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On Comprehensive Approach to Formational Analysis of Sedimentary Formations

Existing gaps in understanding nature, amount of formational units, in principles of their separation and study make it difficult to apply methods of formational analysis. Availability of several historically developed trends in theory of formations reflects both complexity and difficulty of the formation idea itself.

Difficulties of the formation idea as well as diversity of formational analysis methods define necessity to attract such principal systemic criteria as integrity, emergency, structural properties, and hierarchical pattern. As to formations, each of them becomes multiciphered. Hence, integrity and structural properties may be interpreted both in stationary spirit (identification of boundaries of formation as geological body, parameters of its structure, “seismoformational” peculiarities etc.) and in terms of singleness of “system-forming” factors.

It is wrong belief to play off comprehensive approach against historical approach and genetic one. Formations may be considered from the viewpoint of system and structural viewpoint, system and genetic viewpoint, and system and historical one. Discrete role of geodynamical comprehensive aspect should be noted.

First, the formation characterizes geodynamical maintenance of basin being considered as tectonic complexes.

Second, the formation may be considered as dynamical geosystems being exposed to processes of settlement and epigenetic reconstitutions effects joined formations and features of sedimentary basin as a whole. The system and dynamical aspect of formational analysis should become a principle of studying all processes of energy and mass transfer within sedimentation basin.

According to emergency as the key system criterion, role of principal formational characteristics should be played by emergent characteristics (balance of material and mineral, and structural and textural parameters of sedimentary rocks, directivity, character, intensity of various postsedimentary etc.). Their emergency is that the properties originate under strictly defined conditions depending upon combination of paleotectonic, paleoclimatic and other factors.