# Regional Extension of Hydrothermal Veins – Result of an Important Deformation Event in the Moravosilesian Paleozoic

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Numerous hydrothermal veins occur in the eastern part of the Moravosilesian Paleozoic (the Nízký Jeseník Mts). They are concentrated in historical mining districts, where silver and lead were mined (Losert, 1957). Other veins are disseminated in quarries and outcrops throughout the area. Greywackes, siltstones, conglomerates and shales of the Moravice and Hradec-Kyjovice formations are typical host-rocks of the mineralization.

Hydrothermal veins have polymetallic nature with absence of complex sulphides and Ag-minerals. Most frequent minerals are galena, sphalerite, chalcopyrite, pyrite and marcasite. Quartz, Mg, Fe-carbonates, calcite and barite represent gangue minerals. The veins have mostly massive, brecciated, deformational and drusy structures. Thickness of veins ranges between 0.00X to 0.4 m. The mineralization is investigated in context of the post--Variscan mineralization processes of the Moravosilesian Paleozoic (Grant Agency of the Czech Republic, Grant No. 205/00/0356) (Slobodník, 2000; Slobodník et al., 2001).

Hydrothermal veins, which penetrate greywackes, conglomerates and siltstones, show directions from N-S to NNE--SSW, NW-SE, to lesser extent E-W strike. Veins have mainly steep inclinations of 60°–90°, rarely up to 30°. Their strikes follow the main fracture systems of the particular locality. Some fracture systems are not mineralized (NE-SW to ENE-WSW). Typical structural position of thin, mainly carbonate-bearing veins, is perpendicular to the bedding planes, but their origin is not linked with the Variscan folding. Major quartz and carbonate veins are associated with normal or thrust faults dipping 50°–80°. There is possible to distinguish deformation structures of lenticular veins with isolated nodules of galena with quartz, mylonite zones and brecciated structures in which fragments of rocks, in places also fragments of older phase of quartz, are cemented by carbonate hydrothermal minerals. These large veins are rich in sulphide mineralization that is rare in small veins.

Hydrotermal veins located in shales follow mainly these directions: E-W, NNE-SSW, NE-SW and less WNW-ESE and N-S. Their dip is commonly between 70°–90°. Some veins filled subhorizontal fractures. The thickness of veins in shales ranges between several milimeters and five centimetres and hence they are thinner than veins in greywackes. The thickest veins show also brecciated structures. From structural point of view they also fill the extensional structures oriented perpendicularly to the bedding planes. Slightly different strike of veins in greywackes and in shales may reflect differences in rheologic nature of the host-rock types and local stress fields.

The NW-SE and NE-SW faults apparently represent the main migration pathways for hydrothermal fluids also with respect to their directional position to the West Carpathian arc (NE-SW). Older faults of the above-mentioned directions were reactivated during the Alpine tectogenesis. That relationship is supported by some geological evidences in the region of the Nizký Jeseník Mts. (Gruntorád and Lhotská, 1973; Havíř, 2001). Regional distribution of the studied hydrothermal mineralization point to more extensive migration of fluids along fractures originated in consequence with regional stress field, perhaps developed by movement of large crustal blocks during certain phase of the Alpine tectogenesis (Slobodník et al., 2001).

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# Spatial Relations between Metamorphic and Sedimentary Rock Complexes in the Cieszów Unit Area (Sudetes, SW Poland) – Geophysical Implications

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The border zone of the Świebodzice Depression and Kaczawa complex (Sudetes, SW Poland) is characterized by occurrences of metamorphic rock complexes among sedimentary infill of the basin, accumulated between the Late Devonian and Early Carboniferous. There are two opposite concepts of the tectonic position of those crystalline rocks. They are interpreted either as the outcropping basement of the basin (Dathe and Zimmermann, 1912; Bederke, 1929) or as nappes thrust over the sedi-