

NEW MESOZOIC MAYFLIES FROM TRANSBAIKAL AND MONGOLIA

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The described mayflies are from various Mesozoic localities. Two species belonging to previously known genera broaden our knowledge of the distribution of these genera. *Stackelbergisca* Tshernova, previously known only from the Upper Jurassic of Buryat [3], also occurs in the Lower-Middle Jurassic of Transbaikal (Shabur Basin), where it is represented by a unique species that differs greatly from the Late Jurassic *S. sibirica* Tshernova. *Furvoneta* Sinitsh., known only from the Upper Mesozoic of Transbaikal [1, 2], has been found for the first time in Mongolia; in addition, the closely related new genus *Clavineta*, characterized by the highly distinctive morphology of the anterior legs of the larva, is described from Mongolia.

Found with *Clavineta* was a single fragment (No. 4270/5) of a larva of the siphonurid type, exhibiting fine cerci on both the inner and outer surfaces. This same character has been detected in only two other larvae, found with numerous *Mesobaetis sibirica* Br., Rdtb. and Gglb. in the Jurassic of the Cherekhov Formation from the Irkutsk Basin. Unfortunately, the fossils are fragmentary and rather poorly preserved, making determination of their systematic position difficult.

FAMILY SIPHLONURIDAE BANKS, 1900

Genus *Stackelbergisca* Tshernova, 1967

Stackelbergisca shaburensis Sinitshenkova, sp. nov.

Name of species. After the Shabur Basin.

Holotype. PIN, No. 4352/1, casts and counterparts of a complete larva; Buryat ASSR, Zaigraev rayon, upper reaches of Bryanka River near Shabur settlement, Shabur Basin, well 28, depth 46-44 m; Ichetuy Formation - Middle Jurassic.

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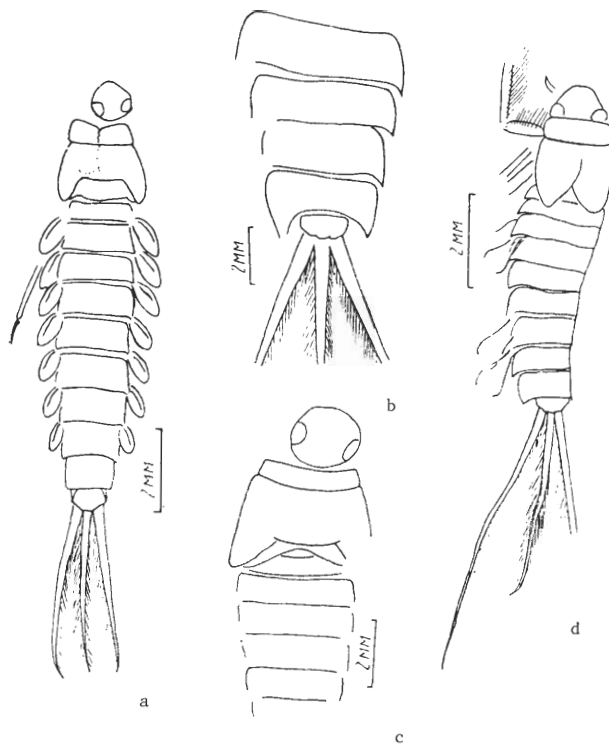


Fig. 1. New species of mayflies: a - *Stackelbergisca shaburensis* sp. nov., holotype No. 4352/1, overall view of larva; b, c - *Furvoneta domefacta* sp. nov.; b - holotype No. 4303/2, fragment of abdominal part of larva, c - paratype No. 4303/2, frontal part of body of larva; d - *Clavineta cantabilis* sp. nov., holotype No. 4270/4, overall view of larva.

Description (figs. 1a; 2a). Larva. Head rounded; pronotum wider than head, with straight lateral margins. Abdominal segments with rounded anterior angles, slightly convex lateral margins and short denticles, not elongate in direction of side or posteriorly, on posterolateral corners. First branchia longer than others, following ones gradually becoming smaller, last one shortest. Thickened trachea on oval branchial plates situated distinctly closer to outer margin. Paracerci and cerci almost equal in length, approximately 2.5 times shorter than body.

Dimensions in mm: Length of larval body of middle age - 9.8, length of cerci - 4.

Comparison. Distinctly differs from *S. sibirica* in the form of the abdominal segments, the length of the first branchia (in *S. sibirica* it is shorter than the others), and smaller size.

Material. The holotype.

FAMILY LEPTOPHLEBIIDAE BANKS, 1900

Genus *Furvoneta* Sinitshenkova, 1989

Furvoneta domefacta Sinitshenkova, sp. nov.

Name of species. From the Latin *domefactus* (subjugated).

Holotype. PIN, No. 4303/1, incomplete impression of a larva; Mongolia, southern Gobi aymak, 45 km south-southwest of Mandal-Obo Mountain, 5 km south-southeast of Bayan-Koshu brigade; Upper Jurassic - Lower Cretaceous, Ulugey Formation.

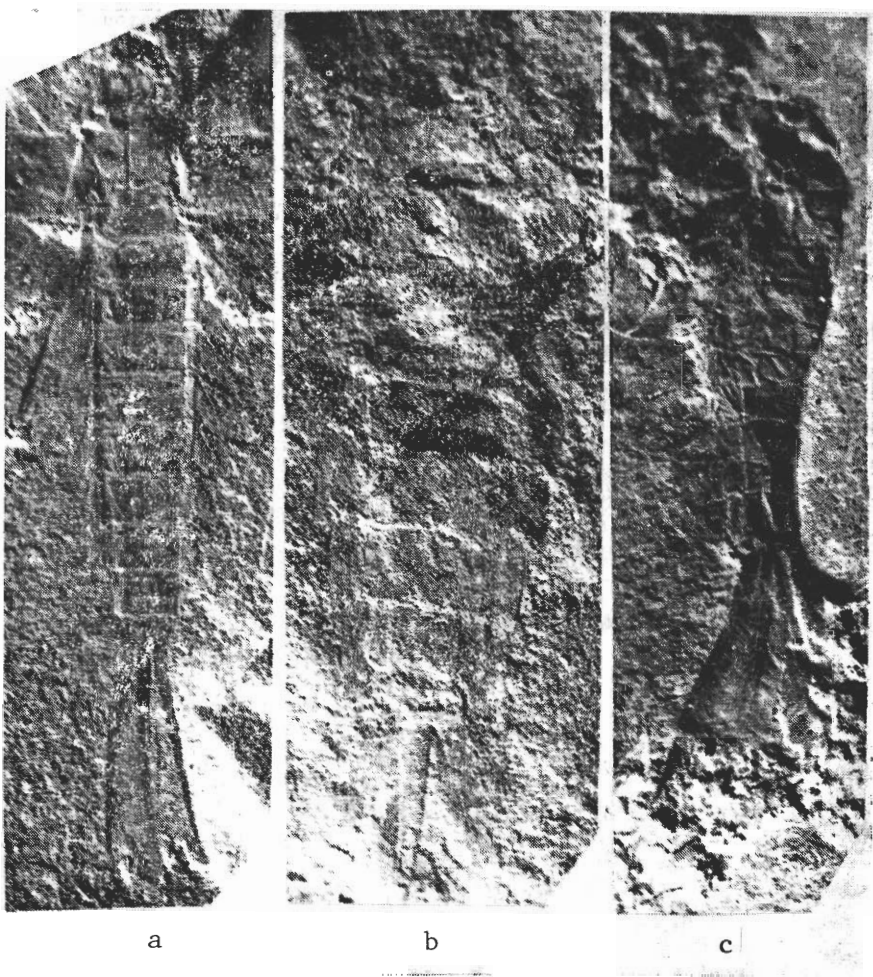


Fig. 2. New species of mayflies: a - *Staackelbergisca shaburensis* sp. nov., holotype No. 4352/1, larva ($\times 8.3$); b - *Furvoneta domefacta* sp. nov., holotype No. 4303/1, fragment of abdominal part of larva ($\times 6.2$); c - *Clavineta cantabilis* sp. nov., holotype No. 4270/4, larva ($\times 9.1$).

Description (figs. 1b, c; 2b). Larva. Length of abdomen approximately 2.2 times greater than its greatest width, width of fifth abdominal segment more than 4 times greater than its length. Posterolateral denticles of ninth abdominal tergite wide; last abdominal segment almost two times shorter than preceding segment.

Dimensions in mm: Length of abdomen - 14 (holotype), full length of larval body - 20.

Comparison. The new species distinctly differs from both previously known species of *Furvoneta* in being significantly larger. In the wide middle segments and the short last abdominal segment *F. domefacta* is more similar to *F. lata* (Sinitsh.).

Remarks. Unfortunately, the branchiae are not well preserved on the impressions, but on one (No. 4303/5) there are structures that could be interpreted as branchiae, although this is not certain; these structures are situated precisely where branchiae of *Furvoneta* are ordinarily preserved; both thickened margins are evident, but the branchiae appear to have been narrower than in *F. lata* or *F. undina* (Sinitsh.).

Material. Holotype and 11 paratypes from the same locality (No. 4303/2-10, 15, 16).

Genus *Clavineta* Sinitshenkova, gen. nov.

Name of species. From the Latin *clavis* (key) and the genus *Mesoneta*.

Type species. *C. cantabilis* sp. nov.

Diagnosis. Larva. Abdominal segments short and wide, their length approximately 4 times greater than their width, posterolateral angles of all segments with short denticles, anterior angles slightly rounded, lateral margins almost straight. Anterior legs with long hairs. Branchiae with thickened margins, at attachment sites of branchiae small outgrowths are sometimes discernible. Posterolateral denticles of ninth tergite short, no longer than preceding segment. Cerci long, paracerci noticeably shorter than cerci.

Species composition. Genus monotypic.

Comparison. Genus is similar to the Mesozoic genera *Mesoneta* and *Furvoneta*, from which it differs in having long hairs on the anterior legs, slightly rounded anterior corners, and nearly straight lateral margins on the abdominal segments. The new genus appears to occupy an intermediate position between *Mesoneta* and *Furvoneta*: affinity with the former genus is suggested by the presence of short posterolateral denticles on the ninth abdominal tergite and small outgrowths at the attachment sites of the branchiae, while affinity with the latter genus is suggested by the thickened brachial margins.

Remarks. The presence of long hairs on the anterior legs of the larva of the new genus recalls certain modern mayflies (families Oligoneuriidae, Behningiidae, Haptageniidae - Arthroplea) that feed by filtering. Such forms have not been found in the fossil record.

Clavineta cantabilis Sinitshenkova, sp. nov.

Name of species. From the Latin *cantabilis* (worthy of being sung about).

Holotype. PIN, No. 4270/4, positive impression of a nearly complete larva of middle age; MHP, Gobi-Altay aymak, south of Adzh-Bogd ridge, 5-6 km west of Shara-Teeg Mountain; Upper Jurassic - Lower Cretaceous.

Description (figs. 1d, 2c). Larva. Head with nearly straight posterior margin, its width 1.8 greater than its length, longer than pronotum by approximately same amount. Width of pronotum almost twice as great as its length, lateral margins slightly convex, corners rounded. Thickened margins of branchiae forming slightly S-shaped curve. Last branchia no longer than preceding one. Length of cerci up to about 3/4 length of body, length of paracerci significantly greater than half that of cerci.

Dimensions in mm: Length of body of larva of middle age - 7 (holotype), length of cerci - 5.8, length of paracerci - 3.1.

Material. Holotype and two paratypes from the same locality: No. 4270/3 - a young larva, No. 4270/1 - wing calyptra.

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3. Chernova, O. A., 1967, A Mayfly of a Modern Family from the Jurassic of Transbaikal (Ephemeroptera, Siphonuridae). Entomol. obozr., Vol. 46, No. 2, pp. 322-326.