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Item 9

DELAMAR DISTRICT

LOCATION

The Delamar or Ferguson mining district is centered around the ghost town of Delamar on the western slope of the northern Delamar Mountains. The main portion of the historic mining district is located in the area between Monkey Wrench Wash and Cedar Wash in the southeastern portion of T5S, R64E and the northeastern portion of T5S, R65E. For the purpose of this report, the limits of the Delamar district have been expanded to include all of the northern Delamar Mountains between Meadow Valley Wash, Delamar Valley and extending between T4S and T7S.

HISTORY

According to the account given in Callaghan, 1937, the first discoveries at Delamar were made in 1891 near Monkey Wrench Wash in the northern part of the district. Claims were located at the Magnolia mine, about one mile to the south of the Monkey Wrench, in March 1892, and the Delamar - April Fool area was staked about one month later. The district was originally named for its discoverers, John E. and Alvin Ferguson, farmers from Pahranagat Valley. In 1893, most of the claims in the district were acquired by Capt. J. R. De Lamar, a mining entrepeneur who was associated with many other mining ventures in the west. De Lamar carried the Delamar and April Fool mines to production, and the Delamar district was the premier producer of gold in Nevada in 1894. Between that time and 1902, the Delamar mines produced $9,500,000 in gold and silver. In 1902, De Lamar sold his interest in the Delamar mines to a group of eastern investors, and a new operating company, Bamberger-Delamar Gold Mining Co., was formed. This group resumed production in 1903 and operated in the district until 1909 when the mines were permanently closed. During this second period of operation, $3,400,000 in gold and silver was produced. The district was idle until 1932 when retreatment of old mill tailings began. Between 1932 and 1940, an additional $781,500 in gold was recovered. Total production of the Delamar district through 1950 is $14,983,700 in gold, silver, and minor lead and copper. Delamar's gold production has always been emphasized at the expense of its silver output. The district is, however, a silver-gold district as the average ratio of gold to silver has been about 1:3 (Callaghan, 1937, p. 47).

At the time of our examination (1983, 1984), there was little evidence of activity in the district. Many recent claim posts were in evidence and several properties have been trenched, sampled, and drilled within the past one or two years, but no work was in progress when we were in the area.

GEOLOGIC SETTING

The Delamar district is largely within an outcrop area of Cambrian sediments which form the western flank of a lobe of the large Caliente caldron complex. Within the caldron complex to the east, rocks are mainly thick sequences of ash flow tuffs and rhyolitic flows. The western, resurged (Ekren, et. al., 1977)

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lobe of the caldron lies just to the north of the productive part of the Delamar district, and the major mines are within an arc of altered rocks which generally parallel the caldron margin.

The Cambrian rocks at the Delamar consist mainly of a thick section of Prospect Mountain Quartzite capped to the north, east, and southeast by Chisholm Shale, Lyndon Limestone, Pioche Shale, and limestone of the Highland Peak Formation. All of the major mines of the district are in Prospect Mountain Quartzite, but a few prospects are in the shale or limestone units and one property, the Easter or Taylor mine, is within the tuff sequence east of Delamar, within the resurged caldron. Within the mine area, and apparently associated with the ore deposits, several sets of rhyolite dikes have been described which cut the Cambrian section. Callaghan, 1937, p. 27, describes three separate sets of dikes which extend in a general east-west direction through the district. Some of the dikes are described as pre-mineral, some are thought to be post-mineral. The trend of the dikes (NBMG Bull. 73, p. 137, Fig. 23) closely parallels the general trend of the caldron margin to the immediate north, and the association of the caldron margin, dikes, and the Delamar silver-gold deposits points to a common origin for all of these features.

ORE DEPOSITS

The detailed relationships of the ore deposits at Delamar are very well described by Callaghan in this 1937 NBMG Bulletin on the geology of the district. Callaghan describes four types of epithermal gold deposits at Delamar; quartzite breccia ore, cherty quartz ore, bedded quartzite ore, and volcanic breccia ore. Cemented quartzite breccia ore accounted for most of the production in the main deposit of the district, the Delamar mine. Cherty quartz ore was mined in the April Fool, Jumbo, Hog Pen mines, and the Magnolia mine ore was volcanic breccia. Bedded quartzite ore apparently occurred in quartzite wall rock in areas within the mines, but was not extensive. The three main types of ore have many common features which include brecciation, cementation of breccias by comb quartz, silicification of wall rocks, the presence of free gold, and low base metal content. Adularia is reported present at the Magnolia mine, and barite is reported from the April Fool and Jumbo deposits.

The Magnolia volcanic breccia ore contains abundant manganese oxides while breccia fragments and vugs at the April Fool mine to the south contain coatings of crystalline jarosite.

Perhaps the most interesting relationship noted within the the Delamar district is the close association of the various rhyollite dikes with the productive mines. The Magnolia mine was developed along a vein in volcanic breccia associated with a rhyolite dike. The ore chutes at the Delamar mine appear to have been located along the margins of a large, altered rhyolitic dike. In this dike rock phenocrysts of resorbed quartz occur in a fine-grained groundmass along with crystals of altered sanadine and plagioclase.

GEOCHEMICAL RELATIONSHIPS

The two separate parts of the Delamar district show distinctly different

geochemical signatures. Samples from the Monkey Wrench Wash - Magnolia mine area are very high in manganese, lead, zinc, and have the highest silver contents reported from the district. To the south, samples from the Delamar-April Fool area have anomalous antimony, bismuth, and have much lower silver contents. Arsenic, tin, and gold were found in samples from both areas, and two samples contained weakly anomalous molybdenum. Barium was found in all samples.

Although only a few samples were taken within the Delamar district, the work appears to have outlined a rough zonal pattern to the mineral deposits. The deposits to the north have a Mn-Ag-Pb-Zn-Au-As-Sn association while the deposits to the south display a Ag-Au-As-Sb-Bi-Sn association. These associations may indicate that the deposits at Delamar-April Fool represent the more central or deeper portion of the mineral system while those deposits to the north represent peripheral or shallower portions of the system.

GENERAL COMMENTS

The Delamar district presents the interesting picture of a "volcanic" type precious metal occurrence where the host rock is not a volcanic rock. It is inferred that the mineral system is related to the large caldron complex to the east, and that the mineralization is localized along regional structures related to the caldron margin. Geochemical sampling of areas along extensions of these structures could lead to the development of other deposits similar to Delamar. The Taylor or Easter mine to the east of Delamar is also located along one of the regional caldron-related structures. Its mineralization is similar to that at Delamar. The area between the Taylor mine and Delamar, and the entire margin of the resurged lobe of the Caliente caldron would be good targets for exploration.

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