

Tin Ore Deposits of Brasil and Bolivia

SALOMON RIVAS, Consultant Geologist and Researcher. La Paz y Santa Cruz, Bolivia.

Like most of the tin ore deposits of the world, the Brazilian and Bolivian tin deposits are related to acid igneous intrusions. The Brazilian deposits are in Precambrian granites. The Bolivian deposits are in Tertiary granites and dacites.

The Brazilian deposits are mainly alluvial, and are for one crop. Also they have small primary deposits like Morro Potosi, Alto Candeias, etc., that are associated with topaz at Província Estanífera de Rondônia. The Bolivian deposits like Cerro Rico de Potosí, Chorolque, etc., are polymetallic with tin, wolfram, bismuth, silver, zinc, lead, gold whose mineral zoning are three dimensional, spherical and in concentric halos, just as an onion.

The deposits have high temperature minerals at the core, medium temperature minerals at the intermediate halo and low temperature minerals in the exterior or peripheral concentric rim. Alteration mineral zones also have concentric characteristics. The zoning arrangement of minerals in the igneous and country rocks, in my opinion, are meteoric in origin; the igneous bodies came with minerals from the cosmos, dropped from heaven as gifts of Our Creator.

Due to the excessive erosion of the intrusive bodies, in the Andes and in Rondônia, the level of erosion had cut half of the original bodies, and now are as summits of the hills. In Bolivia the tin veins change to zinc at depth, also the igneous bodies disappear and the veins pinch out. Beneath the base of the igneous bodies, there are 10,000 meters of plastic Paleozoic lutites and slates that are impermeable to allow mineral substances to come from below.