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SUMMARY OF COMMUNICATIONS

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GOLD METALLOGENESIS AT THE PARI MINE, NE-QUADRILÁTERO FERRÍFERO, MG-BRAZIL

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The Pari gold Mine in NE-Quadrilátero Ferrífero is located within the Archean Rio das Velhas greenstone belt/Rio das Velhas Supergroup. Here, this unit consists of the Quebra Osso and Nova Lima groups in normal stratigraphic setting, representing, respectively, the lower ultramafic volcanic and middle mafic volcano-sedimentary units of the greenstone belt.

Pari Au-mineralization is hosted in heterogeneous BIF consisting of variable mixtures of sulphide-carbonate-oxide-silicate facies. The main regional metamorphism, Paleoproterozoic in age, reached lower amphibolite facies (garnet-zone of the epidote-amphibolite subfacies) and affected the Au-mineralization. Two different arsenopyrite generations occur in the ore: the older xenomorphic one, rich in tiny inclusions of chalcopyrite, pyrrhotite, sphalerite, gold and gangue minerals, shows As-in-Aspy-geothermometer metamorphic reequilibration temperatures of 320-445°C; the younger Aspy-generation is idioblastic, barren of inclusions and shows metamorphic peak temperatures of 485-491°C. Gold occurs subordinately ($\leq$ 15% of the total) as refractory inclusion, 5-10μm in size in first generation Aspy and, occasionally, in magnetite. Free gold in grains $\geq$ 100μm predominates by far; it was expelled and grew by accretive crystallization during the metamorphic Aspy-transformations. Refractory and free gold show similar compositions, Au(81-83.5):Ag and Au(83.3-86):Ag, respectively, demonstrating partial Ag-loss and Au-enrichment during progressive metamorphism.

Pari Au-mineralization of exhalative syngenetic origins occurred near an active center of submarine basaltic eruptions during Archean greenstone belt evolution. Wall rock alterations were not observed. Neither the late-Archean nor the far more vigorous Paleoproterozoic regional metamorphism destroyed the well-defined lithostratigraphically controlled primary geochemical characteristics and polarities in the ore horizon, the adjacent host rocks or the associated amphibolites of the Archean greenstone belt succession.

Pari gold mineralization is quite similar to the Oriental-type Kolar Gold Field deposits; there too, exhalative syngenetic volcanic origins have been suggested. In comparison, the São Bento gold mine, $\sim$ 20 km W of Pari in the Nova Lima Group, shows lower to middle greenschist facies metamorphism, As-in-Aspy Au-ore temperatures of $<$ 320-435°C, and three distinct gold generations: refractory gold ($\geq$ 80% of the total) in Aspy with Au(65-70):Ag, in pyrite with Au(82-87):Ag being similar to the free gold. — (*December 14, 2001*) .

PYROCLASTIC BRECCIAS AND RELATED DEPOSITS OF THE POÇOS DE CALDAS ALKALINE COMPLEX, MG/SP, SE-BRAZIL

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