1910 0038

(229)
Item #41
32

GABBS DISTRICT

LOCATION

The Gabbs district covers the western portion of the Paradise Range and lies between Downeyville on the north and the Cottonwood Canyon area on the south, and extends from the western front of the range near Gabbs east to include prospects near Craig Station in the eastern part of the range. The mining district lies mostly within Township 12 North, Ranges 36 and 37 East, Nye County.

HISTORY

Paher (1970), sets the date of discovery of silver-lead deposits at Downeyville, in the northern part of the district, as May 1877. However, production records for the Downeyville mines show production for the years 1875-1887 (Couch and Carpenter, 1943), indicating that the district must have been discovered sometime prior to 1875. A lead smelter was built at Downeyville shortly after 1881, but activity at the mines had ceased by about 1901 (Paher, 1970). The Phelps-Stokes iron deposit, northeast of Gabbs, was discovered in 1902 and produced a significant amount of iron ore in 1951-52 (Kleinhampl and Ziony, 1984). Several small copper properties have been explored in the area extending from Craig Station northwest to the Big Chief Mine. Copper exploration and production apparently took place between 1912-15. Tungsten was discovered at the Betty O'Neal prospect sometime following World War I and other tungsten occurrences just southeast of the town of Gabbs were discovered in 1931 (Stager and Tingley, in prep.). The largest production from the Gabbs district has come from the non-metallic mineral deposits, deposits of magnesite and brucite which occur north of Cottonwood Canyon near the old Betty O'Neal tungsten property. Brucite was discovered near the town of Gabbs in 1927 (Kral, 1951). Large amounts of magnesite were mined during Wrold War II as a source of magnesium metal, and large tonnages of both brucite and magnesite have been mined from the deposit up to the present time for use in the refractory industry.

GEOLOGIC SETTING

Pre-Tertiary sedimentary rocks of the district are distributed in three north-northwest trending belts, with one belt of folded Triassic and Jurassic rocks sandwiched between a thrust plate of Late Triassic strata on the west and Permian rocks on the east (Kleinhampl and Ziony, 1984). The Permian rocks, mapped as Pablo Formation, include mainly metavolcanic silicic and mafic rocks with lessor amounts of clastic rocks and, in one area, a quartzite unit mapped separately as the Dunlap Formation. The central belt of rocks includes parts of the Mesozoic Luning, Gabbs, and Sunrise Formations consisting of fine-grained clastic and carbonate beds. The westernmost belt of strata is a thrust plate of largely recrystallized dolomite of the upper member of the Late Triassic Luning Formation which has been intruded by the Cottonwood Stock.

The Cottonwood Stock, the largest plutonic body in the district, has intruded the Luning Formation in the central part of the district; it is spatially associated with the brucite deposits which lie along its contact. An older

NBMG OFR 86-14

granite forms smaller scattered outcrops in the southwestern and southeastern parts of the district. In addition to the plutonic rocks, northwest-trending dike swarms cut many of the Mesozoic rocks. The dikes include andesite, lamprophyre, rhyolite, and aplite, and are concentrated mainly in the western part of the district, near the granite and the Cottonwood granodiortie stock. The plutonic rocks were interpreted to be Early Jurassic age or younger by Vitaliano and Callaghan (1963), and to be Cretaceous by Schilling (1968). The rhyolite dikes have been inferred by some to be the youngest of the pre-Tertiary rocks (Vitaliano and others, 1957), and by others to be Tertiary (Callaghan, 1933).

ORE DEPOSITS

Mineral deposits in the Gabbs district are grouped into three general areas. Deposits of magnesite and brucite are confined to the contact aureol of the Cottonwood Stock. Small contact-metamorphic tungsten deposits also occur near the margin of the stock. The magnesite-brucite deposits account for the largest portion of the mineral production form the Gabbs district. Since considerable information is available on these deposits, we did not examines them as part of this study. Articles by Vitaliano and Callaghan (1956), and Krall (1951), can be consulted for descriptions of the magnesite-brucite deposits.

Deposits of silver-lead-zinc at Downeyville are all clustered within a one square mile area in the low hills northeast of the town of Gabbs. Ore occurs in replacement bodies in altered limestone of the Luning Formation. From what can be seen from surface exposures, mining was done along pipes and chutes that followed bedding plane-fracture intersections in the host limestone. The limestone outcrops display a mottled appearance with bleached marble zones occurring both along bedding and as random patches in the rock. The ore deposits are oxidized at surface, and outcrop as limonite-, hematite- rich gossans. The gossans contain lenses of jasperoid. Vugs commonly contain clear quartz crystals, barite crystals, hemimorphite crystals, and cerussite. Wulfenite is also present. Specimens of sulfide ore, from deeper in the mine workings, seen on the Downeyville Mine dump consisted of massive galena, sphalerite, and pyrite. Silver, and some gold, occurred with the lead-zinc minerals. A small patch of altered intrusive rock crops out just northwest of the main shaft of the old Downeyville Mine. The alteration in the limestone at Downeyville, as well as the silver-base metal mineralization, could be related to a body of intrusive rock which may underlie this portion of the district.

The third general grouping of mineral deposits in the Gabbs district consists of several small copper-silver occurrences located north and south of Craig Station along the eastern border of the mining district. These deposits fall along a northwest-southeast trend which extends from the area of the Big Chief Mine on the northwest to the prospects near Fowler spring on the southeast. At the Big Chief and Chuckar properties, oxide and sulfide copper minerals occur along shear zones cutting silicified limestone. Prospects northwest of Craig Station explore quartz veins containing copper mineralization which cut meta-andesite. Further southeast, prospects near Fowler Spring expose northwest-trending quartz veins in shear zones in meta-andesite. These prospects contain tetrahedrite.

Other properties which do not fall into any of the three areas described include the Phelps-Stokes iron mine at the mouth of Bell Canyon and the Chestnut Mine at the head of Bell Canyon, in the southeast portion of the mining district. The Phelps-Stokes deposit is a replacement body of magnetite and hematite associated with a small body of porphyritic granite which cuts dolomite of the Luning Formation. At the Chestnut Mine, gold-silver mineralization occurs along shear zones cutting altered meta-andesite.

SELECTED REFERENCES

Callaghan, E. (1933) Brucite deposit, Paradise Range, Nevada, a preliminary report: NBMG Bull. 19.

Couch, B. R., and Carpenter, J. A. (1943) Nevada's metal and mineral production (1859-1940): NBMG Bull. 38.

Kleinhampl, F. J., and Ziony, J. I. (1984) Mineral resources of northern Nye County, Nevada: NBMG Bull. 99B.

Kral, V. E. (1951) Mineral resources of Nye County, Nevada: NBMG Bull. 50.

Paher, S. W. (1970) Nevada ghost towns and mining camps: Berkeley, California, Howell-North Books.

Schilling, J. H. (1968) The Gabbs magnesite-brucite deposits, Nye County, Nevada, in Ridge, J. D., ed., Ore Deposits of the United States, 1933-1967, v. 2: New York, AIME.

Stager, H. K., and Tingley, J. V. (in prep.) Tungsten deposits of Nevada: NBMG Bulletin.

Vitaliano, C. J., and Callaghan, E. (1956) Geologic map of the Gabbs magnesite and brucite deposits, Nye County, Nevada: USGS Map MF-35.

____ (1963) Geology of the Paradise Peak quadrangle, Nevada: USGS Map GQ-250.

Vitaliano, C. J., Callaghan, E., and Silberling, N. J. (1957) Geology of Gabbs and vicinity, Nye County, Nevada: USGS Map MF-52.