

EPITHERMAL GOLD MINERALIZATION ASSOCIATED WITH CENOZOIC HYDROTHERMAL CIRCULATION ALONG RIFT-RELATED DISTENSIVE FAULTS OF THE KIVU TANGANYIKA HORST (EAST AFRICA).

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The eastern and western borders of the Tanganyika-Kivu rift represent a major gold province in Africa with various types of gold mineralization, including gold in Paleoproterozoic BIF, gold in pyritic metavolcanics, mesothermal gold in shear zones and perigranitic gold related to Meso-Neo-Proterozoic granites. Several gold occurrences from the Nyungwe district of Rwanda and the Mabaye district of Burundi, visited by one of the authors, were reassessed following the discovery of several hydrothermal sulphide seeps in the northern Tanganyika lake by an IFREMER team (Thiercelin et al., 1993). The major active hydrothermal vents, both underwater and onshore, are located near the intersection of major normal faults striking N0-20°, N160-170° and N120°. Along the northern ridge of Mabaye, 70 km north of the Pemba-Luhanga hydrothermal field, several linear siliceous breccia showing a N0°, N160° and N110° pattern have been mapped by a UNDP team (Kolbenstetter, 1986). These undeformed breccia postdate all Kibaran events. They mark the onshore extension of the lake fracture system and coincide with a conjugate set of normal faults in response to the major Cenozoic transtensional event of the Tanganyika-Kivu rift (Castaing, 1991). Multi-element geochemistry of these iron-rich silicic breccia reveals a typical epithermal signature (Ba, Mn, Ag, Au, Sb, As, Cu, B). Certain jigsaw breccias, cemented by crustiform quartz and banded chalcedony with hematite, goethite, are also characteristic. Tropical weathering has destroyed most of the diagnostic minerals (argillic alteration). Amethyst quartz, baryte, senarmontite and, in part, hematite, are the only remnants of the primary hydrothermal minerals. Giant crystals of oxidized pyrite with electrum flakes on their faces occur locally and may correspond to supergene oxidation of bonanza-type ore. The recognition of epithermal-type mineralization in the continental East African rift opens up new exploration opportunities.