

ELKO COUNTY GENERAL

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RESOURCES REPORT

ELKO COUNTY

NEVADA

1957

The Office Of

George W. Malone

United States Senate

Nevada

Alfred Merritt Smith  
Administrative Assistant

mimographed - 161 pages

MINING AND MINERALS

ELKO COUNTY, NEVADA

COMMENTS ON MINING INDUSTRY

Mining in Nevada, as well as to a large extent throughout the United States, is being steadily concentrated and controlled by a comparatively small number of large corporations. These larger companies have an increasing tendency to group their mining operations to include several metals, and to branch out into the manufacturing and marketing of metal products, and in various instances to diversify still further into business not related to mining. This modern trend has to a large extent destroyed the oldtime small mine and mill operator and prospector, who has been replaced by trained specialists who use scientific instruments, and whose mineral discoveries become the property of large operators.

However, the independent prospector has not entirely disappeared. Formerly his hope was to find gold and silver, with secondary consideration for the common non-ferrous metals, lead, zinc and copper. Now, increased mining costs with no comparable increase in metal prices has made him turn his attention to a search for deposits of metals formerly of little value, and almost unknown to the public. The scientific advances of the last 20 years have brought a number of such once comparatively useless metals into great demand and to become of high value. Today the prospectors search the desert hills for tungsten, manganese, mercury, uranium, tantalum, chromium, asbestos, beryllium, cobalt, and columbium. It is interesting to note that many discoveries of such metals in deposits of commercial size have been found in recent years by diligent and optimistic prospectors, scouring the rugged deserts in jeeps, equipped with geiger counters and fluorescent lamps, and often having only elemental mineralogical and geologic training.

The Nevada State Bureau of Mines, with headquarters at the University of Nevada in Reno, performs an outstanding and most valuable service to the prospector and to the State, by making free analyses of ore samples taken within the state.

Elko county, with 34 established mining districts, a large number of metals, and a rich record of past production, is a most promising field for further mining, as following description of the districts indicate.

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There have been no significant new mineral discoveries in Elko County during recent years, due to the present weak metal market which has discouraged both prospecting and development.

Mineral production fell off greatly with the depletion and shutdown of the Rio Tinto copper mine in northern Elko County, but inspections of various districts formerly productive and profitable, strongly indicates that many of them are not exhausted. If the domestic metal markets can be reasonably supported against foreign competition, production would be resumed and many known, but as yet unexplored, prospects would undergo development.

A recent report now being published entitled "Geology and Mineral Resources of Elko County, Nevada" (Arthur E. Granger, Mendell M. Bell George C. Simmons and Florence Lee, 1953), cooperatively prepared by the U. S. Geological Survey and the Nevada State Bureau of Mines contains the following comment:

"The surface of the county has been well prospected and the chances are probably not great for discoveries of ore bodies with prominent outcrops. However, the gossan covering the great Rio Tinto mine ore body was not investigated until as late as 1932 and other superficial indications, heretofore neglected, may well await the intelligent prospector."

The above detailed report on mining in Elko County is the basis of much information given herein with regard to the districts up to and including 1954. Geological material has been omitted as it would make this compilation longer than desirable and is of more interest to the mining geologist than to the layman. The geological descriptions of districts and of various mines are well written and documented, and are the result of much study of the actual sites by the authors. This data has been omitted with much reluctance by the writer, who is a mining engineer and feels somewhat competent to assess its value. Geological comment herein has been limited to the terse comments of Vincent P. Gianella as given in University of Nevada Bulletin, Vol. 39 (6), 1945.

Quicksilver continues in fair demand and the mines in northern Humboldt County continue producing. The U. S. Government supports the price of quicksilver by agreeing to

buy 100,000 flasks (76 lbs each) at \$225 per flask. To date little or none has been sold to the government at that price, as prices on the open market are higher. At this writing, August, 1957, the New York market Price is \$255 per flask.

Tungsten mines throughout the State are now completely closed as a result of the government having discontinued its price support of this strategic metal. Over 1000 tungsten miners are out of employment and many of their families need assistance. The United States consumers of tungsten now largely depend on foreign sources, which would not be available in time of warfare.

In past production of tungsten the United States ranks second to China. The United States is the worlds largest consumer of tungsten but is not self-sufficient, although production peaks have exceeded consumption laws.

There are two principal tungsten ores, scheelite and wolframite. The United States produces principally scheelite. Materials Survey, Tungsten, compiled for the Office of Defense Mobilization, December, 1956, states: "Inasmuch as the two types of ore are not completely interchangeable for specialized uses, the supply and demand must be balanced by imports of wolframite."

This seems to be a weak argument in support of large imports of Chinese low-priced wolframite.

Nevada was the leading tungsten-producing State from 1925 through 1939 and from 1945 through 1947. Tungsten deposits are reported from 16 of the 17 counties of Nevada. Many possibilities exist for finding additional ore at known deposits and for finding new deposits in this State.

As this is written (July, 1957) seven western senators have introduced two bills intended to succor the languishing minerals economy. The legislation would impose a one-to-three cent sliding excise tax on lead and zinc imports, and provide incentive payments to United States producers of defense-important beryl, chromite, columbium and tantalum. The intended purposes are to stimulate government mineral research, mining and milling and to encourage private investment. This is a direct recognition of the adjustable tax theory long advocated by Nevada's Senator Malone.

Western authorities say the program is defective for

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its lacks provision for revising the tax law on depletion allowances and only suggests continuous review of tax treatment in favor of mineral producers, without details. No incentive is offered to revive the output of tungsten and several other strategic metals. The program is at best a helpful gesture but may lead to something in time that will revive our very sick mining industry.

There has been some tungsten production in Elko County, mostly from Harrison Pass, Alder (Tennessee) Gulch, and Tennessee Mountain areas, during 1956. Incomplete records indicate that the total amounts to about 10,000 units of  $WO_3$ .

The total mineral production of Elko County is calculated to have been about \$70,000,000; of 41 mining districts, 34 have been credited with production of ore and 7 are considered as non-productive although they may have produced some ore in quantities that were not recorded.

A tabulation from the 1954 report of the Nevada Bureau of Mines and the U. S. Geological Survey shows:

Total Ore, tons	3,453,495
Ounces Gold	873,459
Ounces Silver	21,366,140
Pounds Copper	202,186,085
Pounds Lead	73,767,268
Pounds Zinc	6,952,891
Flasks Quicksilver (76) lbs	2,136

Total Value, \$69,124,051

Incomplete records and unrecorded production would probably bring the total to over \$70,000,000.

Only some of the principal references to the many districts have been included. For complete references the reader is referred to University of Nevada Bulletin 39, No. 6, 1945 by Vincent P. Gianella and Robert W. Prince, Bibliography of Geologic Literature and Geologic Maps of Nevada Areas.

Various mining districts in Nevada have lost their original identity. They were originally sanctioned by law, and in pioneer years each had a District Recorder. Mining claims are now recorded at county seats, and few of the districts have definite boundaries.

Mining and Minerals

List of Mining Districts

- Alder (Tennessee Mountain; Tennessee Gulch)  
Gold, Silver, Tungsten
- Aura (Bull Run, Centennial, Columbia)  
Silver, Gold, Lead, Zinc
- Burner (Burner Hills) Lead, Silver
- Carlin (Gold, Diatomaceous Earth, Oil Shale, Coal
- Charleston (Copper Mountain, Cornwall) Gold, Silver  
Copper, Lead, Antimony, Nitrates, Oil Shale
- Contact (Kit Carson, Porter, Salmon River) Copper, Silver  
Gold, Barium
- Cornucopia Silver, Gold
- Decoy Manganese
- Delano (Delno) Lead, Silver
- Delker Copper
- Divide Gold, Silver
- Dolly Varden (Mizpah, Granite Mountain) Copper, Lead  
Silver, Gold
- Dawley Canyon (Ruby Mountains)  
Beryl, Mica
- Edgemont (Centennial) Gold, Lead, Silver
- Elko Oil Shale, Lignite Coal, Granite, Copper
- Elk Mountain Copper, Molybdenite
- Ferber Copper, Lead, Silver, Gold
- Ferguson Spring (Allegheny) Copper, Lead, Silver

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Gilbert Canyon (Ruby Mountains) Beryl

Gold Basin (Rowland) Gold

Gold Circle (Midas, Summit) Gold, Silver

Good Hope Silver

Harrison Pass Tungsten

Island Mountain (Gold Creek) Gold, Silver

Ivanhoe Mercury

Jarbidge Gold, Silver

Kinsley Silver, Copper, Lead

Lafayette Lead, Silver

Lee Silver, Lead, Zinc, Antimony, Gold

Lime Mountain (Deep Creek) Gold, Copper, Silver

Loray (Luray, Leroy, Montello) Lead, Silver Zinc, Copper,

Merrimac (Lone Mountain) Lead, Silver, Zinc, Copper, Gold

Mountain City (Cope, Van Duzer, Rio Tinto)  
Copper, Silver, Lead, Zinc, Gold

Mud Springs ( Medicine Springs, Dead Horse) Lead Silver, Zinc

Proctor Silver

Railroad (Bullion) Copper, Lead, Silver, Gold, Zinc

Rock Creek (Falcon) Silver, Quicksilver

Ruby Valley (Smith Creek) Lead, Zinc, Tungsten

Spruce Mountain (Latham, Johnson, Stepton) Lead, Silver, Gold,  
Copper, Manganese

Tecoma Lead, Silver, Gold, Copper

Tuscarora Silver, Gold, Quicksilver, Placer Gold

Valley View Tungsten

Warm Creek Lead, Zinc

White Horse Lead, Zinc, Copper

42 Districts listed

**History:** Gold Placers were first mined on 76 Creek in about 1876, and were worked in the Seventies-Eighties, and sporadically until recent years in Pennsylvania Gulch, Union, Gulch, Dry Ravine, and Badger Creek, all lying between 76 Creek and the Bruneau River. More gold was recovered from the numerous small operations than has been reported or recorded. The district was visited by the writer in 1932, and at that time a number of small placering projects were under way, some of which are described in University of Nevada, Bulletin Vol. XXVI, No. 8, cited as reference.

A five-stamp mill was operated at times from 1905 to 1923 at the Prunty Mine on 76 Creek, and is reported to have processed small amounts of gold, silver, copper and antimony. There has been some development at the Graham Mine, a copper-gold prospect near the Prunty.

Contact (Kit Carson, Porter, Salmon River)  
Copper, Silver, Barite

**References:** Schrader, F. C., 1912, "A Reconnaissance of the Jarbidge, Contract and Elk Mountain Mining Districts, Elko County, Nevada." U. S. Geol. Survey Bull. 497, p. 99-150.  
Lincoln, F. C., op. cit., p. 40-41  
Schrader, F. C., 1935, "The Contact Mining District, Nevada."  
U. S. Geol. Survey Bull. 847-A, 41 pages.  
Granger, A. E., Bell, M. M., et al, op. cit., 1953, Nevada State Bureau of Mines.

**Geology:** Paleozoic sediments cut by granite.

**Location:** Near the Idaho border on Salmon Falls Creek in northeast Elko County, about 50 miles north of Wells, and 30 miles south of Rogerson, Idaho.

**History:** Claims at Contact were first worked for gold, in about 1876. Some Shipments of copper ore were made at intervals for about 50 years. A 5-ton per day copper furnace was built in 1897, but failed. The Delno Mine has been the most productive. F. C. Schrader, in

Bull. 847-A 1935, states that up to 1935 intermittent shipments had amounted to over 300,000 tons of copper ore. Some increased activity in about 1925 resulted after the completion of the Union Pacific Railroad from Twin Falls, Idaho, through Contact to Wells on the Southern Pacific.

The district reached its maximum production in 1916-1918, but had some other peaks in 1928-1930 and 1942-1946. From 1913 to 1949, reported ore shipments amounted to 34,404 tons leaving a gross value of \$702,760. The principal values were in copper and silver, with some lead and gold.

The mining was done within four separate areas, designated as Ellen D. Mountain, Middle Stack Mountain, Blanchard Mountain, and Trout Creek.

Ellen D. Mountain Area. In this area the Nevada Bellevue Copper Mining Company, with 10 claims was the major producer. There are several strong veins in this group, one about 10,000 feet long. Much of the oxidized ore is said to contain about 4 percent copper. A large amount of development work has been done on this group.

The Palo Alto Mine, adjoining the Bellevue on the East is credited with some 1,700 tons of ore since its discovery in 1894.

The Blue Bird Group contains 10 claims, and was discovered in 1884. It has had considerable development work, but production is not stated. Since 1910 about 1000 tons of 6 percent copper ore was shipped.

Other mines in the Ellen D. Mountain area that have produced ore since 1913 are: Copper King, Copper Shield, Silver Circle, Mammoth; and Bonanza.

China Mountain Area. This area is 5 miles south of the town of Contact and on the east side of Salmon falls Creek. Early work here was by Chinese about 1876. Nothing more until about 1890.

The War Eagle Mine in 1895-1896 produced eight railroad carloads of ore that averaged about 24 percent silica. One of these carloads is said to have averaged 33 percent copper, unusually high grade ore.

Blanchard Mountain Area. This area adjoins China Mountain on the east. It centers at Blanchard Mountain and is some 4 miles in diameter. Blanchard mountain reaches an elevation of 8,800 feet. There seems to be no record of production in this area.

Middle Stack Mountain and Trout Creek Areas. These lie in the northeast part of Contact District. Middle Stack Mountain is six miles northeast of Contact, and the area extends east across Trout Creek some six miles.

The Boston Mine here is said to have made small shipments of high grade copper ore prior to 1926, and there had been considerable development work up to 1930. A shoot of cerargyrite ore 6 inches wide, running 300 ounces of silver per ton was found at a depth of 90 feet in a shaft.

Recent Mining. At the Marshall Mine, owned by Marshall Brothers, a number of miners were employed during the winter of 1956-57. During 1956 ore shipments were made.

Barite. Some 50 miles north of Wells, and in or near the Contact District, are the Jungo Barite Claims, located on Dry Creek. On March 7, 1957 the Nevada State Journal announced a sale of 7 barite claims by Herb Butler to the American Colloid Company for \$35,000. A road 24 feet wide and 4 miles long has been constructed to the property by Hunt Construction Company of Elko. Pocahontas Core Drilling Company of New Mexico conducted both core and diamond drilling at the site with promising results. The barite is of high purity with a specific gravity of 4.20. Active mining of the deposit proposed by the purchaser about May, 1957. There is a strong market demand for barite in the manufacture of paint and fertilizer, and in medical diagnosis by use of the X-Ray. More recently, barium metal is

coming into additional demand as shielding material against atomic radiation. Recently barite deposits have been developed in or near Contact District, and shipments have been made. One property is owned or managed by Messrs. Martin, Saunders and Butler of Elko. The ore is trucked to a railroad shipping point by Interstate Truck Lines.

It is reported that Ed Hunter shipped a quantity of high grade fine white barite from this area to Wells during 1956.

Cornucopia  
Silver, Gold

References: Emmons, W. H., 1910. "A Reconnaissance of some Mining Camps in Elko, Lander and Eureka Counties, Nevada," U. S. Geol. Survey Bull. 408, p. 44, 62-65.  
Lincoln, F. C., Mining Districts and Mineral Resources of Nevada, 1923, p. 41-42.  
Granger, A. E., Bell, M. M., et al, op. cit., 1953, Nevada State Bureau of Mines.

Geology: Tertiary volcanics

Location: The district is 20 Miles North of Tuscarrora, and the mines are in Section 18, T. 42N., R. 51E. It is about 60 miles by road N. W. of Elko.

History: A 10-stamp mill was erected on the Leopard Mine about 1873. It was destroyed by fire, rebuilt as a 20-stamp mill which also burned down in 1880. The principal mine development was by a shaft said to be 800 feet deep on the Panther, the most important mine. In 1874 the town of Cornucopia had a population of about 1000 but is now deserted.

The production of the district prior to 1883 is said to have been \$1,162,352 in silver, with some gold. From 1937 to 1940 treatment of old mine tailings yielded 89,649 ounces of silver and 1,320 ounces of gold. The total recorded production of the district is \$1,273,650. Some of the ore was of exceedingly high grade and is said to have yielded up to 400 ounces of silver per ton. The Nevada State Mineralogist Report, 1875, lists the producing mines as:

**History:** Discovered in 1869, and in 1872 copper ore from the Victoria Mine was treated locally for 2 years. Discovery of gold in the north part of the district revived some mining in 1905 and a few small ore shipments have been made from time to time up to about 1929.

The Victoria Mine was operated from 1941 to 1947, and a small amount of copper ore was produced. In 1950, the District had a recorded production of 3,907 tons of ore with total metal content of 38 ounces of gold, 15,358 ounces of silver, 385,076 pounds of copper, 227,215 pounds of lead, total value \$74,361. Water at a depth of about 60 feet in most shafts seems to have discouraged mining, and the primary ore was usually of low grade. There has been considerable prospecting, but apparently no serious mining excepting on the Victoria claim. The district has been idle for some ten years.

Dawley Canyon (Ruby Mountains)  
Beryl, Mica

**References:** A. U. S. Geol. Survey map entitled, "The Dawley Canyon pegmatite area, Ruby Mountains, Elko County, Nevada by J. C. Olson, R. E. Burns and E. N. Henrichs. Copy at Nevada State Bureau of Mines, University of Nevada, Reno, Nevada.  
Granger, A. E., Bell, M. M., Simmons, G. C., Lee, F., Geology and Mineral Resources of Elko County, Nevada 1953.  
U. S. Geol. Survey and Nevada State Bureau of Mines.

**Geology:** Granite rocks traversed by pegmatite dykes

**Location:** The Dawley Canyon pegmatite area covers some three square miles on the eastern slope of the Ruby Mountains. In 1949 more than 350 pegmatite dikes were mapped in this limited area by the U. S. Geol. Survey, under direction of W. E. Wrather.

**History:** Beryl had been found in small quantities in at least 100 of these dykes, and one of them had produced a small quantity of sheet muscovite mica, during

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World War II. Beryl prospects can be found at several places in the Ruby Mountains, among them Gilbert Canyon, described herein under Gilbert Canyon District.

Edgemont (Centennial)  
Gold, Lead, Silver

- References: Emmons, W. H., 1910. A Reconnaissance of some mining Camps in Elko, Lander and Eureka Counties, Nevada U. S. Geol. Survey Bull. 408, p. 75-80
- Lincoln, F. C., Mining Districts and Mineral Resources of Nevada, 1923, p. 43. Nevada State Bureau of Mines.
- White, D. E., McMillan, D., and Wagner, W. 1939. Blue Ribbon Mine, Bull Run Mountains, Elko County, Nevada.
- An unpublished report in the files of the U. S. Geol. Survey.
- Granger, A. E., Bell, M. M., Simmons, G. C., Lee, F., Geology and Mineral Resources of Elko County, Nevada, 1953.
- U. S. Geol. Survey and Nevada State Bureau of Mines.

Geology: Veins in Paleozoic metamorphic sediments

Location: On the west slope of the Centennial Range in Section 19 and 30, T. 44N., R. 52 E. It adjoins the Aura District on the West and Lime Mountain District on the north in northern Elko County. It is 92 miles by road northwest of Elko to the Edgemont community. The best approach is via the improved road from Elko to Mountain City.

History: The Montana Gold Mines Company built a 20-stamp amalgamation mill and cyanide plant on the Lucky Girl Group in 1908. From 1905 to 1909 the Lucky Girl was the largest producer in Elko County. The ore ran \$15 to \$10 per ton in gold and one ounce of silver; recovery was from 90 to 95%. In 1910 a 10-stamp mill was built at the Bull Run Mine but ran only 2 years.

The Montana and Bull Run Mines had produced about \$1,000,000 up to 1908, and made additional small productions up to 1917, according to Emmons. The U. S. Bureau of Mines and Minerals Yearbook 1931, gives the total district output in gold and silver at \$949,650.

During 1956 Chas. H. Jackson, Jr. and associates acquired the Edgemont Mines consisting of 8 or 10 patented claims including the Lucky Girl Mine. Mr. Jackson is cleaning out old workings and putting the property in order for a resumption of production. Jackson is the owner of very extensive farming and cattle interests in Northern Elko County.

Elko

Oil Shale, Lignite, Granite

- References: Buwalda, J. P., "Nevada", in "Oil Shale of the Rocky Mountain Region, U. S. Geol. Survey Bull. 729, 1923, p. 92-102  
Lincoln, F. C., Mining Districts and Mineral Resources of Nevada, 1923, p. 43-44. Nevada State Bureau of Mines.  
Granger, A. E., Bell, M. M., Simmons, G. C., Lee, F., Geology and Mineral Resources of Elko County, Nevada 1953. U. S. Geol. Survey and Nevada State Bureau of Mines.

Geology: Miocene lake deposits of sandstone, shale, limestone, rhyolite, tuff, conglomerates.

Location: Elko is the county seat, on the Southern Pacific Railroad, and U. S. Highway 40. The oil shale deposits are about 2 miles southwest of town.

The oil shale occurs in bedded zones and vary in thickness from a few feet up to 40 or 50 feet. There are two separate beds about 6 feet thick of high grade shale that have been developed to some extent.

Both the oil shale and lignite beds were prospected by the Central Pacific Railroad over a period of years in efforts to develop a commercial source of fuel, but were unsuccessful. About 1890 R. M. Catlin of the

New Jersey Zinc Company acquired some of the oil shale area located on Central Pacific Railroad Land Grant lands, and in 1916 built a 4-tube continuous screw retort plant, for experimental work. The plant was remodeled from year to year at considerable expense. In 1918 it was superceded by a larger plant with 8 vertical retorts.

In 1918, the Southern Pacific Company in cooperation with the U. S. Bureau of Mines built a Scotch oil shale plant with Pumpherson retort, but shut down and sold out to the Catlin Shale Products Company in 1921. The Catlin company produced some high grade oil and paraffin for a few years, but the cost of mining the narrow oil shale veins on the inclined beds underground proved too expensive and the project was abandoned.

The oil shale beds that were worked were of very high grade, and produced 50 to 75 gallons of oil per ton, and substantial amounts of paraffin wax.

Copper. North of Elko about 5 miles a group of claims are being explored for copper by George Ogilvie and associates of Elko. The development is being done by bulldozer trenching.

#### Elk Mountain

Copper, Molybdenite

- References: Schrader, F. C., A Reconnaissance of the Jarbidge, Contact and Elk Mountain Mining District, Elko County, Nevada, U. S. Geol. Survey Bull 497, p. 151-157, 1912.  
Hobbs, S. W., 1943, Memorandum on the Robinette molybdenium-tungsten deposit. Unpublished report in files of the U. S. Geol. Survey, p. 2.  
Granger, A. E., Bell, M. M., Simmons, G. C., Lee, F., Geology and Mineral Resources of Elko County, Nevada 1953. U. S. Geol. Survey and Nevada State Bureau of Mines.

Geology: Veins and replacements in Paleozoic sediments cut by granite. Contact-metamorphic deposits.

its copper content. Some small shipments were made from 1910 to 1917. The Ferber brothers did some mining on the Big Chief vein of the Salt Lake Group. In 1920 there were 28 patented and 23 unpatented claims in the district. Among these were the Knowlton, Red Cloud, Big Chief, Martha Washington and Ajax.

During the periods of activity, 1912 to 1917 and 1940 to 1943, the District is reported to have yielded 1,456 tons of ore with a metal content of 58 ounces of gold, 21,253 ounces of silver, 173,140 pounds of copper and 500,000 pounds of lead, valued in all at \$60,730.

Mines on which work has been done are reported to be the Sidong or Knowlton, Red Cloud, Big Chief, Martha Washington, Ajax, Regent, Salt Lake Group.

Ferguson Spring (Allegheny)  
Copper, Silver

Referances: Hill, J. M., 1916, Notes on Some Mining Districts in Eastern Nevada, 1916. U. S. Geol. Survey Bull. 684, p. 34, 39, 95-6, 97-8.  
Lincoln, F. C., Mining and Mineral Resources of Nevada, 1923, p. 45. Nevada State Bureau of Mines.  
Granger, A. E., Bell, M. M., Simmons, G. C. Lee, F., Geology and Mineral Resources of Elko County, Nevada, 1953. U. S. Geol. Survey and Nevada State Bureau of Mines.

Geology: Paleozoic limestones. Replacement deposits.

Location: At Ferguson Spring, in T. 30N., R. 69 E., in the Goshute Mountains, about 30 miles by highway southwest of Wendover, Utah.

History: The District was discovered about 1880. Some mining was done about 1910 and 1912. Small ore productions are recorded for 1917, 1937 and 1939.

Gilbert Canyon (Ruby Mountains)  
Beryl

References: Paper by Alfred Merritt Smith for Nevada State Bureau of Mines, 1933, unpublished.

Geology: Granite rocks traversed by pegmatite dykes.

Location: The beryl discovery was made 4 miles north of the Merkley Ranch which is on Gilbert Creek at the E. end of Mound Valley, 40 miles south of Elko. Prospecting by C. W. Enke, C. D. McNabb and others from Elko disclosed beryl in pegmatite dyke outcrops at 5 separate places on the high mountain slopes near the head of Gilbert Canyon at elevations of about 8,000 feet, and over an area about 1 mile wide and 2 miles long. About 35 lode claims had been located in 1933 by Clayton, Enke and Associates.

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Green Mtn,  
E. of Jiggs

The beryl crystals are light green, opaque, and from 1/8 to 1/2 inch in diameter and 1 to 3 inches long, excepting at one location where some larger crystals were observed. Where exposed, the dyke outcrop may average about one-half of 1 percent beryl. One crystal weighing 14 1/2 pounds had been found.

The beryl crystals appear to be loosely cemented in the dyke matrix. These deposits should be explored further, as the prevailing prices of beryllium metal are high due to a strong demand for use as nuclear shielding material. (See Dawley Canyon, where conditions are similar).

Gold Basin (Rowland)  
Gold

References: Boswick, F. E., 1910, Mining Review: Salt Lake Mining Review, Vol. 12, No. 3, May 15, p. 21-22  
Vanderburg, W. O., 1936, U. N. Bull. Vol. 30, No. 4, p. 72  
Smith, Alfred Merritt, and Vanderburg, Wm. O., 1932, Placer Mining in Nevada. U. N. Bull. Vol. XXVI, No. 8, p. 43-44  
Granger, A. E., Bell, M. M., Simmons, G. C., Lee, F., Geology and Mineral Resources of Elko County, Nevada, 1953.  
U. S. Geol. Survey and Nevada State Bureau of Mines.

Good Hope

Silver

References: Emmons, W. H., 1910, A Reconnaissance of Some Mining Camps in Elko, Lander and Eureka Counties, Nevada. U. S. Geol. Survey Bull. 408, p. 65-66.  
Lincoln, F. C., 1923, Mining Districts and Mineral Resources of Nevada, Nevada State Bureau of Mines, University of Nevada, Reno.  
Granger, A. E., Bell, M. M., Simmons, G. C., Lee, F. 1953. Geology and Mineral Resources of Elko County, Nevada. U. S. Geol. Survey and Nevada State Bureau of Mines.

Geology: Veins in Tertiary volcanics.

Location: Good Hope is about 25 miles by road northwest of Tuscarora, and on Chino Creek, in T. 41N., R. 49E.

History: Discovered in 1875, the Buckeye and Ohio Mine was worked from 1882 to 1884, and had a 5-stamp mill. A concentrator was built in 1903 but ran a very short time. Silver ore was shipped from the Midnight Mine in 1921. According to Lincoln the district is said to have produced more than \$100,000 in silver during the Eighties.

Various properties operated prior to 1920, but the workings are now inaccessible. Among these are the Buckeye and Ohio, the Snyder, and the Page and Kelley. The Buckeye and Ohio Mine is on Fourmile Creek near its junction with Atlantic Cable Gulch. It was worked from 1882 to 1884.

Harrison Pass

Tungsten

References: Hess, F. L., and Larsen, F. S., 1922. Contact-Metamorphic Tungsten Deposits of the United States. U. S. Geol. Survey Bull. 725-D, P. 305-306.  
Klepper, M. R., Star Tungsten Mine and Vicinity, Harrison Pass, Elko County, Nevada: U. S. Geol. Survey. Strategic Minerals Investigations Preliminary Map.  
Granger, A. E., Bell, M. M., Simmons, G. C., Lee,

F., Geology and Mineral Resources of Elko County, Nevada. 1953 U. S. Geol. Survey and Nevada State Bureau of Mines, U. of N. Reno.

Location:

On the east slope of the Ruby Mountains about 2 miles east of Harrison Pass. The Star Tungsten Mine is in the NW 1/4 of Township 28N., R. 58E. Elko is 53 miles by gravelled road via Harrison Pass. Currie and Warm Springs, on U. S. Highway 93, are each about 40 miles by gravelled roads via Ruby Valley.

History:

Scheelite was discovered here in 1916 or 1917, but there is no recorded production prior to 1941.

Beryl was reported by Alfred Merritt Smith in minor amounts in pegmatite veins on the west side of the Ruby Mountains, in 1932, in N 1/2 of T. 29N., R. 57E., but there has been no recorded production of beryl.

The Star Tungsten Mine produced about 6000 units of  $WO_3$  from some 6,500 tons of ore during 1941-1944.

During 1956 ore was shipped that yielded net proceeds of \$50,000 according to local report. Andrew W. Francis and George Ogilvie of Elko have interests in 12 claims from which the shipments were made. The mine had been leased by L. Thompson who mined and shipped the ore for 20 Century Fuel Company. Principal mine workings are a 400-foot tunnel, and a 100 foot shaft. During 1956-57 some 900 tons were shipped, according to George Ogilvie. 20 Century Fuels had bought Thompson's lease, but due to the unfavorable tungsten market outlook may drop it.

About a mile south of the Star Mine is the Campbell Mine; ore of about 1.0 percent  $WO_3$  is said to be present.

Island Mountain (Gold Circle)

Gold, Silver

- References:** Emmons, W. H., 1910, op. cit., U.S.G.S. Bull, 408, p. 84-86.  
Lincoln, F. C., op. cit., p. 51  
Eng. and Mining Journal 1938. Note on Rip Van Winkle Mine, Unpublished report in U. S. G. S. files.  
Lovering, T. S., and Stoll, W.M., 1943.  
Preliminary Report on Rip Van Winkle Mine, Elko County, Nevada, U.S.G.S. Survey. Open File Report, Salt Lake City, Utah, 9 pages.  
Smith, M. C. and Trengrove, R. R., 1949, Investigations of the Rip Van Winkle lead-silver-zinc mine, Elko County, Nevada, U. S. Bureau of Mines Report Inv. 4605, 13 pages.

**Geology:** Carboniferous limestone intruded by quartz monzonite and quartz monzonite porphyry.

**Location:** On Lone Mountain, 28 miles by road northwest of Elko, in Township 37 and 38N., R. 53E.

**History:** The district was organized in 1870, and is reported to have yielded some 1000 tons of ore with gross value of \$30,000.

The Rip Van Winkle Mine is reported to have produced \$42,000 to 1916. In 1916 it was bonded to the Lone Mountain Mining Company by the Alaska Improvement Company, and an unknown but rather small amount of lead-silver ore was produced in 1921. During 1937-1956 this mine made the only production in the district; up to 1939 it is reported to have been about \$70,000.

The Rip Van Winkle is now owned by United Minerals Corporation, and the E. H. Snyder interest of Salt Lake City, and mining is planned for the summer of 1957.

The total production of the district from 1866 to 1949 is listed as \$1,202,420, distributed as follows: Tons Ore, 66,137; ounces gold, 540; value \$13,691; ounces silver, 730,877; value \$525,135; copper, pounds, 171,860; value \$24,131; lead, pounds, 5,630,220; value \$363,357; zinc pounds, 3,266,493; value \$276,105.

Mountain City (Cope, Van Duzer, Rio Tinto)  
Copper, Silver, Gold, Tungsten

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**References:** Emmons, W. H., 1910, op. cit., U.S.G.S. Survey Bull. 408, p. 80-84  
 Lincoln F. C., op. cit., p. 52  
 Nolan, T. B., 1932, The Mountain City Mining District Eng. and Mining Journal, 1937, 1938, 1939, Notes on Mountain City, V. 138, No. 1, p. 33; Vol. 139, No. 10, p. 64; Vol. 139, No. 12, p. 64; Vol. 140, No. 9, p. 66; Vol. 140, No. 10, p. 74  
 Matson, E. J., 1947, Rio Grand (Tinto) Copper Deposit Elko County, Nevada. U. S. Bureau of Mines, Report Inv. 4120, 6 pages.  
 Stephens, E. C., 1950, Geology of the Mountain City Copper Mine and Mountain City Quadrangle: Unpublished report, Int. Smelting and Refining Company, Salt Lake City, Utah  
 The Mining Record 1950, Vol. 61, No. 49, p. 3; Vol. 61, No. 52, p. 3.  
 Granger, A. E. Bell, M. M., Simmons, G. L., Lee, F. Geol. and Mineral Resources of Elko County, Nevada, 1953.

**Geology:** Paleozoic sediments cut by granodiorite and capped by tertiary lavas. Veins and placer gravels.

**Location:** Mountain City District and town are on the Owyhee River 90 miles from Elko over paved roads. It is in Townships 45 and 46 N., R. 53 E.

**History:** The district was discovered by Jesse Cope and others in 1869, according to Lincoln. A rush followed and the town soon had a population of over 1000, with one mill in operation and two more under construction to treat silver ore. Prior to 1881 over \$1,000,000 in silver was produced from shallow workings. A 50-ton flotation mill was built at the Nelson Mine in 1921, but silver mining operation was not profitable. In 1923 Keeiey and Hopkins had a 9-stamp amalgamating and concentrating mill in operation. There was some placer mining, estimated to have produced about \$150,000 in gold. The silver ore was rich but the deposits were shallow and soon exhausted.

An excellent tabulation by the Granger Report shows production of all metals and values from 1869 to 1949.

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Notes from a report by Thomas B. Nolan. U. S. Geol. Survey 1932:

Silver and Gold. First discoveries were in 1869 by Jesse Cope and others. In the Seventies 3 small silver mills were operating. Production in silver up to 1881 is stated to have been over \$1,000,000, all from surface and shallow mining. During the late Eighties or early Nineties three gold mills were built, but none were running by 1908, and from then up to the time of Nolans report in 1932 there was essentially no mining. In 1921 a 50-ton mill was built on the old Nelson Mine, but production was negligible.

Copper. In November, 1931, S. F. Hunt discovered rich copper ore on the Rio Tinto claims. The story of the discovery is interesting and indicates the persistence and courage of this pioneer which led to fortune. A part of his profits were made available to the Mackay School of Mines of the University of Nevada. The property was examined by the writer, Alfred Merritt Smith and Carl Stoddard, for the Nevada State Bureau of Mines, and a brief description of the status of the mine was written by Smith for the Press, June 30, 1932.

In 1933, International Smelting and Refining Company, a subsidiary of Anaconda Copper Company secured control of the mine which was thereafter operated as the Mountain City Copper Company. Large scale development was inaugurated, a 3-compartment shaft sunk to the 300-foot level, a power line was built into the district by Idaho Power Company from Jarbidge, and the construction of a modern flotation mill was under way, and completed in August, 1936.

The mine was first put on a producing basis in 1935, when 15,566 tons of ore was shipped yielding 8,199,866 pounds of copper and 657 ounces of silver, with total gross value of \$353,738. The best ore shipped averaged about 25% copper.

The property at that time consisted of 43 mining claims covering some 470 acres. The company also owned adjacent ranch lands of 177.83 patented acres.

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After a phenomenal production of rich ore for some 10 years, the mine closed down in 1947 and the company was liquidated. Of the once thriving and well-built town and mill at Rio Tinto nothing now remains but waste dumps and the ghostly ruins of an abandoned mining camp.

Uranium. Happy Joe Mine, near Mountain City is reported to have made a small production of uranium ore during 1956. There are said to be various undeveloped uranium prospects in the district. It is reported that the Continental Oil Company intends to drill on some of the prospects.

The Mountain City Uranium Company consists of 12 claims northeast of Mountain City that have indications of uranium deposits. The company is incorporated, with the owners, J. E. Gregory, President and M. E. Ray, Secretary-Treasurer, both of Elko. Shares are offered for sale, and development work is in progress.

Mud Springs (Medicine Springs, Dead Horse)  
Lead, Silver, Zinc

References: Hill, J. M., 1916, op. cit., U.S.G.S. Survey Bull. 618, p. 64,66.  
Lincoln, F. C., p. 52-53  
Smith, R. M., U.S.G.S., and Gentry, G. C.  
U. S. Bureau of Mines: Written communication in Granger, Bell, Simmons, Lee report, Elko County Mineral Resources, 1953.

- Geology: Permian limestones, shales and quartzites. Replacement deposits
- Location: By road 20 miles southeast of Ruby Valley Post Office. It is in T. 28N., R. 60E.
- History: First discoveries made in about 1910. The Silver Butte Mine (first named Dead Horse Mine) was located in 1911. Most development in the district was done on the Silver Butte Mine.

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## NONMETALLICS

### Gravels-Sand

Cement aggregates, plaster sand, road-metal abundant. Small screening and crushing plants for road work, etc. Small and uncertain markets, but construction of the national freeway may prove stimulus.

### Limestone and Dolomite

Plentiful in East half of county for all purposes.

### Marble

Good, vast amounts bordering Lamoille Valley on west flank Rubys. Not quarried. White, gray, laminated, gray and white. Good for interior work.

### Granite

Before 1907, quarried 30 miles north of Elko. Some finished and used locally.

### Sandstone

Sandstone and conglomerates quarried from Humboldt formations near Elko. Some used in building construction.

### Diatomaceous Earth

Fresh-water diatomite in Tertiary deposits. Mined at Vivian 4 miles east of Carlin for some years. 2,000 tons in 1932 (Reference Fulton and Smith, U. N. Bull.), and 928 tons gross value \$7,831 in 1933 (Couch and Carpenter, 1943, p. 41) mostly used for insulation.

### Coal

A little impure coal west of Moleen Canyon 4 1/2 miles East of Carlin along the railroad. High ash content.

### Lignite

Beds at different horizons in Humboldt formation, near Elko. Light brown, pulverent, laminated. Beds only a few inches thick and numerous cuts, etc. in 50 years. Unsuitable for fuel.

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See Elko Mining District report.

Petroleum

In 1950-1952 much geological and geophysical work by major oil companies. Large areas drilled. Test wells scheduled.

Barite

During 1956-1957 barite has been in strong demand and production and shipments have been made from several areas. About 35 miles north of Dunphy and probably in the northwest part of T. 37N., R. 50 E., a large tonnage was mined in 1956, hauled to Dunphy on the S. P. R. R., from where it was shipped by the National Lead Company. Mining continues. The ore is also being stockpiled at Dunphy.

In March, 1957, sale of 7 barite claims 50 miles north of Wells to American Colloid Company of Chicago for \$35,000 was reported by the owners, Herb Butler and Martin Saunders of Elko. Four miles of road 24 feet wide have been constructed to the property by Hunt Construction Company of Elko. Core drilling of the claims has been done by Pocahontas Core Drilling Company of New Mexico.

ELKO COUNTY SCHOOLS

The public school system of Elko County is exceptionally well organized and conducted, and the personnel responsible for programming and supervision are deserving of the highest praise. The unusually good schools should be - and by proper advertising can be made - one of the best features to draw new industry and people into the county. There are many areas in the United States, some of which are very important industrially, where the public schools leave much to be desired. The educational accomplishments of Elko County are all the more commendable when it is realized that many of the schools are far apart, transportation is often a problem, especially in winter months.

Notwithstanding the necessary monetary limitations and increasing number of pupils, the school administration effected a substantial reduction in budget estimates for 1957-1958, with no reduction in efficiency.