

GNEISSES OF TEKJA REGION

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The paper presents the results of the research of the gneisses of Tekija region in the aim to, based on the composition and fabric of rocks, as well as mineral transformations in them, point to the character of protoliths and polymetamorphism. Based on the results of the research of gneisses, it can be concluded that they developed by the polymetamorphism of the conglomerates, conglomeratic sandstones, graywackes and fine-grained sandstones in which there still existed some fine fragments of rocks. The explanation of the fabric of augen and porphyroblastic plagioclase gneisses, as well as fine-grained mica gneisses with characteristic blasts of plagioclases, lies also in the predisposition of the primary sedimentary series to form these rocks, i.e. in the fabric and composition of conglomerates, conglomeratic sandstones, graywackes and fine-grained sandstones in which, by processes of polymetamorphism, some fragments of rocks, by their transformation "in situ" developed into augen, porphyroblasts and blasts. The first stage of metamorphism developed in the conditions of sillimanite - almandine - orthoclase subfacies of the almandine - amphibolite facies of Barrow type metamorphism (Winkler 1967); the second phase had the regressive character (occurrence of sericite and extinction of sillimanite) and it must have been short, because it did not succeed to remove the differences in the degree of metamorphism, whereas the third phase (occurrence of staurolite and kyanite) corresponds to the conditions of the medium stage of metamorphism (Winkler, 1976), i.e. the temperature and pressure lower than the temperature and pressure in the conditions of sillimanite - almandine - orthoclase subfacies of the almandine - amphibolite facies of Barrow type metamorphism (Winkler, 1967).

THE UNCOMMON METAMORPHIC Cr-Ba-Fe-Cu-DEPOSIT FROM THE BUSOVACA DISTRICT, CENTRAL BOSNIA, YUGOSLAVIA

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The ore occurrence is situated 5 km SW of Busovaca in the north-eastern part of the Central Bosnian Mountains. The most widespread and the oldest deposits are the Ordovician (?) and Silurian schists underlying the very well paleontologically documented Devonian platform carbonate complex. The protolith of the whole series is a pelitic series with a little of psammitic components and rare relatively small interstratified

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occurrences of metabasites formed in a subsiding trough in which active turbiditic sedimentation was taking place. The metamorphites in the region of Busovaca were formed chiefly under lower greenschist facies with temperatures of 350-450°C and modest pressures of 3 to 5 kbars, locally under 5 kbars.

The mineralization is close to the contact with a bigger, elongated, appearing to be conformable with the surrounding metasediments occurrence of metabasite. The ore deposit is stratified with changeable thickness from some cm to one meter. The millimeter-scale mineral banding and the grain size (from ten micrometers to 1 to 3 mm) contrast between layers are well preserved. Dark coloured bands consisting predominantly of opaque minerals alternate with brighter ones of gangue minerals. The most distinctive feature is porphyroblastic and xenoblastic structure, especially poikiloblastic texture of albite, pyrite, magnetite.

The established paragenesis is arranged in decreasing amounts as follows: siderite, quartz, albite, magnetite, pyrite, Mn-ankerite, hyalophane, magnetite with cores of chromian-spinel rimmed by ferritchromit, chalcopyrite, muscovite, chromian chlorite, biotite, enargite, siegenite, millerite, bornite, idaite (?), martite, zircon, tourmaline, apatite, ilmenite, leucocoxene, silver, gold.

The authors discussing all field and laboratory results relate the chromian spinel to the detrital chromite, the iron and copper with the convecting hydrothermal fluid generated by reaction of seawater with basites and clastic sediments. The stratiform nature of the sulfides indicate the primary chemical precipitation on the sea-floor. Later events during the regional metamorphism caused some limited mobilization of ore metals, recrystallization and formation of porphyroblasts.

The ore deposit, the hanging and footwall schists are cut with numerous very narrow and 5 wider (10 to 25 cm) vertical subparallel faults filled partly or completely with big crystals (5 to 15 cm) of quartz and hyalophane. K/Ar method gave the age of 59,5 m.ys for these younger mineralization.