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## The biostratigraphic significance of the Permian and Triassic conchostracans of the Kuznetsk Coal Basin (Western Siberia)

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The Kuznetsk Coal Basin (Western Siberia) is an ideal place to study the Permian and Triassic fauna. Conchostracans are ephemeral small crustaceans with a bivalved carapace. They can enter a state of anabiosis for a long time. They are widespread in continental deposits all around the world. Some species existed for only a short time and are useful for biostratigraphy and correlation (LI et al. 2007; SCHOLZE & SCHNEIDER 2015; SCHNEIDER & SCHOLZE 2018).

For several years, we studied the Permian–Triassic Babii Kamen section in the Kuznetsk Coal Basin. This section is located on the right bank of the Tom river, 45 km downstream from Novokuznetsk (N 54.38276; E 87.53430). The section is of interest to many scientists. For several decades, many groups of fossils (non-marine bivalves, conchostracans, insects and plants) were studied in detail (MOGUCHEVA 1989; BETEKHTINA et al. 1986; LEZHININ & PAPIN 1998; KAZAKOV et al. 2002; ZHARINOVA & SILANTIEV 2016; KARASEV 2015). However, the Permian–Triassic Boundary in the section is still conventional, and is provisionally determined at the top of the last coal band.

The deposits of the Babii Kamen section consist of the Tailuganskaya and Maltsevo formations. The Tailuganskaya Formation is assigned to the Permian and the Maltsevo Formation is assigned to the Triassic. The numerous fossil remains are represented by ostracods, conchostracans, insects, gastropods, bivalves, fish scales, and terrestrial plants.

We sampled a new collection of conchostracans from the Tailugan and Maltsevo formations. About 500 conchostracan samples were collected from 12 stratigraphic layers. The taxonomic diversity of the conchostracans in the Babii Kamen section is large. The morphology of the valves was studied by using a new methodology of conchostracan classification (SCHOLZE & SCHNEIDER 2015).

The upper beds of the Tailugan Formation contain the mass occurrences of *Pseudestheria novacastrensis* (MITCHELL, 1927). This species was first described from the Upper Permian sediments of the Sydney Coal Basin, Australia. *Pseudestheria novacastrensis* is known from the Permian of the Siberian Platform (Yenisei river and Nizhnyaya Tunguska river), the East European Platform and the Timan-Pechora Basin (MITCHELL 1927; RAYMOND 1946; NOVOJILOV 1950; GORETZKI 2003).

The species *P. novacastrensis* also occurs in the lower part of the Maltsevo Formation together with *Palaeomutela (Palaeonodonta)* AMALITZKY, 1895 that allows this interval to be assigned to the Permian (ZHARINOVA & SILANTIEV 2016). The middle part of the Maltsevo Formation (about 150 m) is a “mute” interval. The upper part of the Maltsevo Formation (upper 115 m) is characterized by increasing diversity of conchostracans. This stratigraphic interval contains Permian species – *Cornia papillaria* LUTKEVICH, 1937, *Megasitum harmonicum* NOVOJILOV, 1970, *Megasitum lopokolense* NOVOJILOV, 1970, *Echinolimnadia mattoxi* NOVOJILOV, 1965, as well as Triassic index species – *Concherisma tomiensis* NOVOJILOV, 1958, *Cyclotungusites gutta* (LUTKEVICH, 1938).

The most important occurrence for biostratigraphy is that of *Cyclotungusites gutta* in the upper layers of the Maltsevo Formation. This species appears only in the Lower Triassic sediments and is known from deposits in the Pechora Basin, Siberia, and China (MOLIN & NOVOJILOV 1965; CHU et al. 2017; ZHARINOVA & SILANTIEV 2018).

The upper part of the Maltsevo Formation contains the Triassic species *Concherisma tomiensis*. This species is known from the Lower Triassic deposits of the Kuznetsk Coal Basin and Taimyr Peninsula (MOLIN & NOVOJILOV 1965; NOVOJILOV 1970).

The Permian and Triassic conchostracans that occurred in the Kuznetsk Coal Basin are known from the Permian and Triassic sediments of Eastern Europe, Siberia, China and Australia. This demonstrates the high importance of this group for biostratigraphy and for regional and global correlation.

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