Mineral Deposits of Nevada

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Introduction

Nevada is known as the “Silver” state, due primarily to the early (pre-1860) silver production from the Comstock lode in the Virginia City area. This compilation on mineral deposits from Society of Economic Geologists’ publications contains references to 251 papers on sites in Nevada. For organizational purposes, the references on Nevada mineral deposits are categorized under 13 headings:

1. Porphyry Deposits;
2. Carlin-type Deposits;
3. Epithermal Deposits;
4. Industrial Minerals;
5. Skarn Deposits;
6. Placers;
7. Geochemistry;
8. Geophysics;
9. Geothermal Deposits;
10. Mineralogy of Deposits;
11. Volcanic Rocks Related to Mineral Deposits;
12. Volcanogenic Massive Sulfide Deposits; and
13. Regional Settings of Mineral Deposits.

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_SEG Compilation 10_
By far the greatest number of publications in SEG Nevada publications report on epithermal and Carlin-type deposits. In spite of the early silver dominance in mine production, the surge in gold production after 1965 led to the state’s preeminence in world gold production from Carlin-type deposits (Fig. 1) along 5 linear trends (Fig. 2) related to deep-seated structures and the cratonic margin as defined by the Sr,706 line.

Porphyry Deposits. The Ruth and Yerington districts’ porphyry copper deposits have had a long history of exploration and production. Numerous papers are in the Society’s publications and are listed in the Appendix below.

Carlin-type Deposits. Gold was produced from the Getchell and Cortez mines long before the Carlin mine was discovered; subsequently, these mines were recognized as being Carlin-type gold deposits. The Joralemon (1951) and Well et al. (1969) papers, respectively, describe Getchell and Cortez. Subsequent papers refer to the gold-bearing, disseminated arsenian pyrite and marcasite deposits as Carlin-type.

Figure 1. Gold production from the United States and Nevada (Jon Price, State Geologist Emeritus, pers. commun.).
Figure 2. Carlin-type deposits (CTD) in the United States.

*Epithermal Deposits.* Goldfield, Tonopah, and Comstock vein deposits were in production in the mid-19th century, and they received early reporting efforts by U.S. Geological Survey and university scientists. Later, epithermal systems such as Taylor, Rochester, Rawhide, Midas, and Sleeper are reported. Some very high grade epithermal vein gold deposits are localized along distinct linear magnetic trends (Fig. 3).
The Miocene development of the rift systems in Nevada is well-documented. Along these linear trends are numerous epithermal deposits with gold and silver.

Figure 3. Total magnetic field map of Nevada showing the Northern Nevada Rift (NNR) and position of the Midas and Buckskin (National Mining District) mines. Note the presence of a second magnetic linear west of the NNR; the Sleeper mine and other epithermal deposits are located along this second trend.

The Society of Economic Geologists’ publications on Nevada mineral deposits are listed in the following Appendix by the 13 categories indicated above. SEG sources reviewed include *Economic Geology*, SEG Guidebook Series, Reviews in Economic Geology, *SEG Newsletter*, the *Economic Geology 100th Anniversary Volume*, Monographs, and Special Publications.
Appendix: SEG Publications with References to Nevada Mineral Deposits
(arranged chronologically under topic)

**Porphyry Deposits**


Joralemon, P., 1975, K-Ar relations of granodiorite emplacement and tungsten and gold mineralization near the Getchell Mine, Humboldt County, Nevada [discussion]: Economic Geology, v. 70, p. 405-406, doi:10.2113/gsecongeo.70.2.405


Batchelder, J., 1977, Light stable isotope and fluid inclusion study of the porphyry copper deposit at Copper Canyon, Nevada: Economic Geology, v. 72, p. 60-70, doi:10.2113/gsecongeo.72.1.60


Carlin-type Deposits


Wells, J.D., Stoiser, L.R., and Elliott, J.E., 1969, Geology and geochemistry of the Cortez gold deposit, Nevada: Economic Geology, v. 64, p. 526-537, doi:10.2113/gsecongeo.64.5.526


Ilchik, R.P., 1995, $^{40}$Ar/$^{39}$Ar, K/Ar, and fission track geochronology of sediment-hosted disseminated gold deposits at Post-Betze, Carlin Trend, northeastern Nevada; Discussion: Economic Geology, v. 90, p. 208-210, doi:10.2113/gsecongeo.90.1.208


Creel, K.D., and Bradley, M.A., 2013, Lessons learned from the latest giant gold deposit discovered in Nevada: SEG Special Publication 17, p. 403-413.

Epithermal Deposits

Spurr, J.E., 1906, The southern Klondike district, Esmeralda County, Nevada; a study in metalliferous quartz veins of magmatic origin: Economic Geology, v. 1, p. 369-382, doi:10.2113/gsecongeo.1.4.369


Campbell, D.F., 1939, Geology of the Bonanza King mine, Humboldt Range, Pershing County, Nevada: Economic Geology, v. 34, p. 96-112, doi:10.2113/gsecongeo.34.1.96


Ivosevic, S.W., 1978, Johnnie gold district, Nevada, and implications on regional stratigraphic controls: Economic Geology, v. 73, p. 100-106, doi:10.2113/gsecongeo.73.3.100


Vikre, P.G., 1985, Precious metal vein systems in the National district, Humboldt County, Nevada: Economic Geology, v. 80, p. 360-393, doi:10.2113/gsecongeo.80.2.360


Hedenquist, J.W., 1986, Precious metal vein systems in the National district, Humboldt County, Nevada; Discussion: Economic Geology, v. 81, p. 1020-1023, doi:10.2113/gsecongeo.81.4.1020


Vikre, P.G., 1987, Paleohydrology of Buckskin Mountain, National district, Humboldt County, Nevada: Economic Geology, v. 82, p. 934-950, doi:10.2113/gsecongeo.82.4.934


Henley, R.W., 1991, Epithermal deposition of gold during transition from propylitic to potassic alteration at Round Mountain, Nevada; Discussion: Economic Geology, v. 86, p. 892-894, doi:10.2113/gsecongeo.86.4.892

Sander, M.V., and Einaudi, M.T., 1991, Epithermal deposition of gold during transition from propylitic to potassic alteration at Round Mountain, Nevada; Reply: Economic Geology, v. 86, p. 894-897, doi:10.2113/gsecongeo.86.4.894


Industrial Minerals

Rogers, A.F., 1912, The occurrence and origin of gypsum and anhydrite at the Ludwig mine, Lyon County, Nevada: Economic Geology, v. 7, p. 185-189, doi:10.2113/gsecongeo.7.2.185


Shawe, D.R., Poole, F.G., and Brobst, D.A., 1969, Newly discovered bedded barite deposits in East Northumberland canyon, Nye County, Nevada: Economic Geology, v. 64, p. 245-254, doi:10.2113/gsecongeo.64.3.245

Skarns


Placers


Geochemistry


Parry, W.T., and Nackowski, M.P. 1963, Copper, lead, and zinc in biotites from Basin and Range quartz monzonites: Economic Geology, v. 58, p. 1126-1144, doi:10.2113/gsecongeo.58.7.1126


Parry, W.T., and Jacobs, D.C., 1975, Fluorine chlorine in biotite from Basin and Range plutons: Economic Geology, v. 70, p. 554-558, doi:10.2113/gsecongeo.70.3.554

Dickson, F.W., Radtke, A.S., Weissberg, B.G., and Heropoulos, C., 1975, Solid solutions of antimony, arsenic, and gold in stibnite (Sb\textsubscript{2}S\textsubscript{3}), orpiment (As\textsubscript{2}S\textsubscript{3}), and realgar (As\textsubscript{2}S\textsubscript{2}): Economic Geology, v. 70, p. 591-594, doi:10.2113/gsecongeo.70.3.591


Geophysics


Hildenbrand, T.G., Berger, B., Jachens, R.C., and Ludington, S., 2000, Regional crustal structures and their relationship to the distribution of ore deposits in the western United States, based on magnetic and gravity data: Economic Geology, v. 95, p. 1583-1603, doi:10.2113/gsecongeo.95.8.1583


Geothermal


**Mineralogy**


Radtké, A.S., Taylor, C.M., Erd, R.C., and Dickson, F.W., 1974, Occurrence of lorandite TlAsS₂ at the Carlin gold deposit, Nevada: Economic Geology, v. 69, p. 121-123, doi:10.2113/gsecongeo.69.1.121


Volcanic Rocks


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**Volcanogenic Massive Sulfide Deposits**


**Regional Settings of Mineral Deposits**


