DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF-834
MINERAL RESOURCE POTENTIAL, ROUND MTN. QUAD., NEVADA

Base from U.S. Geological Survey, 1971

Geology mapped in 1967-68; 1973-74

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

NEVADA
QUADRANGLE LOCATION

EXPLANATION

Qa	ALLUVIUM (QUATERNARY)
Tv	VOLCANIC ROCKS (TERTIARY)
Td	DIORITE (TERTIARY)
	RHYOLITE (TERTIARY)
Kg	GRANITE (CRETACEOUS)
Kgp	PORPHYRITIC GRANITE (CRETACEOUS)
Pzs	SEDIMENTARY ROCKS (PALEOZOIC)
	HIGH-ANGLE FAULT
	LOW-ANGLE FAULT
	CONTACT
123-73	SAMPLE LOCALITY

DISCUSSION

A preliminary generalized geologic map and twelve geochemical maps that show distribution of iron, copper, lead, zinc, silver, molybdenum, antimony, arsenic, tungsten, barium, potassium, and boron, suggest potential for specific mineral deposits of several types in the Round Mountain quadrangle, Nye County, Nevada. This mineral resource potential map indicates the general areas where mineral deposits of various types may be found, and suggests a general magnitude of potential for the various types.

Tungsten-bearing quartz veins in granite are numerous in several narrow east-trending belts 2-3 mi (3-5 km) east and southeast of Round Mountain. All veins are small, and production has been minor. Probably only small additional potential remains in these veins. Uranium minerals are present locally in the veins, but offer no more than minor potential.

Gold-bearing quartz veins in rhyolite on and near Round Mountain hill offer substantial potential for gold and silver where the quartz veins are found closely spaced in "sheeted" zones. Tenor is low, but large-scale open cut operations could be profitable if precious metal prices remain high (for example $150 or more per oz gold and $4.00 or more per oz silver). If the northwest-trending veins on Round Mountain project farther to the northwest in bedrock underlying alluvium, there is additional potential for gold and silver production. Also, placer gold may occur in alluvium above bedrock in this area. Placer gold was previously mined in considerable quantity at or near the buried surface of the west slope of Round Mountain hill and additional gold may occur. Perhaps in-place leaching to recover gold from the material just above the bedrock surface will eventually prove feasible.

Cretaceous granite underlies Tertiary rhyolite ash-flow tuff just east of Round Mountain hill, and Cambrian and Ordovician sedimentary rocks possibly underlie rhyolite west of the projected granite intrusive contact somewhere beneath Round Mountain hill. Skarn, stockwork, or porphyry deposits may have formed in the underlying rocks at the time of gold mineralization in rhyolite. Minor copper, lead, zinc, molybdenum, and antimony anomalies, and substantial silver and arsenic anomalies in mineralized rock at the surface on and near Round Mountain, particularly at the edge of alluvium on the north, indicate a possible mineralization center beneath or just north of Round Mountain hill.

The copper, lead, zinc, silver, antimony, and arsenic values in quartz veins in an arcuate zone that partly surrounds a diorite stock 2-3 mi (3-5 km) east of Round Mountain suggest a porphyry copper potential at depth. The 2.5 mi (4 km) diameter of the mineralized halo indicates the possibility that an associated porphyry deposit is large. Skarn ores of copper may be found in lower Paleozoic carbonate rocks where they have been intruded by the diorite stock or perhaps by other stocks nearby but not exposed at the surface. Some high silver values in the exposed quartz veins suggest the possibility of small amounts of commercial ore, but the veins have no potential for commercial base metal deposits.

The copper, lead, zinc, silver, molybdenum, antimony, and arsenic values in quartz veins that form an arcuate zone partly surrounding the approximate center of a prominent aeromagnetic anomaly 2 mi (3 km) south of Round Mountain (U.S. Geol. Survey, 1971) indicate a potential for mineral deposits similar to those postulated near the diorite stock east of Round Mountain. The 3 mi (5 km) maximum diameter of the mineralized halo that partly surrounds the aeromagnetic anomaly suggests that an associated porphyry deposit at depth might be large. Also, the high molybdenum values in some quartz veins near the aeromagnetic anomaly suggest that the possible porphyry deposit also contains significant molybdenum. As in the other silver-bearing cluster of veins the commercial potential of the veins themselves is negligible.

The deposit of gold-bearing carbonaceous silty carbonate rock of Ordovician age at the Shale Pit mine is of the Carlin type. There is a moderate possibility that the Shale Pit deposit could be enlarged by drilling, and other deposits could occur nearby in similar Ordovician strata.

Copper and molybdenum minerals, and a rare lead-copper-silver-bismuth sulfide, at and near the Outlaw prospect along the screen of Ordovician schist in granite in the southeast part of the Round Mountain quadrangle indicate only a small metal potential.

When the price of mercury recovers sufficiently from its present depressed condition (about $130 per flask, 1976) the Red Bird Toquima mine is likely to produce additional moderate amounts of mercury. Barite might prove to be a byproduct of mining the cinnabar- and metacinnabar-bearing barite veins, but production would likely be small. The mercury contained in the barite would have to be removed in order to make the product safe. Small amounts of mercury probably will be recovered from deposits 2 mi (3 km) west and 1 mi (1.5 km) northwest of the Red Bird Toquima, and possibly from other deposits in this area that as yet are undiscovered.

In summary, I emphasize that the Round Mountain quadrangle offers potential for two large buried porphyry deposits. A porphyry copper deposit may lie at depth in the vicinity of the diorite stock east of Round Mountain, and a porphyry copper-molybdenum deposit may lie at depth in the vicinity of the aeromagnetic anomaly centered south of Round Mountain.

POTENTIALLY FAVORABLE MINERAL RESOURCE AREAS

1. Tungsten-bearing quartz vein deposits--Tungsten and uranium potential small
2. Gold-bearing quartz vein deposits--Gold and silver potential substantial where quartz veins are numerous in "sheeted" zones. Outlined area is open to the northwest to suggest metal potential in bedrock below alluvium, as well as placer gold potential in alluvium. Possible skarn, stockwork, or porphyry potential at depth beneath or on northern periphery of gold-mineralized area
3. Copper, lead, zinc, silver, antimony, and arsenic in quartz vein deposits--Silver potential small. Arcuate mineralized zone partly surrounding diorite stock 2-3 miles (3-5 km) east of Round Mountain may indicate large porphyry copper potential at depth
4. Copper, lead, zinc, silver, molybdenum, antimony, and arsenic in quartz vein deposits--Silver potential small. Arcuate mineralized zone partly surrounding approximate center of aeromagnetic anomaly 2 mi (3 km) south of Round Mountain, marked with large cross, (U.S. Geol. Survey, 1971) may indicate large porphyry copper-molybdenum potential at depth
5. Gold-bearing carbonaceous silty carbonate rock at Shale Pit mine, of Carlin type--Contains anomalous arsenic, antimony, and tungsten. Gold potential moderate at Shale Pit and in similar rocks nearby
6. Copper and molybdenum minerals in quartz veins --Rare lead-copper-silver-bismuth sulfide present. Metal potential probably small

Hg MERCURY MINE--Mercury potential moderate; barite potential small

Hg X MERCURY PROSPECT--Mercury potential small

REFERENCE

U.S. Geological Survey, 1971, Aeromagnetic map of parts of the Tonopah and Millet 1° by 2° quadrangles, Nevada: U.S. Geol. Survey Geophys. Inv. Map GP-752.

MINERAL RESOURCE POTENTIAL OF THE ROUND MOUNTAIN QUADRANGLE, NYE COUNTY, NEVADA

By
D. R. Shawe

1977

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1977

For sale by Branch of Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80225