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Pb-Pb AGES OF A GALENA SAMPLE FROM THE BRUCE MINE, YAVAPAI COUNTY, ARIZONA

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The Pb-Pb ages reported were determined by Isotopes (Teledyne), Westwood, New Jersey, on a sample of galena from the Bruce Mine, Yavapai County, Arizona. The isotopic analysis and age calculations were both by Isotopes, the age calculations by methods described in *Lead Isotopes in Geology* by R. D. Russell and R. M. Farquhar, Interscience Publishers Inc., New York, 1960.

The Bruce Mine is in west central Arizona, 40 miles west of Prescott. It was discovered in 1964, 250 feet along strike from the Old Dick orebody, by underground diamond drilling. Production started in 1968 following the exhaustion of the Copper Queen and Old Dick orebodies. The orebody occurs within the northeast-trending Bridle Formation of the older Precambrian Yavapai Schist series. The Bridle Formation consists mostly of andesite extrusives, tuffs, and some meta-sediments. Regionally the orebody occurs in a eugeosynclinal environment and locally in the overturned west limb of the Bridle Formation which strikes northeast and dips steeply to the northwest. The orebody is a lenticular massive sulfide pod averaging 400 x 20 x 1400 feet, raking 70° southwest, and lying within a narrow quartz-sericite-schist bed between andesite (hanging wall) and rhyolite (footwall). The primary ores are chalcopyrite associated with pyrrhotite, arsenopyrite and small amounts of lead.

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(galena) 1764 m.y.[1]
(galena) 1680 m.y.[2]
(galena) 1882 m.y.[3]
(galena) 1560 m.y.[4]
(galena) 1730 m.y.[5]

Galena (N end of the ore zone in the 1850 level stope, Bruce Mine; NE/4 NE/4 Sec. 19, T14N, R9E; Yavapai Co., AZ). Medium grained massive galena with minor inclusions of chalcopyrite. Analytical data: Isotopic composition (atomic %): Pb^{204} = 1.48; Pb^{206} = 23.41; Pb^{207} = 22.69; Pb^{208} = 52.42. Age calculations: (1) Holmes-Houterman's method; (2) Russell-Stanton-Farquhar Pb^{206}/Pb^{207} method; (3) Russell-Stanton-Farquhar Pb^{208}/Pb^{204} method; (4) Russell-Farquhar-Cumming Pb^{206}/Pb^{204} method; (5) Russell-Farquhar-Cumming Pb^{208}/Pb^{204} method. Collected by: Robert L. Clayton, 1970.

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