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The Dynamics of Change in Composition of Silurian Gastropod Communities in the Siberian Basin

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An extensive marine basin existed on the Siberian Platform in the Silurian period. The basin was moderately deep judging from the results of facies analysis, and its depth was rarely over 200 m. Recompensated sedimentation in the basin, resting on rather rigid crust of continental type, is responsible for gradual shallowing and disruption of normal marine regime at the end of the Silurian period. The consequences of eustatic changes and related variation in fossil communities, which at that time, are rather well traceable due to relative stability at the base of the basin.

General tendency towards the shallowing of the basin resulted in specific change in gastropod communities. Revealed previously the dependance of gastropod shell shape upon hydrodynamics of the basin, under the conditions of weakly rugged topography, that directly associates with the basin depth, has been studied at species level and treated as intraspecies variability (Gubanov, 1984, 1985). The study of extensive material compiled on Silurian gastropods of the Siberian platform (Gubanov, 1988) allowed this association to be established at gastropod communities on the whole. Distribution of various living forms in gastropod communities was investigated. Living forms determined before on the basis of relative mobility have appeared to be related to a considerable extent to hydrodynamics of the basin and its depth.

In the Early Silurian in the Rhuddanian, when the basin depth was maximal, there were gastropods almost living forms existed at that time. Taxonomic composition of gastropod communities is most rich as well. These communities are dominated by gastropods with subspherical *Prosoptychus globulus* and similar to them, in the ratio of surface and volume, conical forms *Eotomaria kuondae, Holopea transversa.* The Aeronian is dominated by the species possessing the shell of more streamline shape - *Pararaphistoma qualteriatum, Trochonema transformis, Arjamannia cancellata, Gyronema multangulata.* In the Telychian predominant are the taxa with high-spired and subdiscoid shape of shell such as *Murchisonia insignis* and *Straparollus alacer*, which are numerous in the deposits of that time. The number of gastropods of another living forms decreases considerably. In Wenlock *Lophospira alta* and *Murchisonia cingulata* (replaced *Murchisonia insignis*) were in the foreground along with *Straparollus alacer.* During the Ludlow a considerable number of gastropods stop to exist and two specis only *Straparollus alacer* and *Murchisonia cingulata* persisted, which are monotaxonic communities.

The above patterns of gradual change in gastropod communities are characteristic of more deep northwestern areas of the basin. More shallow areas have a somewhat different picture because of great effect of eustacy. By the Late Llandovery persisted were gastropods only of two living forms, such as high-spired and subdiscoid. During

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the Wenlock transgression gastropod became more diverse and in the Ludlow their diversity gradually decreases and again up to two living forms. Eustatic changes more weak than those of Early Wenlock are well recorded due to the range on intraspecies variation of gastropods, but virtually had no effect on communities composition.