EVOLUTIONARY FORMATION STAGES OF PARAGENETIC MINERAL ASSOCIATIONS OF THE RUDNIK POLYMETALLIC DEPOSIT (SERBIA)

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The Rudnik polymetallic deposit represents a complex and specific deposit. The deposit itself as well as its environment is formed of rock complexes. The most important among them are: a) magmatic; b) cretaceous sedimentary; c) breccia and d) contact-thermometamorphous rock complex. Sedimentary and contact-thermometamorphous-metasomatic rock complex predominates in structure of this terrain.

Paragenetic mineral associations of the Rudnik deposit were formed during evolution, through injection and cooling of the Rudnik granitoide magma and its products, as well as duting a synchrone process of skarns formation in cretaceous flysch sediments representing an intrusive roof rock. Although the evolution of this part of geological area, considered from aspect of geologic structure and textural characteristics, has proved to be highly complex, three evolutionary stages with the accompanying paragenetic mineral and element associations may generally be distinguished:

1) isochemical contact-thermometamorphous stage following injection of magma and resulting in contact-thermometamorphous paragenetic associations;

2) contact-metasomatic stage with skarns formation following the final phases of magma crystallization along with formation and accumulation of supercrytical hydrothermal fluids resulting in highly complex contact-metasomatic paragenetic association;

3) a stage of retrograde changes that accompany cooling of magmatogenic systems and are directy connection with new ore-bearing solutions yield, while sulphide hydrothermal paragenetic associations are formed in the later phase.

Development degree of those evolutionary stages of the Rudnik deposit varied, due to structural-geological features of environment and specific formation conditions of skarns and paragenetic associations.