

BIONOMY OF THE PREURALIAN EARLY PERMIAN BASIN (PALEOECOLOGICAL COMMUNITIES AND BIOGEOGRAPHY)

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The Russian platform/Western Urals Early Permian basin (EPB) connected Tethyan and Arctic seas. EPB was about 1000 km wide by end of Asselian but reduced to 150-200 km by Kungurian. The Donets bay and ephemeral straits between Uralian and Tethyan seas connected with southern part of Preuralian basin (PB). The wider part of EPB was the Volga-Kama Sea; the eastern part of EPB was relatively narrow. A geomorphological boundary (?carbonate islands chain) sometimes separated these parts of EPB. Numerous, diverse biological communities were in the eastern part of PB, in the trough of Preuralian foredeep, and adjacent areas. Facies and bionomical zones (FZ) in the above part of basin (from East to West) are:

1 - Belt of mainly coarse-grained sediments (sandstones and gravelstones with conglomerate packets and lenses) with numerous olistostromes - small bioherms constructed by stromatolites, phylloid algae, paleoaplysinas, bryozoans and brachiopods;

2 - Zone of sandstone flysh: an alternation of relatively thin beds of sandstones and argillites with interlayers of marls and limestones (micrite, grainstone, rudite). FZ 1 and 2 are represented by allocthonous and autocthonous organism associations. The first can be restored using organic remains of turbidites and olistostromes. This association, transported from shallow water by flows and within olistostrome masses is represented by forams, fusulinids, solitary and colonial corals, brachiopods, bryozoans, crinoids, calcareous algae. The autocthonous community is in argillites, marls and limestones between turbidites beds and includes small forams, radiolarians, bivalves, brachiopods, ammonoids and nautiloids, trilobites, fishes, worms, conodont-bearing organisms, crustaceans.

3- A condensed section widely distributed, represented mainly by argillites and marls with limestone interlayers and carbonate breccias (in west) and sandstones (in east). FZ of condensed section is very similar to that of FZ2 according taxonomical composition, but diversity increased from Asselian to Artinskian after gradual shallowing of PB. Fusulinids, small forams, corals, sponges, bryozoans, diverse brachiopods, without presence of any radiolarians were the members of the Artinskian community of this FZ.

4 - Linear reefs (Asselian-Early Artinskian) and patch-reefs (Late Artinskian - Kungurian). By Early Permian three main reef-building biocoenoses had formed: (1) brachiopod-bryozoan-tubiphytes (BBT); (2) phylloid algae (PhA); (3) paleoaplysinas (P). BBT association was very important in Early Asselian. In Late Asselian, Sakmarian and Early Artinskian BBT was supplemented by P. BBT association took place again in Late Artinskian. In the Kungurian, were only rare BBT; most were built by stromatolites and problematic organisms (?shelly worms).

5 - Widespread detrital limestones (micrite, packstone, grainstone) and biogenic ones (composed by corals and P). Within bedded limestones some biocoenoses can be recognized. The most important is represented by small forams, numerous fusulinids, bryozoans, brachiopods, crinoids and calcareous algae. Colonial corals/*Syringoiporta* association and P are two other communities of this FZ.

All Early Permian communities from southern part of PB were different from northern ones according to diversity and taxonomical composition of biota. Terrigenous deposits with conglomerate beds and subordinate packets of sulfates were deposited during the Kungurian at the boundaries of 1FZ and eastern part of 2. Areas of 2 and 3 FZ were filled by argillites, rock and potash salts, sulfates. Kungurian sediments of 4 and 5 FZ are mainly represented by sulfates and thin packets of shallow-water carbonates with diverse marine fauna.