le in the Cretaceous sediments. Small, strongly deformed, fragments of the Lower Cretaceous limestone are tectonically incorporated into plutonic rocks of the Brno massif along the thrust structures near Kuřim. Compression connected with movement of the outer Carpathian nappes affected also the Neogene sediments of the Carpathian foredeep close to the front of the nappes. Reversed or strike-slip micro-faults found in the Karpatian psammite near Nítkovice prove this compression.

Sediments in the eastern margin of the Bohemian Massif show also information about the post-Variscan extension. Large normal faults broke the Upper Cretaceous sandstone in the Blansko through near Bořitov. Normal faults crosscutting the Neogene sediments together with the Quaternary cover are known from the area of Vyškov, normal faults are also in the fluvioglacial Quaternary sediments near Oldřišov (close to Opava). The Quaternary extension in the Jurassic limestone at Stránská skála Hill in Brno is proved by extension joints filled by the Quaternary gravel.

Geochemistry, Petrology and Mineralogy of the Two-mica Granites of the Novohradské Hory Mts. and the Surrounding Area

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In general, two-mica granites in the area between the town of Trhové Sviny and the Czech-Austrian state boundary are considered as a part of the Eisgarn granite suite, mostly represented by varieties usually termed as Mrákotín and Číměř. The former is exposed in two bodies. The larger one changes in its north-western part to the Číměř variety. Dike granites also occur. These rocks were recently studied in field e.g. by Staník et al. (1978) and Vrána et al. (1984).

Both varieties have many common features, differing mainly by their texture (grain size, presence of phenocrysts). The Mrákotín variety has hypidiomorphic fine- to medium-grained texture with rare phenocrysts of microcline. Its matrix is composed mainly of alkali feldspar (hypidiomorhic to idiomorphic), plagioclase (hypidiomorhic to idiomorphic, An_{9-24}, sometimes with albite rims), quartz (xenomorphic, often recrystalised) and micas. Biotite is xenomorphic, red to brown with pleochroic haloes, locally changing to chlorite. Analyses of biotites show 1.8-2.3 wt. % TiO_2, 0.1-0.3 wt. % MnO and mg index of 0.31-0.35. Primary muscovite forms large flakes, secondary sericite replaces feldspars. Accessories are represented by sillimanite, zircon, apatite and ilmenite. The Číměř variety differs mostly by its coarse-grained (porphyritic) texture only. Dike leucogranites are similar to fine-grained granites, sometimes are richer in muscovite.

The Eisgarn granite whole rock chemistry shows features of S-granites. SiO_2 content varies between 71-73 wt. %. Higher contents of K_2O (strongly predominating over Na_2O), Rb, Cs, U, Th and Li and on the contrary lower contents of FeO, MgO, Cr, Co and Ni are typical. Total REE content is in a range of 120-280 ppm. Normalised REE patterns show a strong negative Eu anomaly as well as an enrichment of LREE. Associated leucogranites have quite similar major element contents but they are different in their trace element distributions.

The Mrákotín variety is chemically almost uniform throughout the unit. The Číměř one is very similar but more variable in its chemistry and seems to have lower contents of Zr and LREE. The both varieties are close to an average of Eisgarn type granites presented by Vellmer and Wedepohl (1994).

Chemistry, mineralogy, some textural features and geological position of these two-mica granites prove clearly their anatectic origin connected with an assimilation of surrounding rocks. Small aggregates of biotites (well-apparent in fine-grained varieties only) as well as parallel structures, locally with abundant biotite (Staník et al. 1978) can be observed. A metapelitic source material, probably containing garnet (Vellmer and Wedepohl 1994) can be assumed according to accessory sillimanite as well as low HREE contents. The chemical composition of the rock is close to an experimentally confirmed granite minimum (e.g. Puziewicz and Johannes 1990). An excess of Fe_2O_{3tot} and MgO suggests a partial (about 5 %) assimilation of biotite rich restites (75 % biotite + 25 % plagioclase can be assumed).

The Eisgarn granite can be considered as a large intrusion of a viscous magma with a relatively small contribution of restites and imperfectly assimilated country rock material. Differences in chemical composition can be explained by a various content of biotite (i.e. assimilated material). Both varieties - fine-grained (Mrákotín) and coarse-grained (Číměř) - are texturally different products of one the same intrusion; fine-grained facies seems to represent a marginal part of the intrusion probably changing to the coarse-grained variety towards the centre. However, contact of these varieties has not been observed in the field.

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