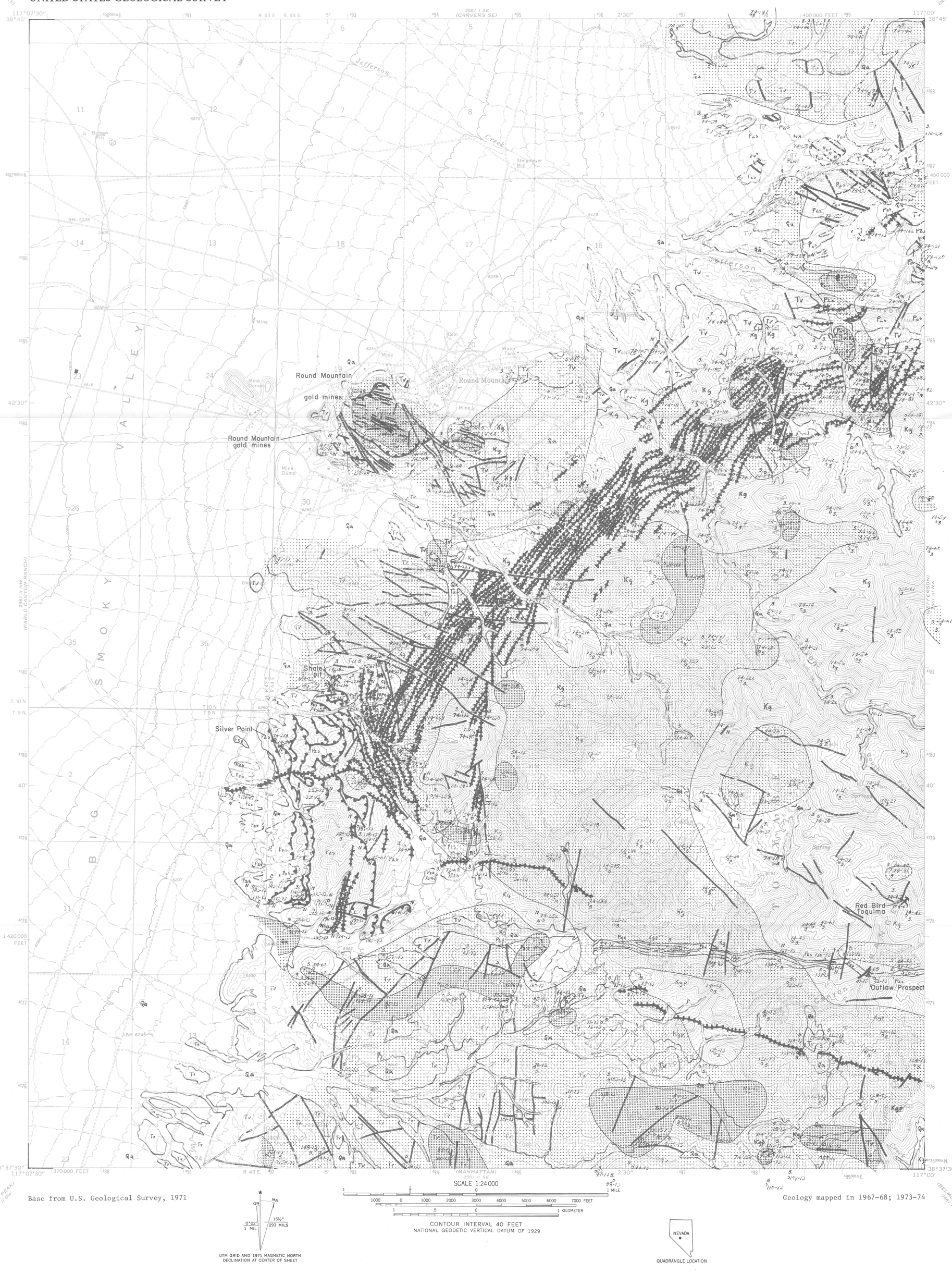
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY



Base from U.S. Geological Survey, 1971

Geology mapped in 1967-68; 1973-74

SCALE 1:24000

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

NEVADA

QUADRANGLE LOCATION

GEOCHEMICAL AND GENERALIZED GEOLOGIC MAP SHOWING DISTRIBUTION OF POTASSIUM IN THE ROUND MOUNTAIN QUADRANGLE, NYE COUNTY, NEVADA

By
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1977

MISCELLANEOUS FIELD STUDIES MAP MF-835L
K, ROUND MTN. QUAD., NEVADA

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

ISOPLETHS--Separate areas characterized by the reported element concentrations. Number shows potassium content in percent. N, not detected; L, detected, but below limit of determination

- N-3 percent K
- 5 percent K
- 7-10 percent K

DISCUSSION

This series of geochemical maps shows the distribution and abundance of iron, copper, lead, zinc, molybdenum, silver, antimony, arsenic, tungsten, barium, potassium, and boron in the Round Mountain quadrangle, Nye County, Nevada. These maps are intended to provide help in exploration for possible concealed mineral deposits in the quadrangle.

Samples were collected from bedrock throughout the quadrangle to assess the abundance and distribution of metals and other elements that outline mineralized systems and may indicate exploration targets. The samples were collected from the most intensely mineralized rock in any given locality, and are from shear or fault zones, fractures, jasperoid bodies, veins, and altered rocks. None of the samples necessarily represents a body of rock large enough to be mined economically.

Iron-oxide stain is the most conspicuous effect of mineralization in the rocks of the quadrangle, and most of the geochemical samples were collected because of the presence of iron-oxide stain. The iron oxide is almost certainly the result largely of weathering of pyrite in mineralized rocks. Accordingly limonite pseudomorphs after cubic pyrite are widespread.

All the elements discussed were determined by the semiquantitative spectrographic method by H. G. Neiman, M. W. Solt, and J. C. Hamilton. The elements were reported in the series 1, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, and so on. Approximate lower limits of determination for the elements reported here are: Fe, 0.001 percent; K, 0.7 percent; Cu, 1 ppm (parts per million); Pb, 10 ppm; Zn, 300 ppm; Ag, 0.5 ppm; Mo, 3 ppm; Sb, 200 ppm; As, 1,000 ppm; W, 100 ppm; Ba, 2 ppm; and B, 20 ppm. Under favorable conditions greater sensitivity is attainable for some of these elements.

The isopleths of element abundance on maps in this series were arbitrarily selected. The contour intervals were chosen to show, within the limitations of the analytical data, areas of generally low (probably background and lower than normal) values, areas of probably anomalous values, and areas of highly anomalous values. I emphasize that the isopleth lines surround areas in which the collected samples show the indicated values; most rock adjacent to and between sample localities may contain much lower elemental values than do the collected samples.

Most of the geochemical samples collected in the Round Mountain quadrangle contain about 5 percent K, on the basis of semiquantitative spectrographic analyses. Judged from chemical analyses of some of the spectrographically analyzed samples the spectrographic results are slightly high. Samples collected in a broad area along the east boundary of the quadrangle contain 3 percent K or less. Other areas of low potassium content are in the vicinity of the northwest-striking faults in the northeast corner of the quadrangle, in the vicinity of the small diorite stock east of Round Mountain, and in the vicinity of a postulated buried intrusive south of Round Mountain. Noteworthy is a zone of low potassium content coinciding with anomalously high molybdenum and copper in the vicinity of north-striking rhyolite dikes 2-3 mi (3-5 km) south of Round Mountain. Highest amounts of potassium (7-10 percent K) occur in small patches clustered near the diorite stock east of Round Mountain, on Round Mountain hill and for 2-3 mi (3-5 km) southeast of Round Mountain, in the vicinity of a postulated buried intrusive south of Round Mountain, and in broader patches mostly in volcanic rocks near the south boundary of the the quadrangle. The zone of high potassium content on Round Mountain hill coincides with a low-lead area. An arcuate belt of geochemical samples that contain about 7 percent K lies in volcanic rocks south of and perhaps concentric with a postulated buried intrusive. This belt coincides with a belt of anomalous barium in the volcanic rocks.

The distribution of potassium in Cretaceous granite in the Round Mountain quadrangle suggests either that the pluton is compositionally zoned (potassium rich in the border phase) as a result of multiple intrusion (a possibility not supported by field relations) or that the pluton has been differentially affected by potassium metasomatism. The patches of potassium-rich volcanic rocks in the south part of the quadrangle do not coincide closely with specific volcanic units and therefore are suggestive of potassium metasomatism. Both low and high values of potassium in association with centers of igneous intrusion suggest, as in the cases of lead and barium, that hydrothermal solutions swept out potassium locally and concentrated it in nearby favorable sites.

The high-potassium values on Round Mountain hill reflect the abundance of adularia in the gold-bearing quartz veins. Possibly this concentration of potassium, and concentrations in the vicinity of intrusive centers, indicate that the mineralization was part of a porphyry-copper-molybdenum system.

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