

Palaeozoic carbonate deposits and fauna in the Mendeleev Rise

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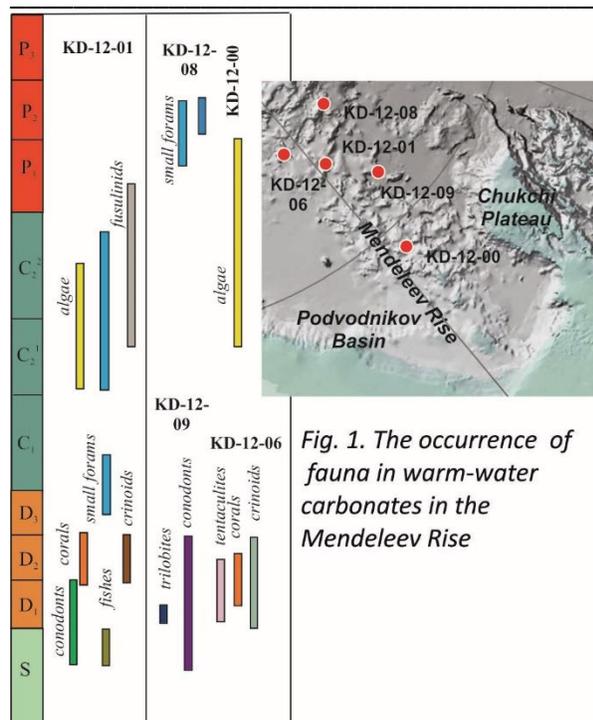


Fig. 1. The occurrence of fauna in warm-water carbonates in the Mendeleev Rise

The presence of a consolidated continental lithosphere in the Eastern sector of the Arctic has been considered repeatedly, since the 30-ies. In the course of the "Arctic-2012" work, samples of carbonate rocks were received at the underwater testing of the Mendeleev Rise. They are considered here as edaphogenic material and not the result of ice rafting [1]. Bioclastic carbonates containing fauna and flora have been raised from five polygons (Fig.1). Devonian age was distinguished in the samples by the remains of crinoids and corals in the area of Shamshur Mt. (KD-12-01). Based on fusulinid assemblage including *Kanmeraia* (?) aff. *longdalensis* (Cassity et Langen.), *Pulchrella* cf. *pokojamiensis* (Leb.), the transitional upper Moscovian-Kasimovian interval was established. In general, samples containing fusulinids in fusulinid-bryozoan packstones are of the Bashkirian-Lower Kasimovian. In the other sample from the same polygon shells with keriotheca wall assigned to *Pseudofusulina* or *Daixina* belong to the Lower

Permian. In the area of polygon KD-12-00 bryozoan-ostracod packstones with crinoids, trilobites, and green algae *Macroporella* and *Epimastopora* (det. by R. Ivanova), are known from the Devonian (?) – Lower Pennsylvanian. In the area of Trukshin Mt. (KD-12-06) the assemblage, including crinoids, corals, and tentaculites is referred to the Lower-Middle Devonian. On the southern slope of Rogotskyi Mt. (KD-12-08) the fragments of bryozoan packstone containing small forams *Pseudonodosaria* ex gr. *ventrosa* Schleifer were found. The species is known from the Kungurian of Spitsbergen and Kazanian (=Roadian) of Novaya Zemlya. A large fragment of limestone was uplifted from the eastern slope of the "unnamed" elevation (KD-12-09). It contains conodonts *Panderodus* sp., *Ansella* sp., *Zieglerodina*?, *Remscheidensis*, trilobites (Fam. *Dalmanitidae* Reed.), Dakrioconarids (Nowakia), inarticulate brachiopods, scolecodonts, and fishes remains of the Lower-Middle Devonian were found in the insoluble residue. Thus, it is considered that the sedimentary cover of the Mendeleev Rise was composed (together with younger deposits) by a variety of shallow–water shelf limestone bearing warm-water Silurian (?) – Lower Permian fauna. However, consolidated Palaeozoic cover of the Siberian Platform and Northeast of Russia has a different lithological composition, and includes the boreal (cold-water) fauna of the Late Palaeozoic. Similar in the age and facies carbonate deposits with warm-water fauna are known in the Wrangell

Island [2] and Northwind Range [3]. This is an evidence of structural connection of the Mendeleev Rise, Northwind Range, and Wrangell Island, which existed during the Lower Pennsylvanian-Lower Permian. The warm-water fauna in biogeographical terms is similar with that known from Novaya Zemlya – Pay-Khoi biogeographic province [4].

References:

[1] Morozov A.F. et al. (2013) In: Regional geology and metallogeny, 53: 34-55

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[3] Grantz et al. (1998): In: GSA Bulletin, 110: 6: 801–820.

[4] Solovieva (1984) In: Upper Carboniferous of the USSR: 121-155.