

PALEOZOIC VOLCANOGENIC-REEF MASSIFS IN NORTHERN WEST SIBERIA: KEY TO STRUCTURAL-GEODYNAMIC RECONSTRUCTIONS OF THE PALEOSIBERIAN OCEAN

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The Paleozoic history of West Siberia and the adjacent Arctic areas remains mysterious to a large extent due to the lack of data on its deep structure. Early tectonic reconstructions are based on the geosynclinal conception and more recent geodynamic interpretations are supported by extrapolations of new type models and are insufficiently verified by the factual material. Recently new geophysical and drilling data has become available, suggesting a complex heterogeneous structure of the Paleozoic in this area. Of major importance to the substantiation of the model of its structure is new data on the geologic structure of the Shchuch'inskiy salient of the Paleozoic in northern West Siberia which is unique as compared to the coeval formations of the adjacent areas. It has been established by our investigations that the Shchuch'inskiy salient represents a chain of the Silurian-Carboniferous volcanogenic-reef massifs with typical features of island-arc, accretional systems and also fragments of mid-ocean systems of the Paleosiberian ocean. The Early Devonian is the major phase of reef formation which is dated from brachiopods, conodonts, ostracodes and foraminifers. Algae, corals and stromatoporoids are the main framework builders of reefs. Volcanogenic facies are represented by spilites, andesitic and basaltic porphyrites, tuffs, tuff breccias and clastic rocks (to boulder conglomerates and olistostromes). Reef limestones are laterally replaced by deep-water rocks: clay shales, silicites and radiolarites alternating with volcanites. A chain of volcanogenic-reef massifs shows a sublatitudinal direction and subsides under the Mesozoic-Cenozoic sedimentary cover from the Arctic Ural through the Yamal Peninsula towards Taimyr.