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K-AR AGE OF ORE DEPOSITION, TALAPOOSA MINING DISTRICT, LYON COUNTY, NEVADA

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This report is one of a series of K-Ar geochronological studies of epithermal gold and silver vein deposits in Tertiary volcanic rocks of Nevada and eastern California. Analytical equipment and procedures are the same as those described in McKee and others (1971). The analytical uncertainties given for the determined ages are calculated at one standard deviation. Constants used in the calculation of the K-Ar ages are: $\lambda_e = 0.585 \times 10^{-10} \text{ yr}^{-1}$; $\lambda_\beta = 4.72 \times 10^{-10} \text{ yr}^{-1}$; $K^{40}/K_{\text{total}} = 1.22 \times 10^{-4} \text{ gm/gm}$. Abbreviations used are: $^*Ar^{40}$ = radiogenic argon-40; ΣAr^{40} = total argon-40.

The Talapoosa mining district is located in the northern part of Lyon County, Nevada, about 3.5 miles northwest of Silver Springs and 23 miles northeast of Virginia City. Reported production is over \$300,000, mainly in gold with minor amounts of silver. The district is in silicified, argillized, and propylitized rocks of the largely volcanic Kate Peak Formation. The ore consists of gold-bearing silicified dacite and massive white quartz veins along east-west and north-south faults. The veins locally contain small, cloudy plumes of adularia, minor disseminated sulfides (mostly pyrite), and small amounts of Au and Ag (Rose, 1969).

No age determinations have been made on the host rocks at Talapoosa, but K-Ar ages of 12.4 and 12.8 m.y. have been reported for the Kate Peak Formation in the Virginia Range to the west (Bonham, 1969; Silberman and McKee, 1972). Bonham (1969) showed that on the basis of a K-Ar age (12.6±0.6 m.y.) from adularia separated from the Occidental fault, mineralization in the Comstock Lode district occurred at least partly during the time of volcanism of the Kate Peak Formation. The youngest K-Ar age yet reported for the Kate Peak Formation is 12.4±0.4 m.y. from a vitrophyre flow near the top of the formation in the Chalk Hills, 16 miles southwest of Talapoosa (Silberman and McKee, 1972). The Talapoosa mineralization is 10.5±0.3 m.y., or 2 m.y. younger than the Kate Peak, which might imply no connection between the mineralization and Kate Peak volcanism.

The Kate Peak Formation is a complex pile of volcanic flows, plugs, breccias, agglomerates, and sediments of variable composition; its areal extent is on the order of several hundred square miles. It is unlikely that the full range of time of eruption of this formation is represented by the available K-Ar ages; hence, lacking isotopic age data on the Kate Peak volcanic rocks in the Talapoosa area, it is not possible to evaluate the relationship between the Kate Peak volcanism and the hydrothermal activity that produced gold mineralization.

SAMPLE DESCRIPTION

1. USGS(M)- Ta-1 K-Ar (adularia) 10.5±0.3 m.y.

Adularia (39°21'20"N, 119°16'40"W; SE¼SE¼NW¼ Sec. 3, T18N, R42E; at N-pointing adit symbol on the Churchill Butte 15' quadrangle; Lyon Co., NV) as cloudy white plumes in quartz vein. The vein material consists of coarse and fine, interlocking grains of adularia and xenomorphic quartz. The adularia commonly occurs as idiomorphic crystals with the characteristic rhombic outline. Analytical data: $K_2O = 8.15\%$; $^*Ar^{40} = 1.262 \times 10^{-10}$ & 1.283×10^{-10} mole/gm, $^*Ar^{40}/\Sigma Ar^{40} = 22.8\%$ & 26.8% . Collected by: L. J. Garside, Nevada Bureau of Mines and Geology; mineral separate prepared by: Nevada Bureau of Mines and Geology; dated by: M. L. Silberman, U. S. Geological Survey.

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