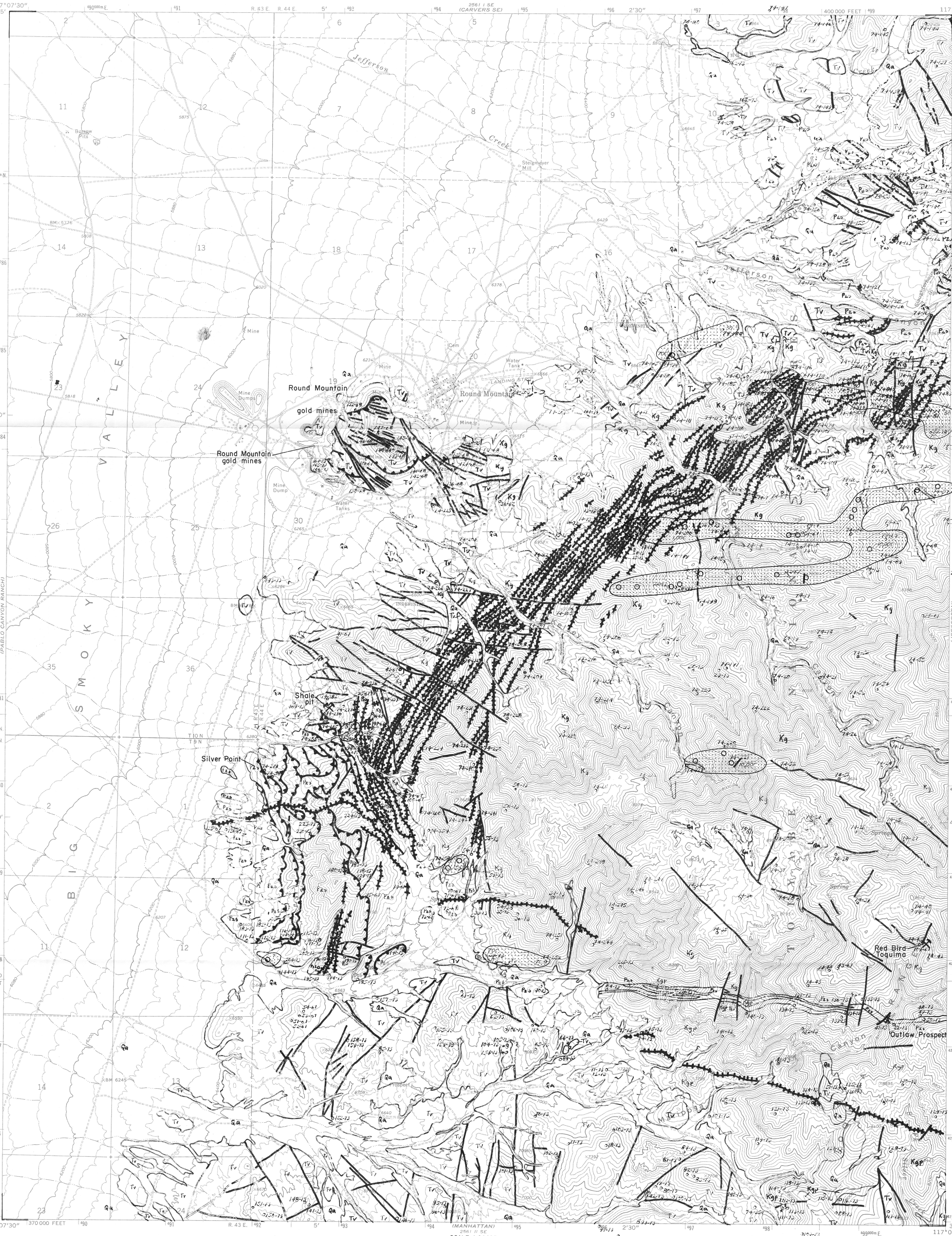
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF- 835I
W, ROUND MTN. QUAD., NEVADA



Base from U.S. Geological Survey, 1971

Geology mapped in 1967-68; 1973-74

SCALE 1:24000

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

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

ISOPLETHS--Separate areas characterized by the reported element concentrations. Number shows tungsten content in parts per million. Queried where position of locality uncertain

W not detected

50-10,000 ppm W, or visible huebnerite

O Huebnerite occurrence

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.

Areas of highly anomalous values are outlined on the map. 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.

In addition to the geochemical samples collected, numerous huebnerite-bearing quartz veins were observed and sampled. Localities are shown on the geochemical map. Most of the occurrences are quartz veins in granite 2-4 mi (3-6 km) east-southeast of Round Mountain. Some occurrences are a few miles southeast and south of Round Mountain.

Most of the geochemical samples collected in the Round Mountain quadrangle contain no tungsten detectible by the semiquantitative spectrographic method. Inasmuch as the lower limit of determination for tungsten is high, generally 100 ppm, samples in which tungsten was detected are clearly anomalous. Most anomalous samples, ranging from 50 to 10,000 ppm (1 percent) W, were collected in an area of a few square miles, 2-4 mi (3-6 km) east of Round Mountain. Other localities are a few miles southeast, south-southeast, and east of Round Mountain. One tungsten-rich sample was collected from the northeast-striking vein about 3 mi (5 km) southeast of Round Mountain that is also anomalous in arsenic and antimony.

The distribution of tungsten in the Round Mountain quadrangle is strikingly different from that of other metals. Localities of tungsten-rich samples and huebnerite occurrences shown on the geochemical map are mostly alined in narrow east-striking belts, particularly in the area east of Round Mountain. Quartz veins in these belts, however, are commonly oriented northeasterly, northerly, or northwesterly.

Possibly the belts were fed by hydrothermal fluids moving along deeply penetrating east-striking major fractures underlying the quartz veins. The mineralizing event took place at about 77 m.y. ago, based on a K/Ar age determination on muscovite from a tungsten-bearing quartz vein. The event clearly occurred long before most of the other metal mineralization in the quadrangle.

A minor amount of tungsten enrichment in the vicinity of the Shale Pit gold mine, 2 mi (3 km) south of Round Mountain, probably occurred at the time of Carlin-type gold mineralization at that deposit.

Tungsten mineralization was also accompanied by enrichment of copper, lead, zinc, silver, antimony, and arsenic at a northeast-striking vein about 3 mi (5 km) southeast of Round Mountain, at occurrences a similar distance south-southeast of Round Mountain, and in the two northernmost east-trending tungsten belts in the quadrangle. Base-metal enrichment of earlier-formed tungsten-bearing quartz veins possibly occurred at these localities. Conversely, perhaps base-metal bearing veins were formed in a period following formation of the tungsten veins east-southeast of Round Mountain, at which time tungsten from the older veins was remobilized into the base-metal veins.

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

By
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