



James Colquhoun (1857–1954)

2000 Inductee from Mining's Past

James Colquhoun may be the least acknowledged and appreciated minerals industry titan in American mining history. Born in England and educated mainly in Scotland and Ireland, Colquhoun (pronounced “Coh-hoon”) left Glasgow at age 25 to fill a position with the Scottish-owned Arizona Copper Company (ACC) at Clifton in Territorial Arizona. Beginning with the ACC as an assayer, his talents and interests swiftly propelled him into the position of Superintendent of Metallurgy and then to General Manager of ACC Morenci operations. With the ACC in serious cost/profit trouble, Colquhoun proposed a plan to “concentrate and leach the low-grade porphyry ore of the Metcalf...”. He devised, designed, and built an acid plant to convert pyrite to sulfuric acid for batch-leaching oxide copper ores, a 100 ton per day gravity-jig riffle-slurry table plant to concentrate the oxide minerals, and a leaching plant to extract the copper. Production began in November 1893 and was so successful that company profits increased 1,000% from 1893 to 1896 and quadrupled again by 1903. This oxide-mineral success led Colquhoun to try concentrating and leaching low-grade chalcocite ores. In June 1896, a gravity-based sulfide concentrator was completed and, in its first 6 months, produced 30,000 tons of concentrates running 40% copper, with tailings at 1.25% copper. Thus, “porphyry copper” production was initiated by Colquhoun at Morenci 12 years before the 1905 date marking the start-up at Bingham Canyon, often called the first "porphyry copper" mining operation.

After his Morenci years, Colquhoun accepted a position with the Caucasus Copper Company, in the current Republic of Georgia. There, he rehabilitated mines that were captured, looted, and disabled by the Turks during World War I. The Bolshevik Revolution in 1917 forced closure of the mines and Colquhoun survived a harrowing 73-day escape with his staff, retiring to England at age 60. Colquhoun made massive and profoundly significant contributions to the American, European, and world mining scene as an assayer, geologist, metallurgist, mining engineer, inventor, and manager. He is a true hero of American mining.