

terminations of individual segments and bridges of the host rock, sometimes with thin granitoid septa inside the dikes. These features together with textures and grain-size variations resulted from magma fracturing and injections of low-viscosity magmas into brittle fractures of the completely crystallised and cooled granitoid complex. Temporal relations are not clear, but the vertical minettes seem to be the youngest. One of them crosscuts both the aplitic granite and granite porphyry. Another thin minette dike contains abundant brown glass which is surprisingly fresh and approaches K-feldspar in composition.

The multiple intrusive pulses of the broad spectrum of magmas typical for the area of CBPC should be derived from various mantle and crustal magma sources. The mantle sources of mafic magmas were heterogeneously enriched in hygromatophile elements.

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Tectonics of the Železný Brod crystalline unit in the vicinity of Železný Brod

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The Železný Brod crystalline unit is considered as a part of the Krkonoše-Jizerské hory crystalline unit. The following formations were distinguished by Chaloupský (1983):

1. Velká Úpa Group: Middle (?) Proterozoic
2. Radčice Group consisting of:
 - the lower part: Upper Proterozoic or Lower Cambrian
 - the upper part: Lower to Middle Cambrian
 - Železný Brod volcanic complex: Lower to Middle Cambrian
3. Poniklá Group: Upper Ordovician to Silurian (possibly Lower Devonian)

Marbles with graphitic shales were found within the Poniklá Group in the Koberovy quarry. Based on the graptolith fossils the age of the shales was determined as the Silurian (Wenlock), (Chlupáč 1953).

Another outcrop of the marbles with the graphitic shales was found in the Na vápence quarry close to the Železný Brod railway station. The age is estimated according to a tectonic position as the Silurian (Chaloupský 1989).

Two fold systems were found on the both sites (Ramsay 1987). The older isoclinal fold (F_1) is seen in the Fig.1. The fold F_1 was folded by the younger fold (F_2). Structural data (fold axis, axial planes) shows also two clusters- the older and the younger fold systems.

The two fold system in the Silurian shales suggests another deformation stage (younger Caledonian) in addition to the Variscan orogenesis. The hypothetical younger Caledonian orogenesis was also described by Chaloupský (1989).

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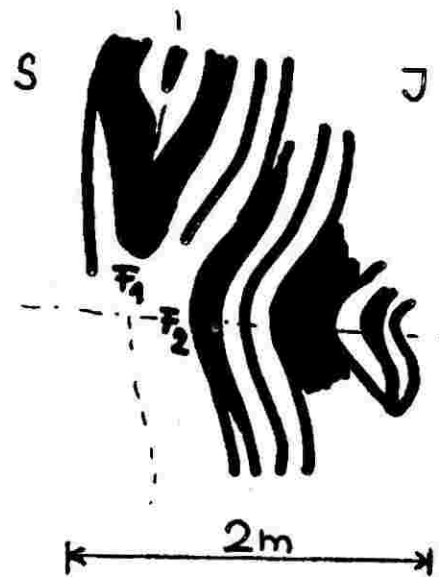


Fig.1. Folded strata, limestones (white), and shales (black), in the Na vápence quarry close to Železný Brod.