from NBMG OFR 83-9
See also 83-10 for geochemical results.

(115)
Item 17

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LYNN DISTRICT

The Lynn district is located in the Tuscarora Mountains of northern Eureka County about 19 miles northwest of the town of Carlin. Mines of the district are mainly in T35N, R50 and 51E.

The first record of mineral activity in the area dates from 1907 when placer gold was discovered along Lynn Creek. The Lynn Big Six lode mine was discovered that same year and shipped a small amount of gold ore to Salt Lake smelters (Lincoln, 1923). Barite was mined in the 1930's and 1940's from vein occurrences on Popovitch Hill, site of the present Carlin gold mine, and gem quality turquoise has been produced from the Number 8 and August Berning mines. One of the largest turquoise nuggets ever found was uncovered at the Number 8 mine in 1954, and total turquoise production from the mine is estimated at over $1,400,000 (Morrissey, 1968). In 1962, geologists for the Newmont Mining Co., following recommendations outlined by the U.S. Geological Survey, discovered the large Carlin disseminated gold deposit, and set off a sequence of gold exploration and discovery that continues to the present. The Carlin gold mine has, between 1965 and 1979, produced over 3 million ounces of gold (Bonham, 1982), and the term "Carlin type gold occurrence" is now commonly applied to all low grade, disseminated gold deposits found in sedimentary host rocks. Similar ore bodies have been found in Utah, Idaho, and in many other locations throughout central Nevada.

The Lynn district is underlain by eastern facies carbonate rocks that range in age from Cambrian to Devonian. These rocks have been overriden by the Roberts Mountains thrust plate which has carried western facies siliceous rocks over the carbonate section. Structural activity coupled with erosion has exposed the lower rocks through a window in the thrust sheet. Locally, small stocks and dikes of quartz monzonite cut the thrust plate, and many high-angle faults

cut both the carbonate rocks and the overlying thrust sheet.

The Carlin gold deposit is in the northeast corner of the Lynn window in the thrust sheet, and gold ore bodies are in the upper part of the lower plate, Roberts Mountains Formation several hundred feet below the thrust contact.

Although gold is dispersed through certain intervals of carbonate host rocks, suggesting local stratigraphic control, crosscutting relations between mineralized zones and bedding, plus the geometric relationship between mineralized areas and certain sets of high-angle faults and intersections of fault sets, indicate that structural controls are critical (Roberts, Radtke, and Coats, 1971). Unoxidized ore bodies at Carlin are characterized by gold-organic compounds plus minor amounts of metallic gold, quartz, barite, realgar, pyrite, and lesser amounts of stibnite, cinnabar, sphalerite, and galena (Radtke and Scheiner, 1970).

A good description of the geology of the Carlin deposit is found in the article by Noble and Radtke, 1978, NBMG Report 32.

At the Blue Star mine (the old Number 8 turquoise mine) north of the Carlin mine, a disseminated gold occurrence in upper plate carbonate rocks has been mined. About two miles north of Blue Star at the Goldstrike mine, gold deposits have been found in granodiorite, skarn, and upper plate Vinini Formation. At both of these occurrences, faults appear to control the location of the gold mineralization. The Big Six mine, about one mile slightly to the northeast of the main Carlin gold mine, was the first lode gold mine discovered in the district in 1907. Gold occurs at the Big Six along a shear zone which cuts rocks of the Vinini Formation. In great contrast to other occurrences within the Lynn district, gold at the Big Six was coarse enough to provide a source for placer deposits in the creeks below it. It is not known, however, if this occurrence is genetically related to the nearby disseminated deposits.

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