

ABSTRACT

Gold has been intermittently mined in the Kasejovice-Bělčice district since 14th century. Total gold production (14th-20th century) is, however, estimated less than 1t. Although the production was small, the Kasejovice-Bělčice ore district represents one of the most paragenetically interesting gold districts in the Bohemian Massif (with the exception of the Jílové district). Among others, first occurrence of bismuthian tellurides from the Czech Republic was documented from the Kasejovice mine.

Kasejovice gold district can be divided into western and eastern parts. Eastern part, is located between Bělčice and Lnáře, is made by the magmatic rocks of the Central Bohemian Plutonic Complex (CBPC), typically by granodiorite of the Blatná type. Ore veins strike NE-SW. Quartz veins, lenticular in form, contains besides gold also elevated contents of tungsten (as scheelite). Western part between Kasejovice, Oselce and Nekvasovy is formed by Moldanubian migmatites. Gold-bearing quartz veins herein are an integral part of a broad Au - Mo - W vein/veinlet ore zone.

Fluid inclusions were studied in the quartz only. Based on salinity and temperature of total homogenization (Th-tot) five different genetic groups of fluids were distinguished (F1 trough F5). Early H₂O-CO₂ fluid (F1) has salinity lower than 3 wt.% NaCl_{eqv.} and Th-tot from 280 to 320 °C. The older quartz veins (Q1) developed from these fluids in the depth of about 9±2 km under conditions of lithostatic pressure.

During next stages, fluids of H₂O type were dominant. Formation of Q2, that is likely connected with gold precipitation (Au-I), occurred from aqueous fluids (F2) of low salinity (1-2 wt.% NaCl_{eqv.}) and of high temperature of trapping (~300 °C). They may represent product of a heterogenization of H₂O-CO₂ parent fluid (F1 ?). Electrum (Au-II) and associated tellurides and sulfosalts precipitated from H₂O fluids (F3 - F5) under decreasing temperatures and pressures (230-170 °C and 70-30 MPa).

Formation of the youngest quartz (Q3) is connected with aqueous fluids (F3) of highest salinities (8-10 wt.% NaCl_{eqv.}). Low temperature (150 °C) and low salinity (<3 wt.% NaCl_{eqv.}) nature of F4-F5 fluids correlates well with their supposed meteoric origin.

Fluid inclusion data from this study acknowledge pertinence of Kasejovice district to the mesothermal type of Au-mineralization (low salinity fluids; H₂O-CO₂ type of fluids with low contents CO₂), where the evolution started with the metamorphic fluids and proceeded towards the dominance of meteoric fluids.