those of the granulitic overgrowths. These flow structures have only been observed in granulitic zircons. They probably result from volume diffusion requiring temperatures only attained during granulite facies metamorphism.

GEOTECTONIC POSITION, PETROCHEMICAL AND GEOCHRONOLOGICAL FEATURES OF THE YOUNGER GRANITE COMPLEX IN THE KRUŠNÉ HORY (ERZGEBIRGE) OF THE BOHEMIAN MASSIF

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1. The Krušné hory (Erzgebirge) granite pluton occurs in the area of about 5 thousands square kilometres and it is formed by granites of the Older and the Younger complexes. The pluton is shallowly eroded .It is developed almost on the entire territory of the Krušné hory (Erzgebirge) and Smrčiny (Fichtelgebirge) anticlinorium of the Bohemian massif at different depths (not exceeding 1–2 km). According to the geophysical data, granites are continuing into the crust to the depths of 8–15 km. Deeper they merge with a giant plate-like body of granitoid composition which according to the seismic data is localized within the granulites of the lower sialic crust at the depths from 8 to 18 km. It is suggested that this granitoid body represented an anatectic magmatic reservoir with a total volume of not less than 30.000 cubic kilometers from which granites of the Krušné hory (Erzgebirge) pluton were generated.

An intrusive–anatectic granitoid system is localized at the intersection of the closely spaced faults which penetrated into the mantle and formed transcontinental lineaments of north–east and north strike.

2. The comagmatic series of the Younger and the Older complexes were formed due to the evolution of closely associated in time and space deep–seated granitoid anatectic sources. The Older granite complex is formed mainly by biotite and two–mica granites of standard geochemical type. Among the granites of the Younger complex lithium–fluorine leuco–granites occur. The magmatic differentiation has been most intense in the formation of the Younger complex whose end members are represented by rare metal albite–microcline–topaz granites. Their appearance points to the full evolution of the magmatic differentiation and to the possibility of separation of ore bearing solutions from a magmatic reservoir . According to present studies the fluorine content in these solutions was in the range up to 0.n %, and that of lithium, tin and uranium up to 0.00n %.

3. Rb–Sr isotope dating of the Eibenstock intrusive body of the Younger complex was carried out separately for granites of the first and second intrusion phases. In total 11 whole rock samples of the first phase have yielded the isochron with T = 305 ± 2 Ma and $(^{87}Sr/^{86}Sr)_0 = 0.7122 \pm 0.0015$. Two other isochrons (plagioclase, biotite, whole rock) showed very close results 305 ± 3 Ma, 0.7113 ± 0.0034 and 303 ± 4 Ma, 0.7118 ± 0.009O. This indicates a complete closeness of Rb–Sr isotope system of the granites after their formation. For granites of the second phase (7 whole rock samples) the isochron shows T = 299 ± 3 Ma, $(^{87}Sr/^{86}Sr)_0 = 0.719 \pm 0.016$. The granites of the second phase have considerably higher Rb/Sr ratio and high content of radiogenic Sr (the $^{87}Sr/^{86}Sr$ ratio is up to 3.07). Therefore the estimate of the initial $^{87}Sr/^{86}Sr$ ratio obtained from an isochron is approximate. The data show close concurrent formation of two succesive intrusive phases. The value of 3–4 Ma can be accepted as an estimate of time for the body formation. The values of the initial $^{87}Sr/^{86}Sr$ ratio equal to 0.711 – 0.712, indicate that the granite magma was generated from relatively old sialic rocks of the continental crust.

4. Comparative analysis of the composition of Variscan granitoids in the Central and West–European provinces has shown that the magmatic differentiation processes had the highest intensity in the Krušné hory (Erzgebirge) and in the Central France massifs and a more limited intensity in the Central Bohemian massif.This could be one of the reasons for a different scale of the rare metal ore mineralization in these regions.