## ABSTRACT

The quartz veins of the historical Jakub mine (Kasejovice region) with gold, Bi-sulphotellurides and Bi-Sb sulphosalts belong to variscan Au-mineralization of the Bohemian Massif (the orogenic gold deposits type). The gold-bearing quartz veins fill pre-existing dislocations in gneisses and migmatites of the Moldanubian Drosendorf unit. Main veins are usually ~ 0,5 m thick and lenticular in shape; gold grade varies from 0,3 to 49 g/t and they are characterized by diversified paragenetic relationships. Four mineralization stages can be distinguished (Litochleb 1984a): quartz, gold-bearing, base metal "polymetallic" and calcite stage.

Based on the unique sample discovery, cathodoluminescence study and fluid inclusions microthermometry we distinguish three main generations of quartz in comparison with formerly known (Litochleb 1984a) two generations: Q1 – the oldest quartz, that forms the main portion of gangue, we also discern Q1b (younger phase of precipitation, pellucid quartz in contact with ore minerals); Q2 – divided into Q2a (tiny pellucid euhedral crystals) and Q2b (fills in fractures in Q2a and in Q1); Q2 also form thin discontinuous rims around ore minerals of gold-bearing and polymetallic stage; Q3 – also divided into two subgenerations: older Q3a, which has very distinct luminescence and therefore we are confident that it is not associated with any ore minerals; and finally the youngest Q3b (afterwards creation of dolomite and late pyrite closes the succession scheme).

Quartz Q1 precipitated from low salinity (< 2,4 % $NaCl_{eq.}$) aqueous-carbonic fluid with no or minor methane/nitrogen admixture. Estimated PT conditions of formation are 320 to 360 °C and ~ 300 MPa (depth about 11 km under lithostatic pressure). Younger phase Q1b precipitated at same temperatures, but the pressure was significantly lower: 50 to 100 MPa (probably transition to hydrostatic pressure).

Formation of quartz Q2 and Q3 is associated with aqueous fluids. Q2a occurred from low salinity (< 3,1 % $NaCl_{eq.}$) fluids at 200 to 230 °C and 50 ± 20 MPa (depth about 5 ± 2 km under hydrostatic pressure). Q2b precipitated from fluids with even lower salinity (< 1,7 % $NaCl_{eq.}$) at 170 to 200 °C and either same or lower pressure. This quartz is supposedly cogenetic with minerals of gold-bearing/polymetallic stage. The Q3 formed from higher salinity (up to 11 % $NaCl_{eq.}$) aqueous fluids at wide range of temperatures (120 to 170 °C).