



A proposed Epi-Gondwanian fragment in the structure of the Southern Urals

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The East European Craton is bounded in the north-east by the Timan-Pechora region and in the east by the Uralian fold-thrust belt. The Urals are characterized by a clear tectonic zonation. It is subdivided into East-Uralian and West-Uralian megazones. Paleozoic ophiolites and volcanic-island-arcs complexes are widely distributed in the structure of East-Uralian megazone. Contrary, West-Uralian megazone is mostly composed by upper-Cambrian to upper-Paleozoic sedimentary complexes. The basement of these complexes is named as Pre-Uralides. The Pre-Uralides are composed by the non-uniformly metamorphosed sedimentary and volcanic-sedimentary suites, different intrusions (granitoides, gabbroides, ect.) and rare ophiolites from Neo-Proterozoic to Middle-Cambrian ages [Maslov, 2004; Kuznetsov et al., 2005a]. The Pre-Uralides form a continuous chain of structures along of whole-Uralian length. The following tectonic units are allocated in the south part of the chain [Kuznetsov et al., 2005b]: 1) Ebeta uplift is composed by subducted-related rocks; 2) Uraltau uplift is composed by the subducted-related (south part), and non-uniformly metamorphosed sedimentary, volcanic-sedimentary suites, which are subdivided into several tectonic units; 3) Bashkirian uplift is composed of sedimentary and rare volcanic-sedimentary rocks units.

There have been proposed many models of the Neo-Proterozoic - Middle-Cambrian geodynamic evolution of the Southern Urals. The early proposed tectonic scenarios suggested that the Pre-Uralides are autochthonic, i.e. Pre-Uralides were formed on the margin of paleo-continent Baltica (Neo-Proterozoic skeleton of East European Craton) and were not transported. Later, there were found new data allowing to propose that at least some complexes of the Pre-Uralides of the Southern Urals were not formed on the margin of Baltica. It was proposed they were formed at the Northern edge of Gondwana [Puchkov, 1997].

The Pre-Uralides of the Bashkirian and north part of Uraltau uplifts are composed of the non-uniformly metamorphosed sedimentary suites, and rare volcanic-clastic rocks. It is usually supposed that the rocks were formed in a riftogenous epi-continental basin [Maslov, 2004]. These complexes are similar to the complexes of the Timan-Pechora region. This is a reason to conclude that the Pre-Uralides of Bashkirian uplift and the north parts of Uraltau uplift have the genetic relationship to the complexes of the Neo-Proterozoic Timan passive margin of Baltica [Kuznetsov et al., 2005a; b].

Pre-Uralides of Ebeta uplift (Lushnikovka and Alimbet units) and of south part of Uraltau uplift (Maxutov unit) are characterized by similar features. They consist of non-uniformly metamorphosed subduction related volcanic-sedimentary and sedimentary rocks, and tectonic slices of HP/UHP metamorphic rocks [Samygyn, Ruhzentsev, 2003; Ruhzentsev, Samygyn, 2004]. In some places the Pre-Uralides of Ebeta uplift are stratigraphically overlapped by the riftogenous formation of the Late-Cambrian - Tremadocian age. During recent field works, there were obtained new data proved that these Early-Paleozoic rocks include sedimentary chaotic layers containing non-regular blocks, olistolits and olistoplacks of Early-Cambrian warm-water archaeocyaths limestones [Kuznetsov, 2005]. It implies that they are alien to Eastern edge of Baltica, because the archaeocyaths have not been found in Cambrian complexes of the East European Craton [Stratigraphy of SSSR Ę, 1965].

We believe that these clastic rocks were formed during Tremadocian rifting of northern edge of Eastern Gondwana. The Pre-Uralides of Lushnikovka unit (west part of Ebeta uplift) are relicts of fragments of Cadomian volcanic belt of the Neo-Proterozoic active margin of the Eastern Gondwana. The Maxutovo unit (south part of Uraltau uplift) and Alimbet unit (east part of Ebeta uplift) are the relicts of Cadomian accretionary prism.

During destruction of Northern Cadomian edge of Eastern Gondwana and opening a new ocean basin (ocean Rheic), several fragments were separated from the continent [Murphy et al., 2001]. These Epi-Gondwanian terrains were drifting northward during Middle-Ordovician - Late-Devonian. By the end of Devonian they were closely located to the south-east edge of the Baltica. Later, during Late-Paleozoic collision of Kyrgyz-Khazakh-Siberia with Eastern edge of Baltica (been included into a huge composite continent), the Epi-Gondwanian terrains were captured into a fold-thrust structure of southern part of the Uralian frame of East European Craton.

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