

# NEVADA BUREAU OF MINES AND GEOLOGY

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## GEOLOGY AND MINERAL DEPOSITS OF PERSHING COUNTY, NEVADA

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# *GEOLOGY AND MINERAL DEPOSITS*

## *OF PERSHING COUNTY, NEVADA*

By Maureen G. Johnson<sup>1</sup>

### **ABSTRACT**

Pershing County, about 6,000 square miles in northwestern Nevada, is entirely within the Basin and Range physiographic province, a series of northward-trending elongate mountain ranges separated by alluviated valleys. The Humboldt River flows southward through the central part of the county.

The rocks exposed range in age from Cambrian to Holocene. The Paleozoic rocks are thick, structurally and lithologically complex units consisting of heterogeneous sequences of mafic volcanic rocks, chert, clastic sedimentary rocks, and minor amounts of limestone, exposed mainly in the eastern third of the county; metavolcanic rocks are exposed at a few places in the northwestern corner of the county.

Mesozoic plutonic, volcanic, and sedimentary rocks are widely exposed throughout the county. The volcanic and sedimentary rocks, Early Triassic to Middle Jurassic in age, constitute one of the most complete Mesozoic sequences in the Basin and Range province. The stratified rocks include a basal nonmarine volcanic sequence, the Koipato Group; a sequence of laterally interfingering clastic and carbonate rocks, the Star Peak Group and correlative formations; and a thick sequence of clastic deposits, the Auld Lang Syne Group. The youngest Mesozoic sedimentary rock is largely a unique accumulation of pure quartz sand, the Boyer Ranch Formation.

Mesozoic plutonic rocks are of four distinct ages: Early Triassic leucogranite and intrusive rhyolite porphyry; Jurassic granodiorite and gabbro; early Late Cretaceous granodiorite; and Late Cretaceous granodiorite and quartz monzonite stocks.

Cenozoic rocks in the county consist predominantly of sedimentary and volcanic rocks distinguished on the basis of dominant lithology. One granodiorite pluton of Tertiary age is known in the Stillwater Range. The youngest Cenozoic deposits are Quaternary alluvial fan and stream gravels, lake deposits, and windblown sand that cover about 40 percent of the county.

The rocks in Pershing County were subjected to three major pre-Cenozoic periods of deformation characterized by large-scale folding and thrust faulting. Cenozoic volcanism and later Basin and Range faulting have complicated and locally obscured the older structural features.

During the period 1856–1970, the mineral deposits of Pershing County produced ore valued at a minimum of \$167 million from 46 mining districts or areas. The county

includes the largest tungsten, antimony, iron, gypsum, and (probably) diatomite mines in Nevada, and many economically important deposits of mercury, gold, silver, and copper.

Before 1914, gold and silver were the principal commodities produced; since that time, tungsten, mercury, antimony, iron, gypsum, perlite, diatomite, and (recently) copper.

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