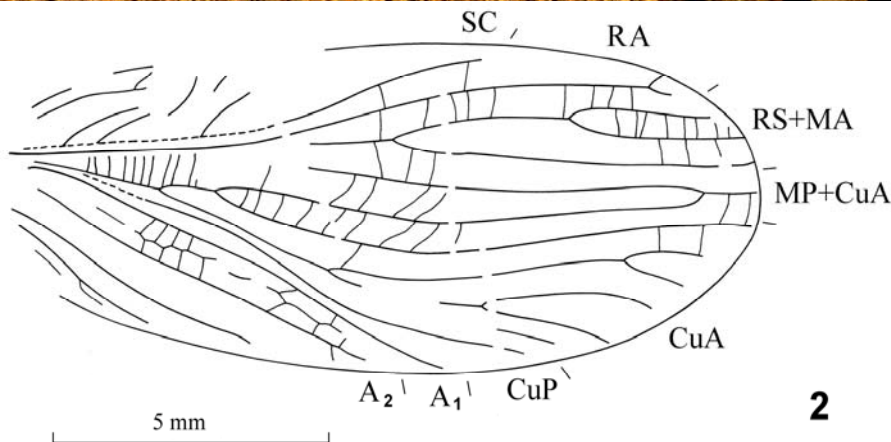
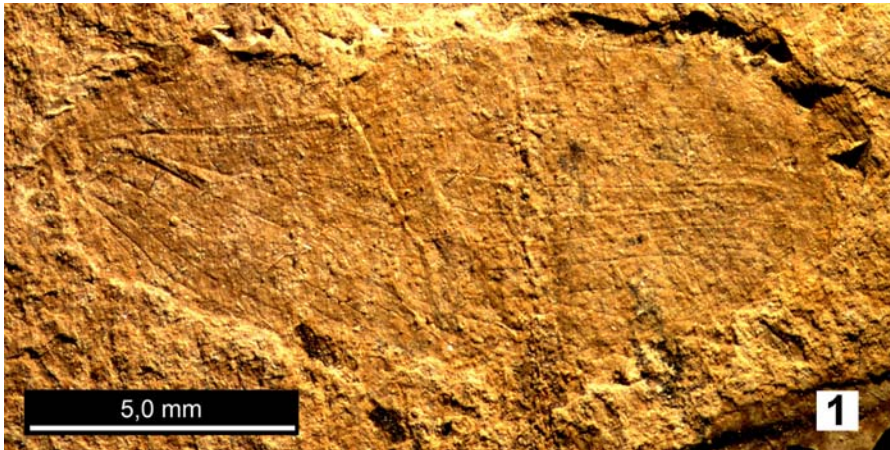
All studied material was gathered by A.G. Sharov in 1968 and stored in the Paleontological Institute of Russian Academy of Sciences (PIN).

ORDER GRYLLOBLATTIDA WALKER, 1914

Family Mesorthopteridae Tillyard, 1916

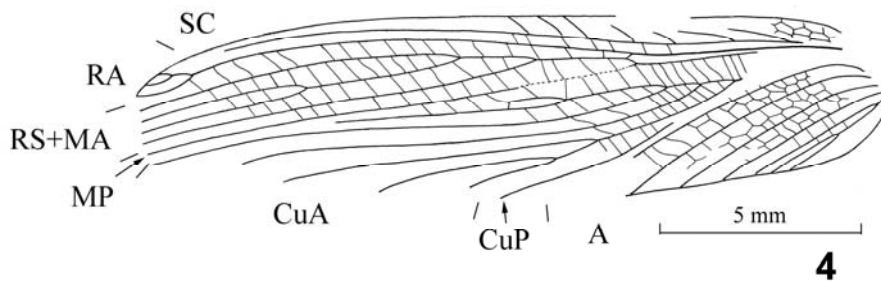
Key to genera (forewing)

- 1(6) Cross-veins forming the archedictyon in all fields of forewing.
- 2(3) *CuA* with at about six anteriorly directed and regularly arranged branches, most of which forked dichotomically; the total number of *CuA* branches is 16-17
 *Mesorthopteron* Tillyard, 1916



Figs. 1-2. *Sharovites alexanderi* sp. n. (holotype PIN, No. 2240/1868). 1 – imprint of forewing; 2 – venation of forewing. Scale bar: 5 mm.

- 3(2) *CuA* forming series of irregularly arranged branches; the total number of *CuA* branches is 5-11.
- 4(5) Costal area broad, its width 3.3-4.2 times less than maximal width of wing *Austroidelia* Riek, 1954
- 5(4) Costal area narrow, its width 3.3-4.2 times less than maximal width of wing *Mesoidelia* Storozhenko, 1996
- 6(1) Forewing with simple cross-veins in almost all fields, except radial and anal fields.
- 7(12) *CuP* straight, strongly concave. *MA* distinctly separated from *RS*.
- 8(11) *RS*, *MA* and *MP* with numerous branches. Large insects, forewing length 25-60 mm.
- 9(10) *M* forks proximally to origin of *RS*. *CuA* with 8-12 branches *Parastenaropodites* Storozhenko, 1996
- 10(9) *M* forks distally to origin of *RS*. *CuA* with 18-24 branches *Mesorthoptera* Storozhenko, 1996
- 11(8) *RS*, *MA* and *MP* simple. Small insect, forewing length 10 mm *Palaeomesorthopteron* Aristov, Grauvogel-Stamm et Marchal-Papier, 2011
- 12(7) *CuP* S-shaped, near the base convex, apically concave. *MA* anastomose with *RS* *Sharovites* gen. n.



Figs. 3–4. *Sharovites alexanderi* sp. n. (paratype PIN, No. 2555/729). 3 – imprint of forewing; 4 – venation of forewing. Scale bar: 5 mm.

Genus *Sharovites* Aristov et Storozhenko, gen. n.

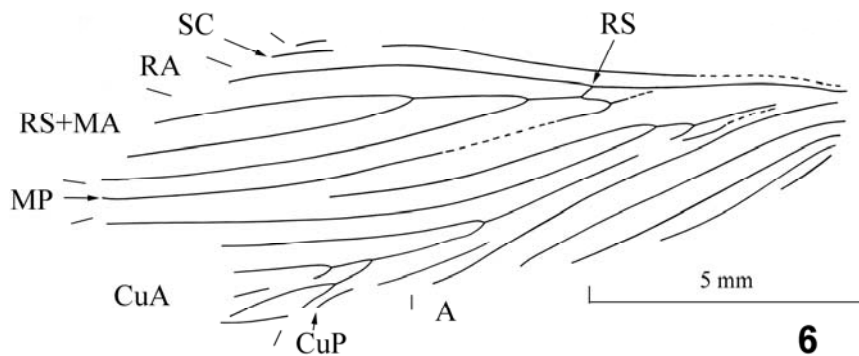
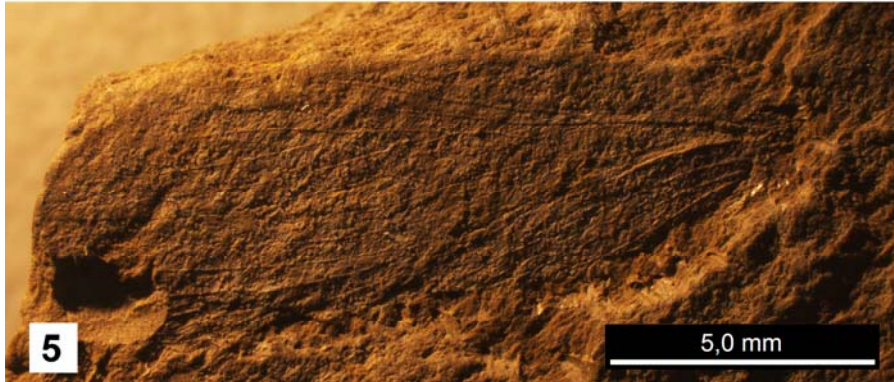
Type species: *Sharovites alexanderi* sp. n.

DESCRIPTION. Medium-sized for family. Forewing membranous, without hairs, narrow, about 3 times as long as broad. Anterior margin of forewing straight. *Sc* reaching apical 1/7

of wing, convex in basal half and concave in apical half, or completely concave. Costal field distinctly broader than subcostal field. *RS* originated in basal third of wing. *RA* with 2-3 simple apical branches. *RS* forming anastomose with *MA*; *RS+MA* with 3-4 branches. The base of *M* closely related to *R*. *MP* simple and disappear in apical third of wing, or apex of *MP* anastomose with anterior branch of *CuA*. *CuA* with 5-8 branches. *CuP* distinctly S-shaped, near the base convex, in apical part concave. Intercubital field near the base very narrow. *A*₁ simple; *A*₂ with 4-6 branches. Almost all fields with simple cross-veins.

COMPOSITION. One species from the Middle Triassic of Kyrgyzstan.

ETYMOLOGY. The genus and species are named in memory of Russian paleontologist Alexander Grigorievich Sharov.



Figs. 5–6. *Sharovites alexanderi* sp. n. (paratype PIN, No. 2555/2781). 5 – imprint of forewing; 6 – venation of forewing. Scale bar: 5 mm.

***Sharovites alexanderi* Aristov et Storozhenko, sp. n.**

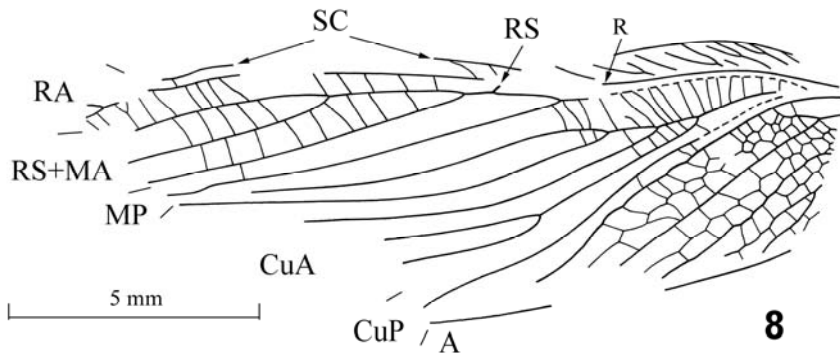
Figs 1–8

MATERIAL. Holotype – PIN, No. 2240/1868, part and counterpart of forewing. Paratypes: PIN, No. 2555/729, part of forewing; PIN, No. 2555/2781, part of forewing; PIN, No. 2785/2199, part of forewing; all parts from the same locality.

LOCALITY AND HORIZON. Kyrgyzstan, Osh Region, Batkenskii District, Madygen landscape unit, Madygen locality; Middle Triassic, Ladinian Stage, Madygen Formation.

DESCRIPTION. Holotype (PIN, No. 2240/1868). Forewing (Figs 1, 2). Length of forewing 13.6 mm. *Sc* convex in basal half and concave in apical half. *RA* forked at apex. *RS+MA* with 3 branches. *MP* anastomose with anterior branch of *CuA*. *CuA* with 8 branches directed to apex of wing. *A*₁ simple, gentle curved near the base. *A*₂ with 4 or 5 branches. All fields crossed by simple straight or slightly curved cross-veins; but in the field between *A*₁ and *A*₂ cross-veins forming double row of cells.

Paratype (PIN, No. 2555/729). Forewing (Figs 3, 4). Length of wing 18.5 mm. Similar to holotype, but *RA* with 3 apical branches; *MP* reaching anterior margin of wing; anterior branch of *CuA* disappear in apical third of wing; *CuA* with 6 branches; cross-veins forming double row of cells in the base of costal field and between almost all anal veins.



Figs. 7–8. *Sharovites alexanderi* sp. n. (paratype PIN, No. 2785/2199). 7 – imprint of forewing; 8 – venation of forewing. Scale bar: 5 mm.

Paratype (PIN, No. 2555/2781). Forewing (Figs 5, 6). Length of forewing 14 mm. Similar to holotype, but *RS+MA* with 4 branches; *MP* reaching anterior margin of wing; anterior branch of *CuA* disappear in apical third of wing; *CuA* with 7 branches.

Paratype (PIN, No. 2785/2199). Forewing (Figs 7, 8). Length of forewing about 15 mm. Similar to holotype, but *MP* not fused with *CuA*; anterior branch of *CuA* disappear in apical third of wing; cross-veins forming double row of between branches of *A*₂ and three rows of cells in field between *A*₁ and *A*₂.

ACKNOWLEDGMENTS

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REFERENCES

- Aristov, D.S., Grauvogel-Stamm, L. & Marchal-Papier, F. 2011. New grylloblattid insects (Insecta: Grylloblattida) from the Grès à Voltzia of the Voges (Middle Triassic of France). *Paleontologicheskii Zhurnal* 2: 39–45. (In Russian; English version see: *Paleontological Journal* 2011, 45(2): 159–166).
- Aristov, D.S. 2013. New Grylloblattids (Insecta: Grylloblattida) from the Upper Permian of the Vologda Region. *Paleontological Journal* (in press).
- Riek, E.F. 1954. Triassic insects from Bookvale, N.S.W. (orders Orthoptera Saltatoria, Protorthoptera, Perlaria). *Records of the Australian Museum* 23(4): 161–168.
- Riek, E.F. 1956. A re-examination of the mecopteroid and orthopteroid fossil (Insecta) from the Triassic beds at Denmark Hill, Queensland, with description of further specimens. *Australian Journal of Zoology* 4(1): 98–110.
- Riek, E.F. 1974. Upper Triassic insects from the Molteno "Formation", South Africa. *Palaeontologia Africana* 17: 19–31.
- Storozhenko, S.Yu. 1996. New Triassic Mesorthopteridae (Insecta, Grylloblattida). *SPIXIANA* 19(1): 115–127.
- Storozhenko, S.Yu. 1998. Systematics, phylogeny and evolution of the grylloblattids (Insecta: Grylloblattida). Vladivostok: Dalnauka. 207 p. (In Russian).
- Tillyard R.J. 1916. Mesozoic and Tertiary Insects of Queensland and N.S.W. *Queensland Geological Survey* 253: 11–47.
- Tillyard, R.J. 1922. Mesozoic insects of Queensland. No. 9. Orthoptera, and additions to the Protorthoptera, Odonata, Hemiptera and Planipennia. *Proceedings of the Linnean Society of New South Wales* 47(4): 447–470.

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