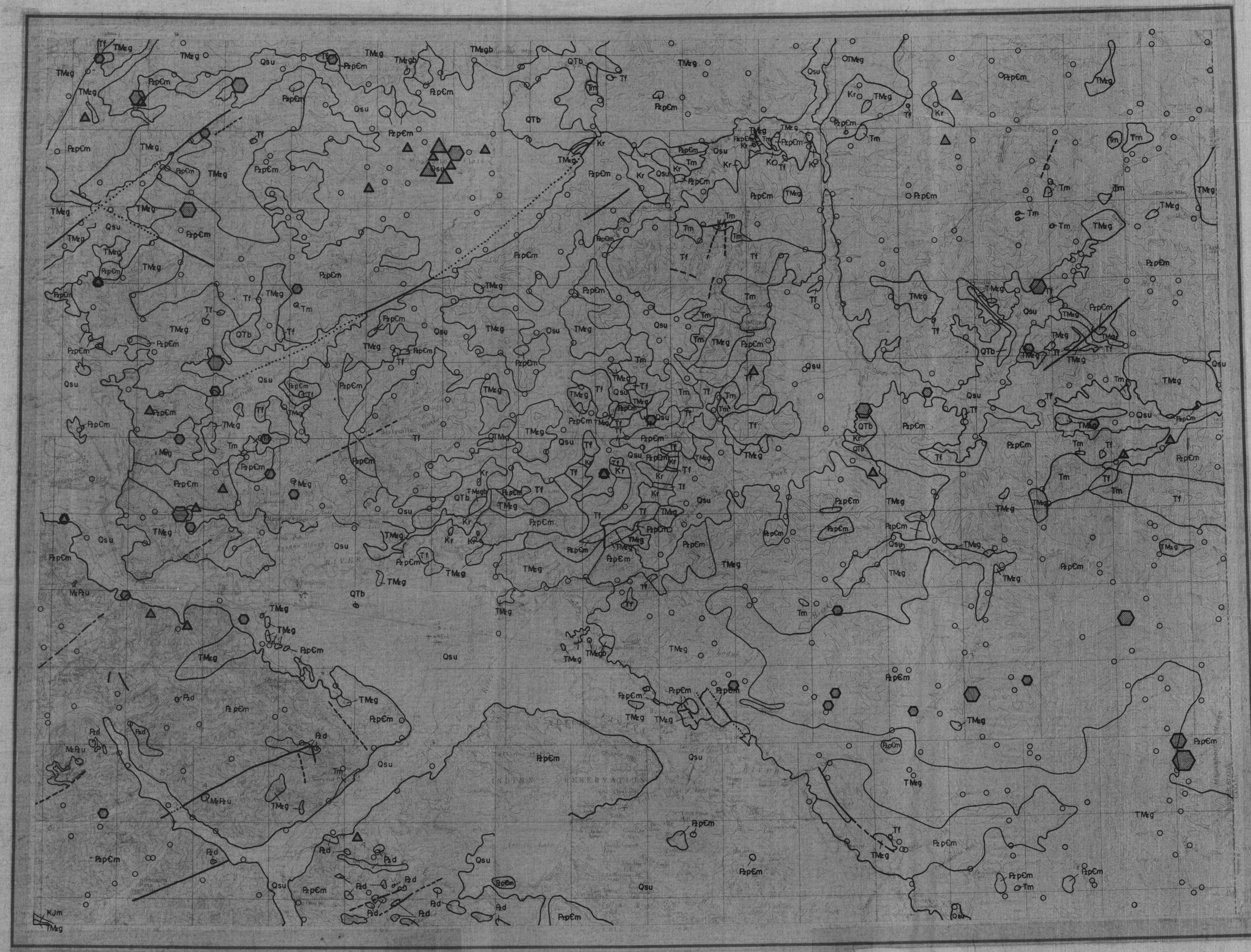
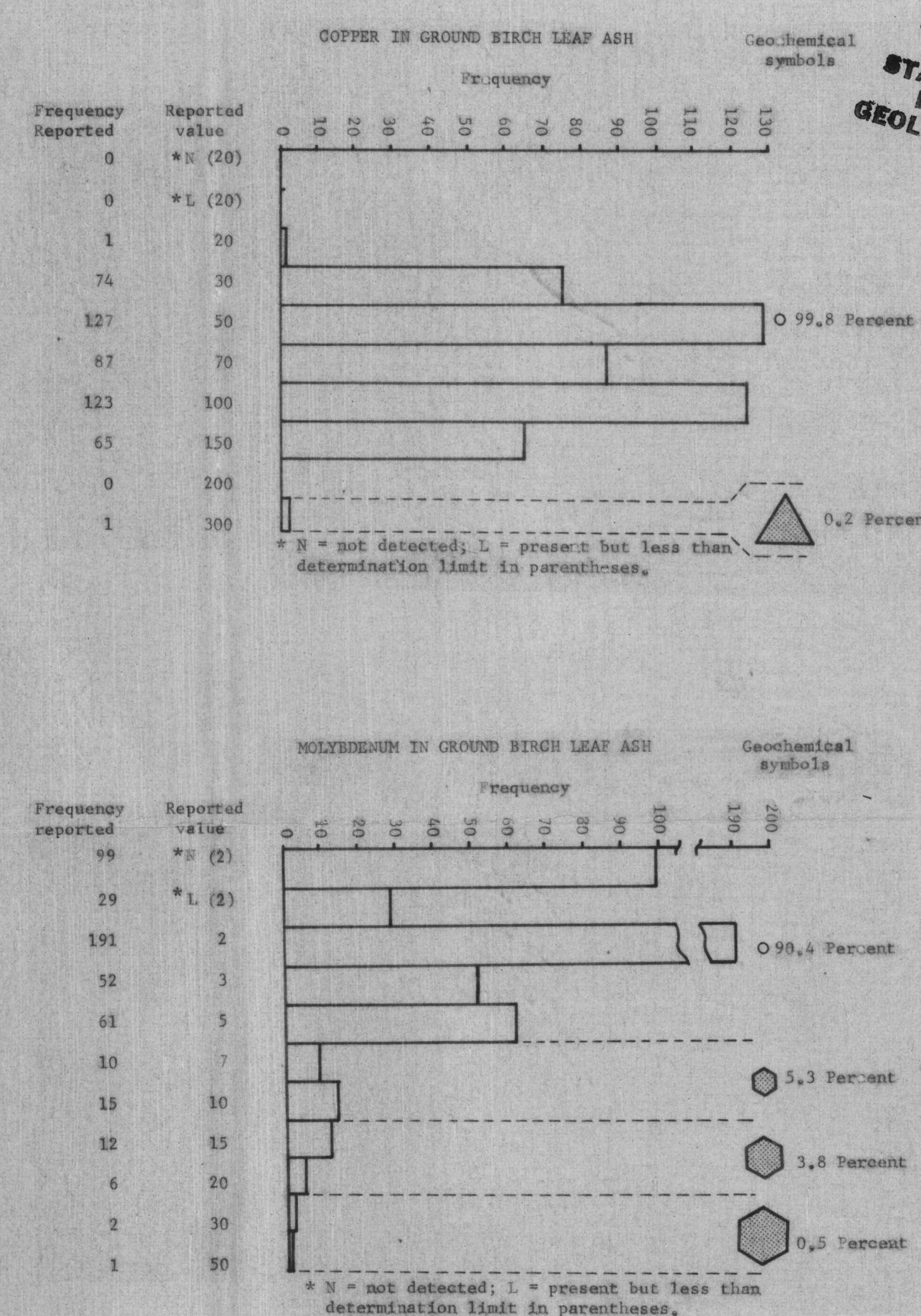


Topographic base from U.S. Geological Survey, 1958

Geology generalized from Foster, 1970; geochemical sampling and analysis, 1971

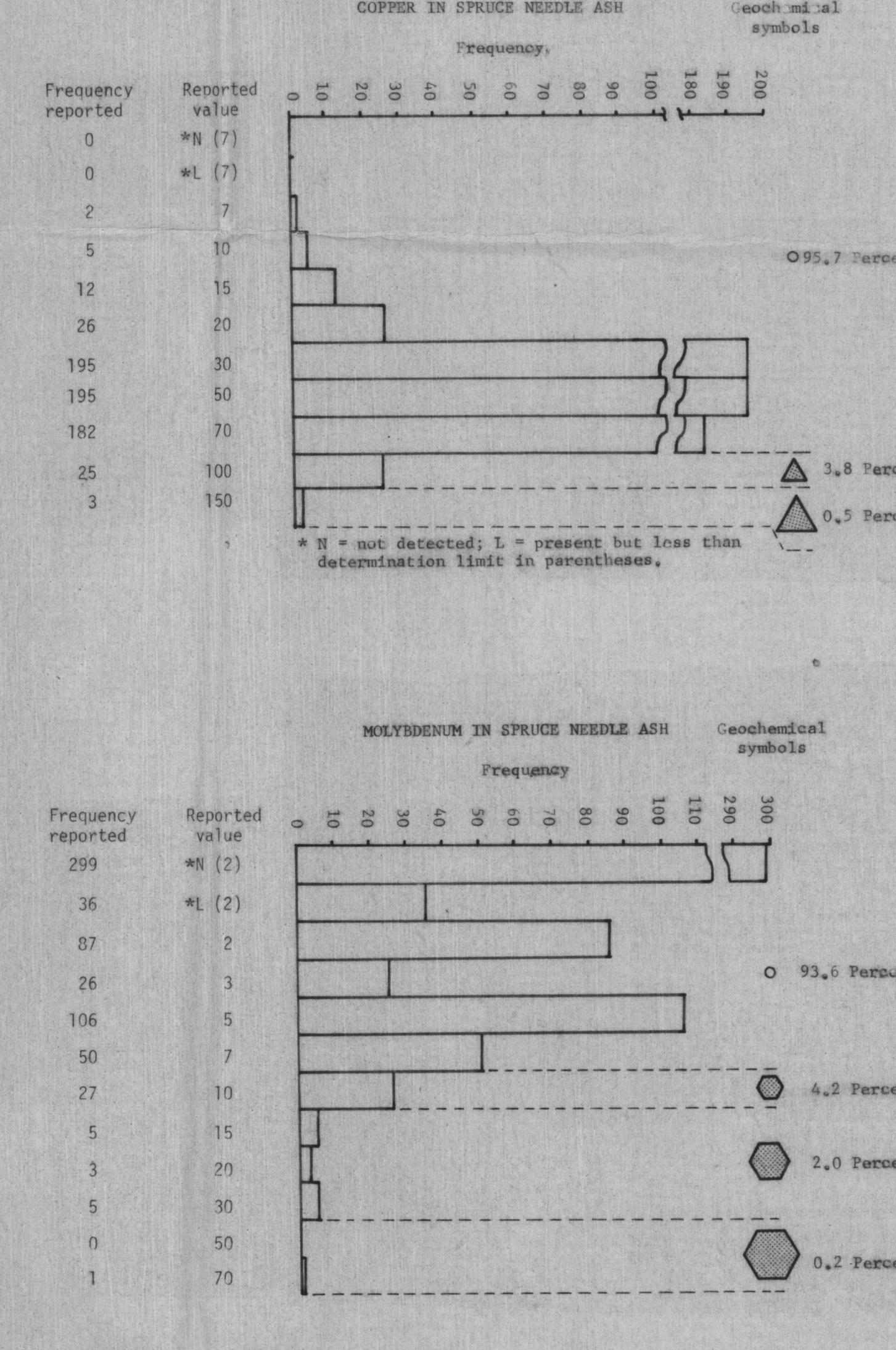
GROUND BIRCH



Topographic base from U.S. Geological Survey, 1958

Geology generalized from Foster, 1970; geochemical sampling and analysis, 1971

BLACK SPRUCE



DISCUSSION

These maps and histograms show the distribution and abundance of copper and molybdenum in the ash of black spruce (*Picea mariana* Mill.) needles and in the ash of ground birch (*Betula rotundifolia* Michx.) leaves which were collected in the Tanacross quadrangle during reconnaissance geochemical studies for the Alaska Mineral Resource Assessment Program. The geochemical data are plotted on base maps showing general geology and topography. Sample sites are shown on the maps by small open circles, and by patterned circles and triangles on the histograms. Reported values are defined as follows: 0 = not detected; 1 = present but less than determination limit in parentheses. Reported values are defined as follows: 0 = not detected; 1 = present but less than determination limit in parentheses.

DISTRIBUTION AND NATURE OF THE GEOCHEMICAL ANOMALIES

The data indicate that neither the ash of black spruce needles or ground birch leaves yielded copper anomalies that define the known base metal occurrences in the quadrangle. The ash of black spruce needles apparently yields more information on the distribution of copper, however, than that of ground birch leaves. At least one high copper value in black spruce needle ash is associated with a known porphyry copper and molybdenum occurrence in the eastern part of the quadrangle (T. 22 N., R. 22 E.), and other high copper values in the central and western parts of the quadrangle are associated with high copper values in other ash media (Curtin and others, 1976). The only anomalously high copper value in ground birch leaf ash from the Posaville Ridge area in the southeastern part of the quadrangle (T. 16 N., R. 21 E.), correlates with the highest zinc value in birch leaf ash (unpublished data). Two high molybdenum values in spruce needle ash.

The cluster of high copper values and one high molybdenum value in the ash of black spruce needles (quadrangle, mostly correlate with high copper molybdenum, and zinc values in other ash media (Curtin and others, 1976). The high copper values and the one high molybdenum value could be derived from two possible sources. The first one is a molybdenum- and copper-bearing hypabyssal intrusion (T. 16 N., R. 21 E.), which may be related to the highest zinc value in birch leaf ash (unpublished data). The second source, however, may be black spruce. Another source, however, may be mineralized intrusive rocks beneath the Quaternary material in Posaville Ridge where they are accumulated by black spruce. Another source, however, may be mineralized intrusive rocks beneath the Quaternary material beneath Posaville Ridge. The high molybdenum values possibly reflect upward migration of copper, molybdenum, and zinc from this source.

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Table 1.--Matrix showing correlation with each other of lead, zinc, and cadmium in the ash of ground birch leaves.

(Numbers are linear correlation coefficients calculated after logarithmic transformation)

Zinc	0.2452**
Cadmium	.1977* 0.1545*
Lead	Zinc

* 431 pairs
** 476 pairs

Table 2.--Matrix showing correlation with each other of lead, zinc, and cadmium in the ash of black spruce needles.

(Numbers are linear correlation coefficients calculated after logarithmic transformation)

Zinc	0.6530*
Cadmium	1.0209** 0.3631***
Lead	Zinc

* 458 pairs
** 2 pairs
*** 5 pairs

EXPLANATION

Geochemical symbols from Foster (1970)

CONVENTIONS OF MAP UNITS

UNCONFORMABLE DEPOSITS

SEDIMENTARY ROCKS

METAMORPHIC ROCKS

IGNEOUS AND METASOMATIC ROCKS

TECTONIC UNITS

BOUNDARIES

Geologic symbols

GEOCHEMICAL MAPS SHOWING THE DISTRIBUTION AND ABUNDANCE OF COPPER AND MOLYBDENUM IN THE ASH OF BLACK SPRUCE NEEDLES AND GROUND BIRCH LEAVES FROM THE TANACROSS QUADRANGLE, ALASKA

By
G. W. Day, G. C. Curtin, and R. B. Tripp
1979