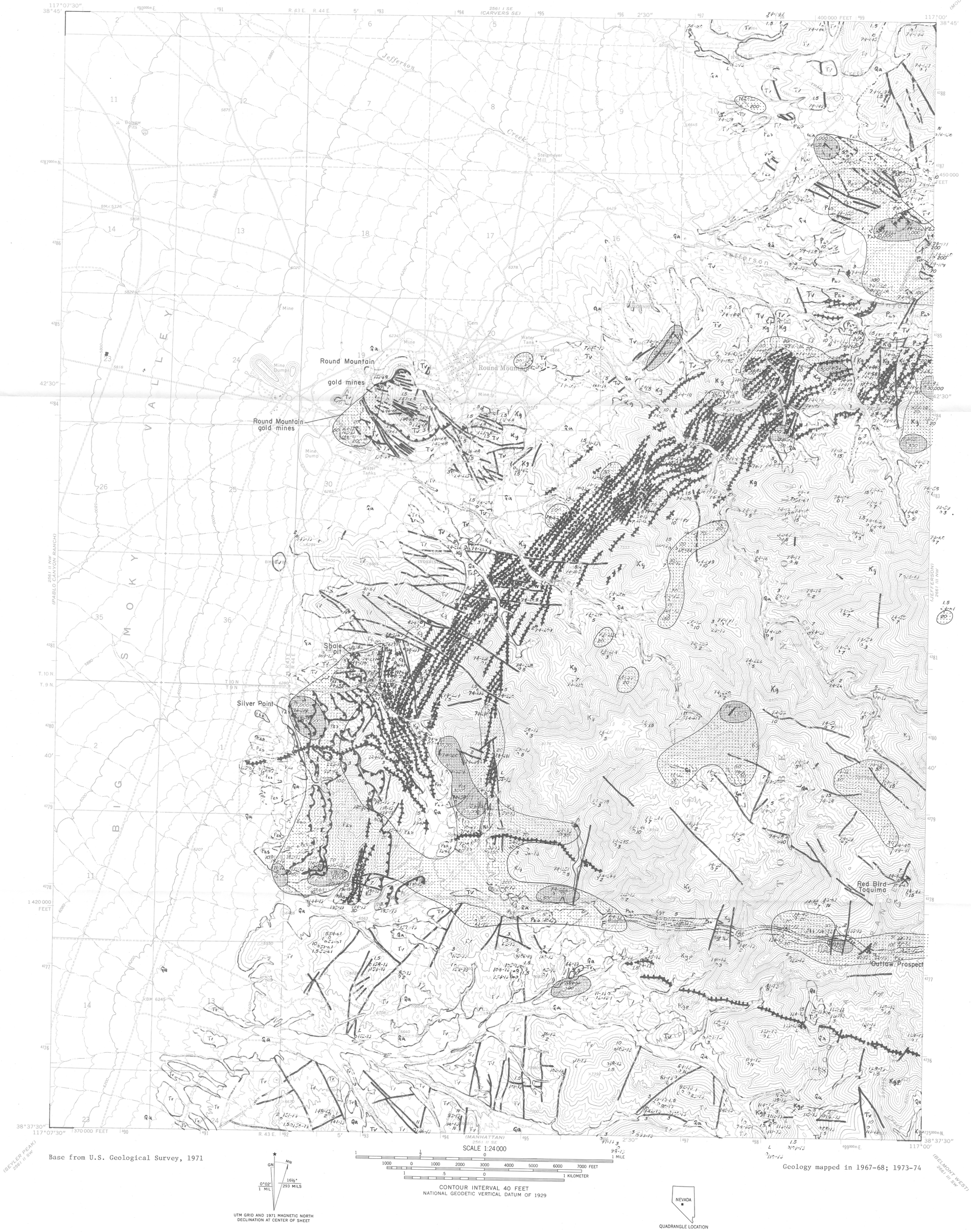
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF-835B
Cu, ROUND MTN. QUAD., NEVADA



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

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 copper content in parts per million. L, detected but below limit of determination; N, not detected

- 1-15 ppm Cu
- 20-200 ppm Cu
- 300-30,000 ppm Cu

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 less than 20 ppm copper, probably background values. Zones of anomalously high copper values are mostly adjacent to northwest-striking faults in the northeast corner of the quadrangle, peripheral to the small diorite stock east of Round Mountain, peripheral to the postulated buried intrusive south of Round Mountain, and adjacent to the screen of Ordovician schist in granite. Highest values for copper (300-30,000 ppm or 3 percent) are in the vicinity of the diorite stock and a postulated intrusive, at either end of the Oligocene rhyolite dike swarm.

The concentrations of anomalous amounts of copper along the screen of Ordovician schist suggest that mineralizing fluids may have been directed upward along the south-dipping screen from its intersection with the long rhyolite dike farther south. Fluids probably did not emanate from the dike, but instead may have been driven upward from other intrusives emplaced in the fracture zone that localized the dike.

The general pattern of distribution of anomalous amounts of copper in the vicinity of intrusives, and the association of copper with anomalous iron indicating broadscale pervasive hydrothermal mineralization, suggests the possibility of porphyry-copper systems in the Round Mountain quadrangle. Posbibly the quartz veins that provided the geochemical samples richest in copper are peripheral to stockwork-type mineralized rock adjacent to buried intrusive bodies.

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

By
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