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Gold in Egypt: Epigenetic lode mineralization in regional structural discontinuities

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In the Eastern Desert of Egypt, some banded iron and volcanogenic massive sulfide ores have been considered auriferous based on their assay results, though all available information indicate that gold, if presents, is epigenetic in these deposits. Au anomalies in fresh BIF samples are completely absent (assaying tens of BIF samples from different locations in the Egyptian Eastern Desert gave no gold concentrations). Even where subjected to pervasive metasomatism, gold values in the Neoproterozoic BIF deposits are consistently nil. If reported in the BIF, gold is confined to auriferous quartz veins along prominent fault/shear structures (e.g., Abu Marawat BIF). The banded iron ores are associated with Au-quartz veins only where sheared and tectonized. A single evidence for the syn-genetic origin of occasional Au in the Egyptian BIFs is completely missing. Stratabound gold deposits in the Egyptian basement are suggested on basis of assaying results of some samples while no comprehensive genetic studies were done. This will remain a big problem of scientific credibility of the classification suggested by Botros (OGR 2004). Accidental gold traces in some Egyptian massive sulfide ores can be related to post-formation circulating metamorphic/hydrothermal fluids. On the other side, the majority of the discrete gold occurrences in the Eastern Desert are of mesothermal vein-type, either related to fault/shear zones, or confined to peripheries of small granitoid massifs in regional transpression/transcurrent systems. Gold could have been leached from various lithologic units (i.e. volcanic/volcaniclastic or mafic/ultramafic rocks in depth) or derived from late-orogenic granitoid magmas. Alternatively, hot magmatic intrusions could have aided convection of metamorphic±meteoric, low salinity aqueous-carbonic fluids and thus effectively dissolved, transported, and deposited gold in zones of dilation.

Biography

Basem Ahmed Zoheir has completed his PhD at the age of 30 years from University of Munich (LMU) and Postdoctoral studies from Universities of Geneva, TU Clausthal, Tubingen, Lulea TU, and the USGS. He has published numerous papers in reputed journals and serving as a reviewer and editorial number, as well as a consultant in Ore Geology.

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