A COMPARISON AMONG THE METAMORPHISM OF THE VARIOUS LITHOTECTONIC UNITS IN THE AREA OF THE DROSENDORF WINDOW, E MOLDANUBICUM

PRESSEL, CH.

Institute of Petrology, University of Vienna, Dr. Karl Luegerring 1, A-1010 Austria

Rock samples of different compositions such as amphibolites, granulites, paragneisses, orthogneisses, and garnet-pyroxenites were examined by petrological and geochemical methods in the area of the Drosendorf Window, situated about 100 km NW of Vienna in the eastern part of the Moldanubicum. All lithotectonic units in this area (Monotonous Group, Varied Group, Gföhler Unit, Raabs Unit; (FUCHS, 1976; 1986; 1991)) were considered in this investigation.

The results of the studies suggest three different stages of metamorphism :

1.) The oldest one may be related to a high-pressure event, especially documented in some "dry" granulites and garnet-pyroxenites. For granulite paragenesis pressure conditions were estimated to be at least 16 kbar for temperatures around 750 °C (BERMAN, 1987, 1991; BERMAN et al., 1987). Increased MnO content in the cores of some old garnets could be relictic of an early stage of this metamorphic event.

2.) The second event is characterized by high temperatures (around 800 °C) at comparatively low pressures. Pressure conditions were near 10 kbar in all tectonic units, except in the Monotonous Group (near Weikertschlag), where only 6 kbar was reached. The typical paragenesis of this low pressure (6 kbar) rocks is Cord + Ga +Kfsp + Plag + Qu + Bi. Evidence is also found for by a later reaction consuming Cord + Ga to form Sillimanite and Biotite. The difference in pressure between these rocks and those of the Varied Group, Gföhler Unit and Raabser Unit (for example calculated for hercynite-gahnite-bearing paragneisses) may suggest a tectonic window near Weikertschlag, where the Monotonous Group appears at the surface. A complete new orientation of the schistosity of some samples belonging to the Gföhler Unit and the Varied Group is possibly related to the emplacement of the nappes towards their final positions. These tectonic events were followed by an extreme decompression of about 4 kbar in a comparably short time (exemplified by the breakdown of garnet into Plag + Cummingtonite + Ore Phases in amphibolites of the Varied Group and the formation of Px - Plag symplectites around garnet in the garnet - pyroxenites). Especially in the anisotropic rocks of the Varied Group near Drosendorf, the formation of an extensional crenulation cleavage is recognized (PLATT & VISSERS, 1980).

3.) The youngest and best documented event was a recrystallisation, increasing in intensity from W to NE with P-T conditions at 5 - 6 kbar and 550 - 600 °C. Infiltration of external fluids, especially occurring in a slab of the Gföhler

Gneiss, led to massive formation of sheet silicates. As the growth of the micas is believed to be related to the Moravian Overtrust, $^{40}Ar/^{39}Ar$ age dating of the micas was attempted to estimate the age of thrusting. Chlorine was detected by massspectroscopic methods in the micas. This suggests that these rocks may have been affected by percolating brines, which also have led to the decomposition of potassium feldspar and Al-silicates. A saline horizon located in the region of the Moravian overthrust is possibly responsible for the formation of these brines.

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LATE-OROGENIC SINISTRAL SHEAR ZONE AT THE NE MARGIN OF THE BOHEMIAN MASSIF

PUZIEWICZ, J. & MAZUR, S.

Institute of Geological Sciences, University of Wroclaw, Cybulskiego 30, 50-205 Wroclaw, Poland

The eastern margin of the Bohemian Massif corresponds to a ductile NW-dipping shear zone characterized by NE direction of tectonic transport (RAJILICH, 1987). The zone, covered by sediments, continues supposedly in the NE corner of the massif, eastwards of the Góry Sowie gneissic block (Fig. 1). In this area, the eastern margin of the Bohemian Massif consists of a few metamorphic/igneous complexes cropping out to the east and south-east of the Góry Sowie gneisses. These are: the Niemcza Zone, the Niemcza-Kamieniec metamorphic complex and the Doboszowice metamorphic complex (Fig. 1).

The **Niemcza Zone** consists of mylonitized gneisses of the Góry Sowie Block with minor ultrabasites, amphibolites and quartz-graphite schists. The mylonites are intruded by numerous small dikes and veins of late- to post-tectonic granodiorites and quartz diorites or quartz syenites. The mylonitic mineral assemblages are of both high- and low-temperature type. The high-temperature assemblage contains biotite and fibrolitic sillimanite. Chlorite and muscovite are typical of the low temperature one.