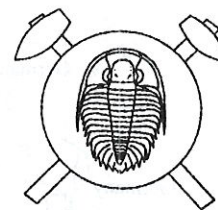


High, medium and low pressure assemblages from the Czech part of the Královský Hvozd Unit (KHU) in the Moldanubian Zone of SW Bohemia



Vysoko-, středně- a nízkotlaké minerální asociace z české části jednotky
Královského hvozdu v moldanubiku jihovýchodních Čech (Czech summary)

(11 text-figs.)

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The Královský Hvozd Unit (KHU), conventionally belonging to the Monotonous Group of the Moldanubicum, shows an important lithological heterogeneity. Thus, position of isograds based on index minerals (Vejnar 1963, 1991) was revised from this point of view. The first entry of staurolite follows the main lithological boundaries between metapelitic rocks and those of more greywacke character. The main three lithological segments of the KHU that have been distinguished preserve different PT-evolution stages. The lithologically variegated northern segment underwent a higher-pressure event (450 °C/10 kb). This segment conserves metamorphic record without equivalence in the whole Moldanubian Zone. Taking into account the spatial relation of the rocks bearing HP/LT assemblages to the Central Bohemian Fault, an allochthonous position of at least parts of this northern segment seems to be probable. On the Bavarian side, Silurian microspores have been found in low-grade rocks at similar structural level (Reitz 1992). Nevertheless, the possibility, that a specific event of Moldanubian history has been here preserved, cannot be completely excluded. The SE-segment of gneisses of greywacke affinity conserves a progressive Barrovian trend ranging from 500 °C/5.5 kb to 590 °C/6.5 kb and the SW-segment of metapelites s.s. shows the subsequent low-pressure overprinting ranging from 525 °C/1.5 kb to 575 °C/2 kb. The very high heat flow estimated from the PT-calculations witnesses an exclusive contact (periplutonic) kind of metamorphism in this segment.

Key words: metamorphism of pelitic rocks, low-grade metamorphism, medium-grade metamorphism, low-pressure metamorphism, medium- to high-pressure metamorphism, phengite barometry, petrogenetic grid, bulk rock chemistry, Variscides, Moldanubian Zone

Introduction

The Královský Hvozd Unit (KHU) comprises a region in the SW part of the Bohemian Massif near the contact of the Moldanubicum and Bohemian (also Zone Teplá-Barrandian, or ZTT). The two units are separated by the Central Bohemian Fault (CBF) (Fig. 1).

Conventionally, the KHU is defined as a part of the Monotonous Group of the Moldanubicum, whose metamorphic conditions did not reach sillimanite isograd (Vejnar 1963). Because of its relatively low-grade metamorphic character, it was designated as the „roof of the Moldanubicum“ (Fischer 1938).

According to previous research, (Vejnar 1963, 1991) on the Czech side a former Barrovian medium-pressure metamorphism defined by kyanite, staurolite and sillimanite I zones, was followed by a low-pressure metamorphism (cordierite + K-feldspar zones) and subsequently a contact (periplutonic) metamorphism with andalusite, cordierite II and prismatic sillimanite, as index minerals.

On the Bavarian side, the main metamorphism was syn- to post-tectonic with WNW-ESE folding, and it was of a low-pressure type only (Blümel – Schreyer 1976, 1977).

The aim of this study is to present information on PT-evolution of some rock samples representing the main lithological and structural segments of the KHU.

Geological setting

The Královský Hvozd Unit is separated in the NW from the Zone Teplá-Barrandian (ZTT) represented by the Kdyně Massif with CBF (Fig. 1).

In the NE, beyond the KHU border (sillimanite isograd), there are either muscovite-bearing and muscovite-free, or cordierite-bearing gneisses, which belong to the Variegated Group of the Moldanubicum (Fig. 1). The prevailing foliation, as well as the lithological boundaries are oriented NE-SW and dip to the NW: towards the east progressing migmatization is observed (Fig. 1). In the KHU, this structure is in part preserved and in part refoliated by NW-SE trending foliation.