THE GRANODIORITE OF THE WEHRA–WIESETAL (SOUTHERN BLACK FOREST)
A contribution to the problem of granite genesis by metasomatosis

G. STRUNZ

Institut für Mineralogie der Freien Universität Berlin, Takustr. 6, 14195 Berlin, FRG

The Granodiorite of the Wehra–Wiesetal was hitherto in its petrogenetic position discussed and described partly as an in situ diatexite and partly as an early Variscan plutonic rock. Decisive in this discussion is the genetic interpretation of the rock characterizing K–feldspar–megacrysts either as magmatic crystallizations or as metasomatic blasts. But it is possible, that both kinds of genesis can be present in case of a magmatic core and/or an metasomatic rim, too.

The Ba content of the K–feldspar megacrysts can be drawn near as a hint for the respective source aspects. Ba is able to substitute K on grounds of its similar ionic radius. It appears in K–feldspar in concentrations till 2 weight–%. Therefore it can be measured easily by the electronic microprobe.

Numerous analyses of K–feldspar megacrysts from various Variscan magmatic rocks could turn out, that the Ba concentration of crystals of the magmatic main crystallization is extensive well–poised. Average concentrations of 0.4 % BaO are existing, while the absolute concentrations are very different. Within the late magmatic and the metasomatic–high tempered stage a Ba enrichment in the liquid respectively the fluid stage does often take place. In this way a raised incorporation of Ba in a continued growing of the crystals can happen. A traverse made by the electronic microprobe can point out in favourable circumstances a model of Ba distribution in dependence of a core– or rim–zone. A possible increase of the Ba concentration would demonstrate in this way a late magmatic – metasomatic continued growing of the crystals.

The megacrysts from the Granodiorite of the Wehra–Wiesetal show very low, in core and rim constant Ba concentrations of 0.3 % BaO. Only in the early magmatic stage exist equilibrium conditions, which allow such low Ba contents (MEHNERT & BÜSCH, 1981). Therefore core as well as rim must have been grown in the early magmatic stage. These facts show the essentially magmatic intrusive character of the whole rock. Zones of secondary hydrothermal genesis can nevertheless exist, without the whole character of a magmatic genesis can be made dubious. So could be shown, that the granodiorite is a member within the elder Variscan Southern Black Forest granite family.

Reference
Mehnert – Büsch: N. Jb. Min. Abh. 140, p. 221–252

THE DEPTH OF METAMORPHISM AND PROBLEMS OF THE HIGH–PRESSURE METAMORPHITES, EXAMPLES FROM THE BOHEMIAN MASSIF

V. ŠKVOR

Dvouramenná 915, 140 00 Prague 4, Czech Republic

The rock units of the Bohemian Massif are formed by various rock types which differ in deformational behavior. In case of loading, plastic "incompetent" components are squeezed out, folded and transported towards the zones of lower pressure. On the contrary, the solid competent bodies remain undeformed. During metamorphism the internal pressure associated with volume increase of the confined heated solid bodies may increase considerably. It is belived that the above phenomena should be taken into consideration to explain the presence of exotic high–presssure metamorphites within the prevailing crystalline series. The geology of the eclogitized metabasites and granulites in the Bohemian Massif is not in contradiction with this model.