metamorphism is unknown. Formerly basaltic dykes, which are now amphibolites, point to an extensional regime, which brought the Dobra gneiss from the lower crust to higher crustal levels. It is not clear which crustal level is reached during the uplift. Some authors, (e.g. FUCHS and MATURA, 1980), argue for a sedimentary contact of Dobra gneiss and Variegated Group. Consequently the Dobra gneiss has been exposed. However, it is also possible that both units have been tectonically juxtaposed. In any case, the subsequent metamorphism and deformation history of Dobra gneiss and Variegated Group is the same. This metamorphism reached the higher amphibolite facies and is of Variscan age (PETRAKAKIS, 1986). The deformation during the later retrograde amphibolite- to greenschist facies metamorphism reactivated and overprinted the older fabrics. Isoclinal folds and boudinage developed within the Dobra gneiss and the overlaying Variegated Group. Subsequently, these structures are overprinted by an open folding.

This structural environment was intruded by the Rastenberger granodiorite at the border of the Ostrong Unit/Drosendorf Unit. In contrast to the concordant contact of the pluton to the Monotonous Group in the west, the contact to the Dobra gneiss/Variegated Group in the east is discordant. During the emplacement of the pluton the foliation of the gneisses was rotated about 60° into a subvertical position nearby the contact. Another contact effect was the growth of K-feldspar up to a distance of 30 m from the contact. Discordant intrusions of fine-grained granitic dykes into the rim of the Rastenberger granodiorite as well as in the wall rocks and the intrusion of discordant lamprophyric dykes into the Dobra gneiss are the final events.

PETRAKAKIS, K. (1986): Metamorphism of high grade gneisses from the Moldanubian Zone, Austria, with particular reference to the garnets. - J. Metamorphic Geology 4, 323 - 344.
FUCHS, G., MATURA, A. (1980): Die Böhmische Masse in Österreich. - In: OBERHAUSER, R. (Ed.): Der Geologische Aufbau Österreichs. - Springer: Berlin, Heidelberg, New York, 121 - 143.

GEODYNAMIC SIGNIFICANCE OF MOLDANUBIAN ORTHOGNEISSES WITHIN THE SOUTHEASTERN BOHEMIAN MASSIF, AUSTRIA

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Moldanubian orthogneisses within the southeastern Bohemian Massif differ largely in field relationships, petrography and geochemistry. The following orthogneiss bodies have been distinguished during this study: (1) The Spitz gneiss and the melanocratic Dobra gneiss include granodioritic to tonalitic compositions within bodies which are largely subparallel to country rocks. (2) The leucocratic Dobra-gneiss, here called Braunegg gneiss, forms discordant stocks within the melano-

cratic Dobra gneiss. (3) The Weiterndorf gneiss has mostly granitic compositions and forms a major discordant stock. (4) the Streitwiesen gneiss having granitic compositions forms a concordant layer within metasedimentary country rocks.
Two major trends were recognized from petrography and chemistry (Fig. 1, 2): (i) The Spitz gneiss and the melanocratic Dobra gneiss include calc-alkaline suites (Tonalite, granodiorite) which have low Rb, Y, and variable K, Ni, Cr contents, enriched LREE abundances and no, respectively a limited negative Eu anomaly. Chemical characteristics argue for pre-collisional origin of parental magmas. (ii) The Weiterndorf gneiss, the Braunegg gneiss and likely the Streiwiesen gneiss have granitic compositions, high Al contents as expressed in the presence of metamorphic sillimanite, relatively high Th, low Zr, and variable Rb contents, and significant negative Eu anomaly. These features suggest a syn-collisional granitic parental magma which resulted from melting of crustal rocks.

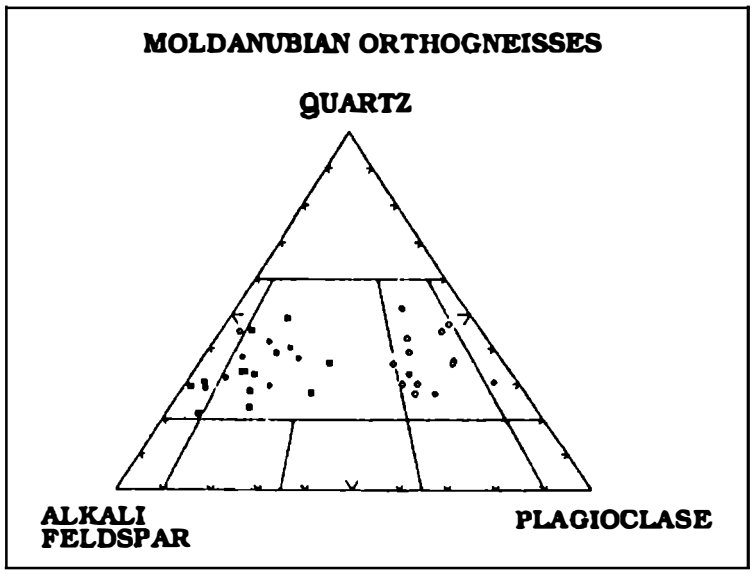

Fig. 1: Present modal compositions of Moldanubian orthogneisses within the southeastern Bohemian Massif. Legend: Circles: Spitz gneiss; filled squares: Weiterndorf gneiss; filled circles: melanocratic and leucocratic Dobra gneiss.

The protoliths of all these orthogneisses intruded during pre-Variscan, most likely Cadomian events interpreted to record an earlier supra-subduction-zone magmatism along an active continental plate margin and a later syn-collisional magmatic event. High-grade metamorphic overprint and deformation occurred during Variscan, early Carboniferous plate collision of higher Moldanubian units with the Moravian foreland. Both age-relationships and present tectonostratigraphy argue for a close

relationships of these Moldanubian events with the Cadomian calc-alkaline batholiths (Thaya, Brno batholiths) within the Moravian units.

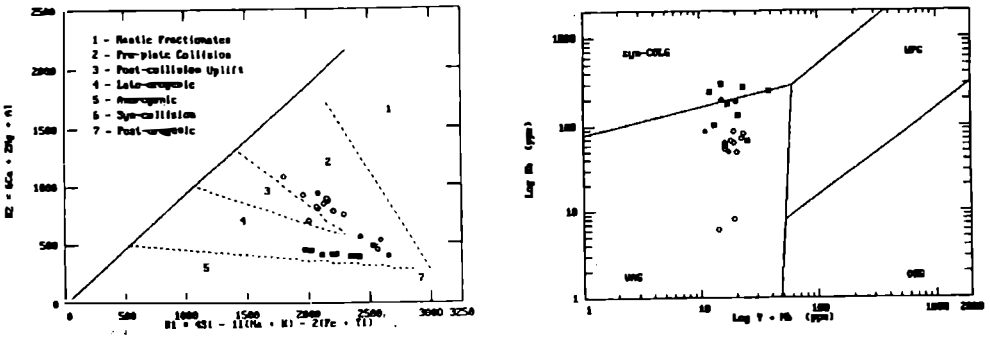

Fig. 2: Variation diagrams of Moldanubian orthogneisses showing evolution trends of Moldanubian orthogneisses:
Left side: Major elements factorization diagram after BATCHELOR & BOWDEN (1985).
Rigth side: Trace element diagram after PEARCE et al. (1984). Both diagrams basically display the pre-plate collisional (Dobra/Spitz gneisses) vs. the syn-collisional to late orogenic trend of the Weiterndorf gneiss. Legend: Circles: Spitz gneiss; filled squares: Weiterndorf gneiss; filled circles: melanocratic Dobra gneiss.

BATCHELOR, R.A., BOWDEN, P. (1985): Petrogenetic interpretation of granitoid rock series using multicationic parameters. - Chem. Geol., 48, 43 - 55.

PEARCE, J.A., HARRIS, N.B.W., TINDLE, A.G. (1984): Trace element discrimination diagrams for the tectonic interpretation of granitic rocks. - J. Petrol., 25, 956 - 983.

STRUCTURE AND KINEMATICS OF MOLDANUBIAN UNITS WITHIN THE SOUTHEASTERN BOHEMIAN MASSIF: EVIDENCE FOR THE EMPLACEMENT OF DEEP-CRUSTAL NAPPES

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The Moldanubian units of the southeastern Bohemian Massif include a pile of Variscan nappes which formed within high- and medium-grade metamorphic conditions. An evaluation of presently used definitions, the strict application of a