



Gzhelian Stage in marine sequence of the Later Pennsylvanian of the Russia: definition of lower boundary

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Recently subdivision of the Carboniferous system into subsystem, series and stages in the International Stratigraphic Chart was ratified by International Geological Union and achieved official status. Gzhelian Stage – upper stage of the Pennsylvanian series - was established in the Moscow Basin not so far away from Moscow in the 1890th. The great progress in the biostratigraphy of this stage in type and reference sections was achieved during the last two decades. In the Unified Stratigraphic Chart of the East-European Platform the Gzhelian Stage is subdivided into four regional substages. They are (from below) Dobryatinian, Pavlovoposadian, Noginskian, and Melekhovian. Each of these substages is corresponded to one provincial or local fusulinid zone, and several zones on conodonts (Goreva and Alekseev, 2010). Most aspects of their fusulinid faunas are similar across of Eurasia, in contrast to the strongly provincial North American fusulinid assemblages. Conodonts are being utilized to mark the events that will be used to define the global stages within the Pennsylvanian, because some of their species are more widespread globally than those of the fusulinids. *Idiognathodus simulator* was approved by International Subcommission on Carboniferous Stratigraphy as marker of global Gzhelian Stage. The distinguishing of the Global Stratotype Section and GSSP for the Gzhelian stage was the crucial concept of the investigation in the network of the problem of the creation of the International Chronostratigraphic Scale of the Carboniferous System. In Russian sections *I. simulator* has been documented together with additional marker fusulinid species *Rauserites rossicus* in the stratotype Gzhel, neighboring Rusavkino section and some boreholes at the Moscow Basin (Alekseev and Goreva, 2009, North Timan (Goreva et al., 1997), and Usolka and Dalniy Tyulkas sections (South Urals, Davydov et al., 2008; Chernykh et al., 2009). Hypostratotype of the Gzhelian Stage - Yablonevyy Ovrage Quarry in Zhiguli Mountains (Samarskaya Luka, the right bank of the Volga River) - is a new section where *Idiognathodus simulator* was found. Abundant fusulinids, Rugosa corals, bryozoans, brachiopods and other groups of macrofauna there are and new research has established the presence of conodonts. *Idiognathodus simulator* Ellison occurs together with *I. prenentius* Chernykh, *I. pictus* Chernykh, *Streptognathodus pawhuskaensis*, *S. elegantulus*, *S. aff. vitali* Gondolella sp. at the base of Member 8 (traditional lower Gzhelian boundary in the section). Below an assemblage of conodonts of the *S. firmus* Zone (Upper Kasimovian) was established. The appearance of *I. simulator* together with *Gondolella* reflects global transgressive pulse, well-established in the Moscow Basin and the South Urals. This find closes a geographical gap (about 800 km) between the Moscow Basin and the South Urals in the distribution of *I. simulator* and confirms importance of this taxa for the definition of the Gzhelian GSSP.