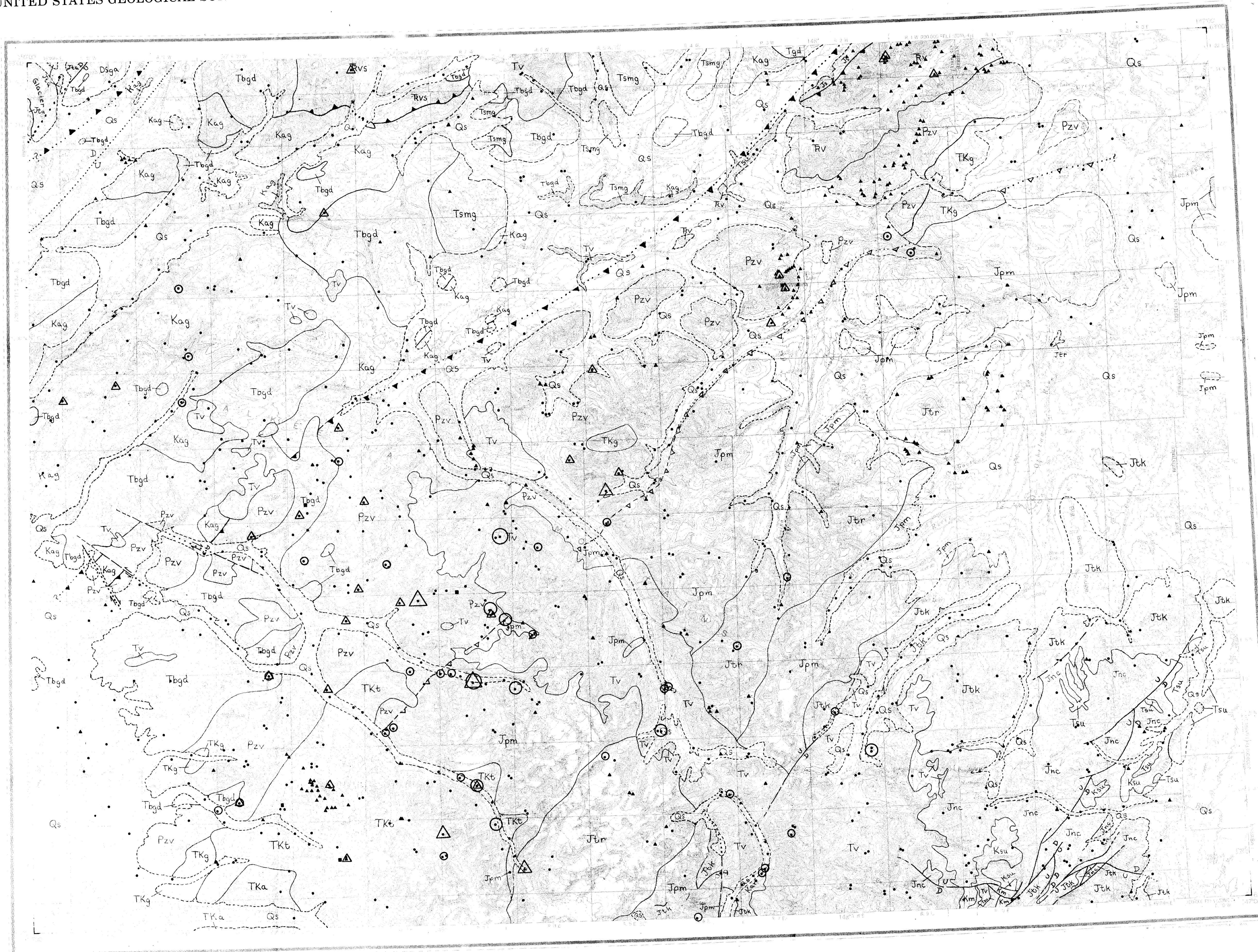
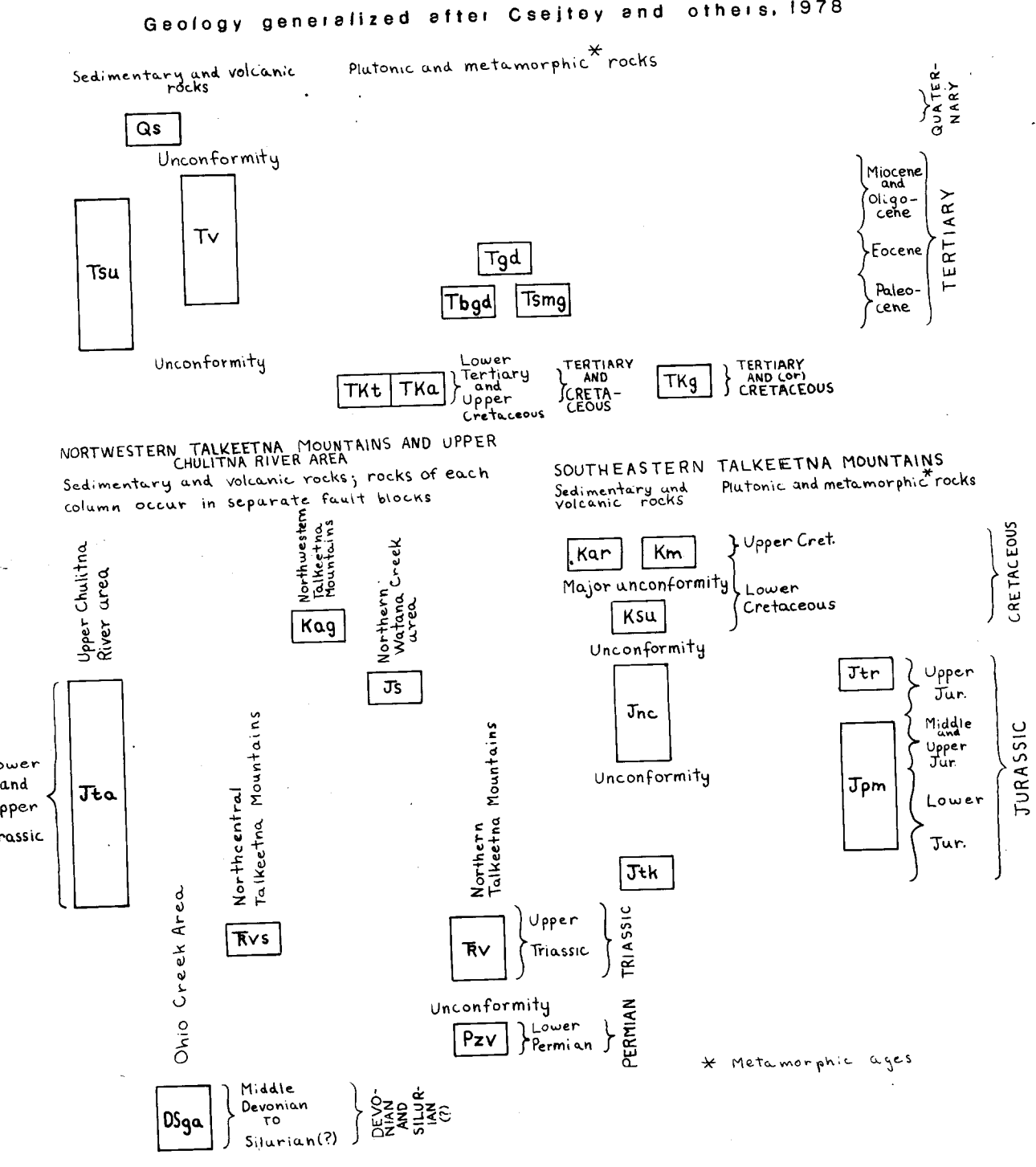


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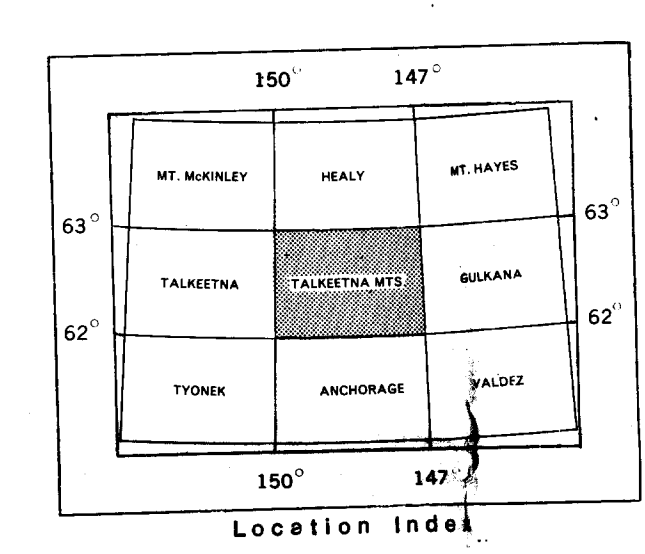
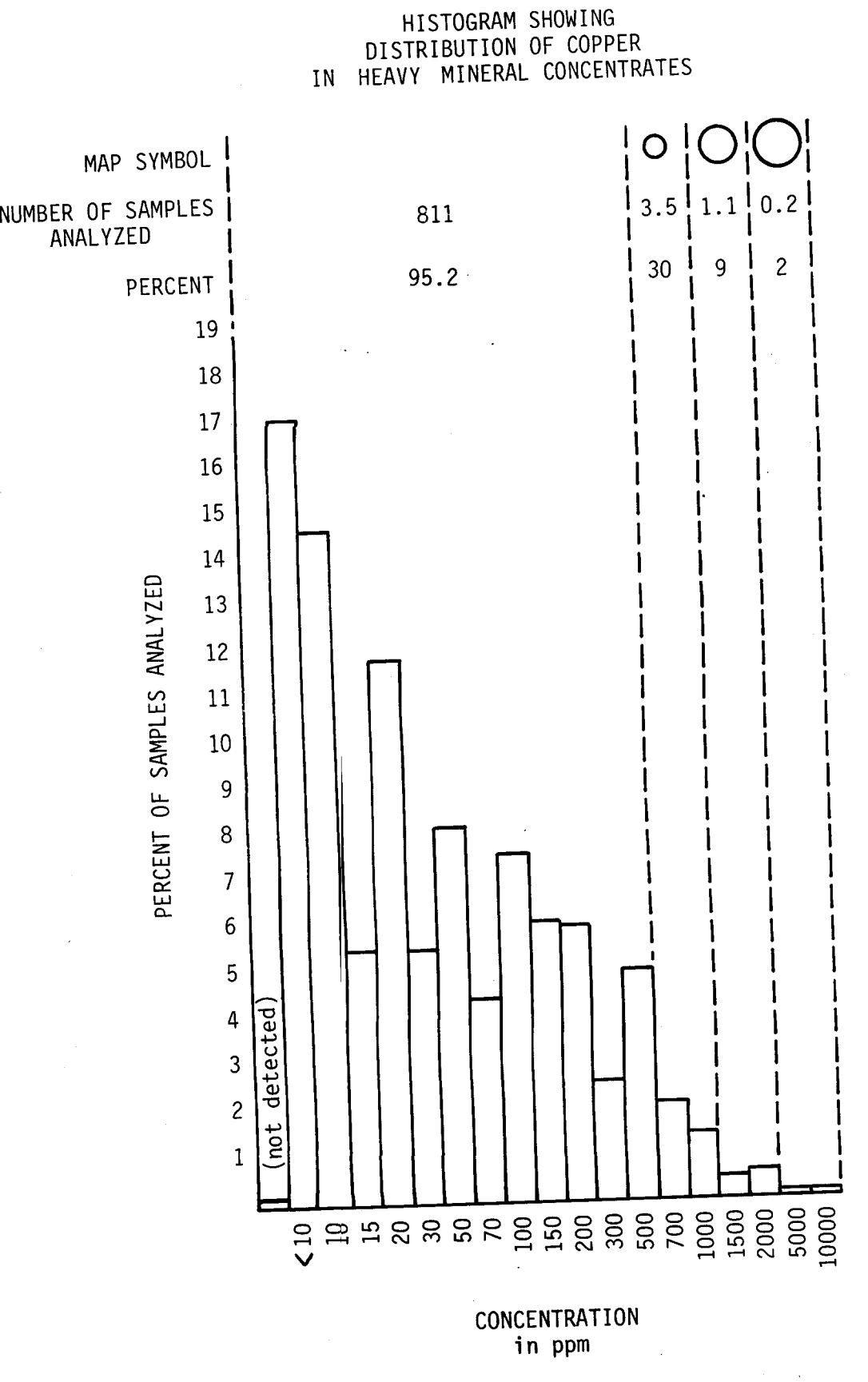
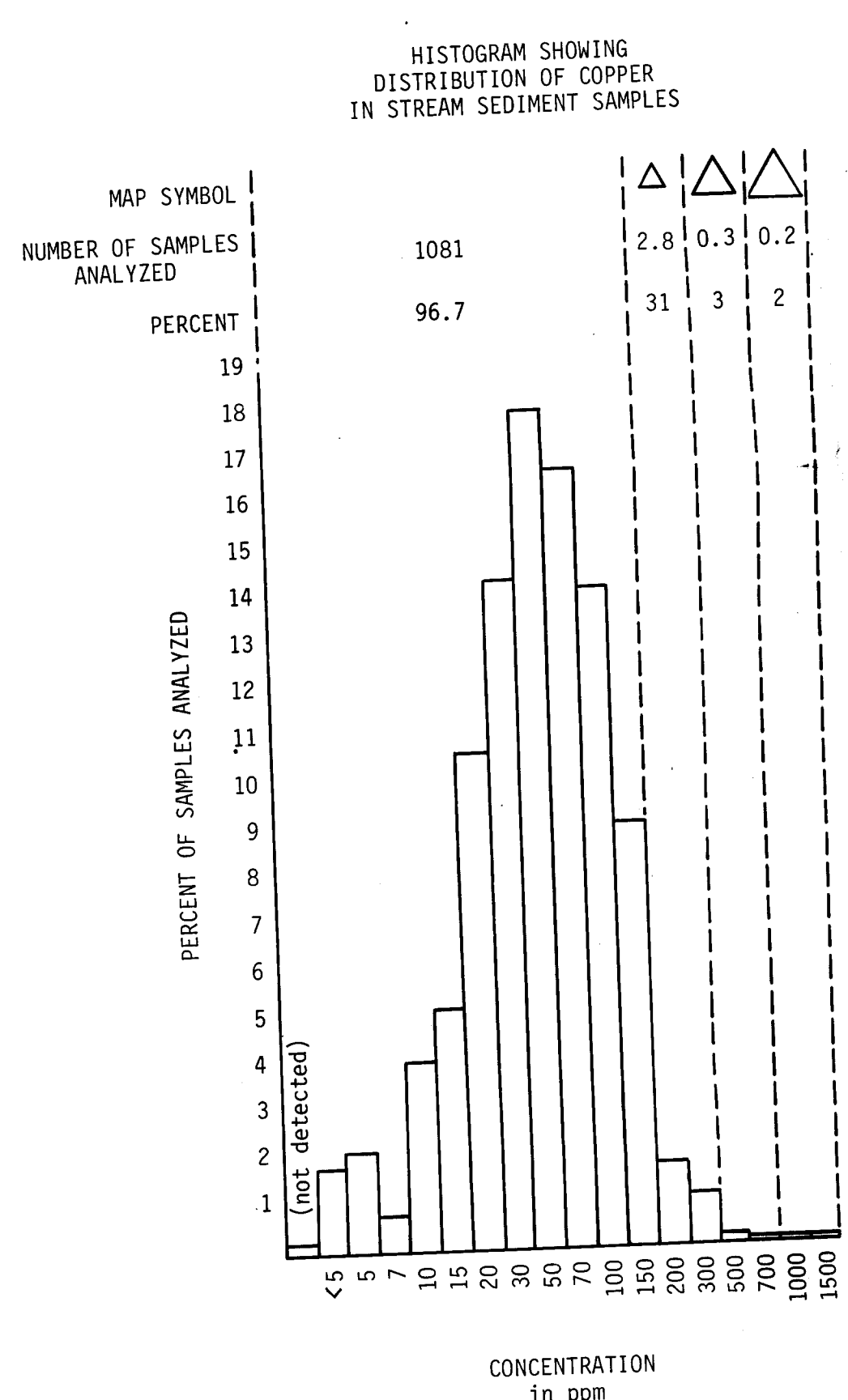
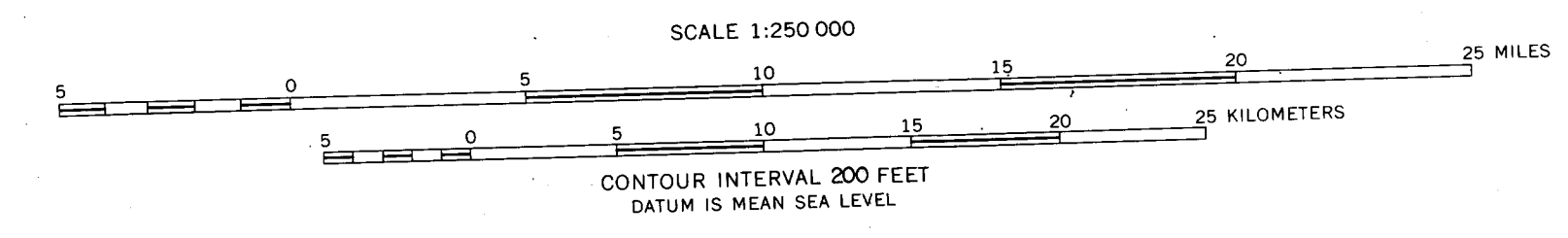
CORRELATION OF MAP UNITS



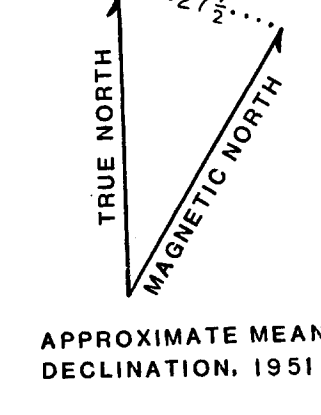
DESCRIPTION OF MAP UNITS

- Qs SURFICIAL DEPOSITS, UNDIFFERENTIATED (Quaternary).
- Tv VOLCANIC ROCKS, UNDIVIDED (Paleocene to Pleistocene) (T<sub>1</sub>-T<sub>3</sub>)--Felsic and mafic subvolcanic volcanic rocks and related shallow intrusions.
- Tbgd TERTIARY SEDIMENTARY ROCKS, UNDIFFERENTIATED (Paleocene to Miocene)--Terrestrial, mostly fluvial strata with a few lignite interbeds.
- Tsmg TERTIARY SEDIMENTARY ROCKS, UNDIFFERENTIATED (Paleocene to Miocene)--Marine, mostly quartz diorite, granodiorite, amphibolite, and gneiss.
- Pzv PLUTONIC AND METAMORPHIC ROCKS, UNDIFFERENTIATED (Lower to Upper Jurassic)--Mainly quartz diorite, granodiorite, amphibolite, and gneiss.
- Jpm JURASSIC PLUTONIC AND METAMORPHIC ROCKS, UNDIFFERENTIATED (Middle and Upper Jurassic)--Includes Nainok and Chitina Formations, and Tuendini Group.
- Jbr BIOTITE AND HORNBLENDE GRANODIORITE (Paleocene, in part early Eocene).
- Jtk TONALITE (Upper Cretaceous and lower Paleocene).
- Jnc GRANULITE, UNDIVIDED (Cretaceous and/or Tertiary).
- Jka ANDESIC RIGGE FORMATION (Lower and/or Upper Cretaceous).
- Jkb MATANGA FORMATION (Lower and/or Upper Cretaceous).
- Jkc SEDIMENTARY ROCKS, UNDIVIDED (Lower Cretaceous)--Shallow marine sequence of calcareous sandstone, claystone, and massive chert limestone.
- Jkd ARGILLITE AND LITHIC GRAYWACKE (Lower Cretaceous)--Intercalated, marine, flyschlike sequence.
- Jke SEDIMENTARY AND VOLCANIC ROCKS, UNDIVIDED (Upper Jurassic)--Marine sequence of argillite, graywacke, conglomerate, and andesitic to latitic felsophy porphyry dikes and intercalated flows.
- Jkf TRONDHJEMITE (Upper Jurassic).
- Jkg JURASSIC SEDIMENTARY ROCKS, UNDIVIDED (Middle and Upper Jurassic)--Includes Nainok and Chitina Formations, and Tuendini Group.
- Jkh CRYSTAL TUFF, ARGILLITE, CHERT, GRAYWACKE, AND LIMESTONE (Lower to Upper Jurassic)--Shallow to moderately deep marine, intercalated sequence.
- Jki PLUTONIC AND METAMORPHIC ROCKS, UNDIFFERENTIATED (Lower to Upper Jurassic)--Mainly quartz diorite, granodiorite, amphibolite, and gneiss.
- Jkj TALKEETNA FORMATION (Lower Jurassic).
- Jkl METASALT AND SLATE (Upper Triassic)--Intercalated, shallow-water marine sequence.
- Jkm BASALTIC METAVOLCANIC ROCKS (Upper Triassic)--Mainly shallow water marine metabasalt flows.
- Jkn BASALTIC AND ANDESITIC METAVOLCANIC ROCKS (Pennsylvanian(?) and Early Permian)--Metamorphosed marine sequence of inter-layered basaltic to andesitic flows, tuffs, coarse volcanoclastic rocks, and subordinate mudstone and limestone.
- Jko GRAYWACKE, ARGILLITE, SHALE, AND LIMESTONE (Silurian?) to Middle Devonian--Intercalated marine sequence, probably continental margin deposits.

Base map from U.S. Geological Survey, 1:250,000 Talkeetna Mountains Quadrangle, Alaska, 1955



- EXPLANATION OF GEOCHEMICAL MAP SYMBOLS
- △ - Location of stream sediment sample
  - - Location of heavy mineral concentrate sample
  - - Location of both stream sediment and heavy mineral concentrate sample
  - △ - Stream sediment sample with possibly significant copper value. Increase in symbol size indicates higher analytical value as shown on histogram.
  - - Heavy mineral concentrate sample with possibly significant copper value. Increase in symbol size indicates higher analytical value as shown on histogram.



EXPLANATORY STATEMENT

In the course of U.S. Geological Survey investigations of the Talkeetna Mountains quadrangle, 1118 stream sediment, 852 heavy mineral concentrate, and 501 rock samples were collected. All of these samples were analyzed for up to 30 elements by a six-step semi-quantitative spectrographic method (Grimes and Marranzino, 1968). Most of the stream sediment and rock samples were also analyzed for up to 4 elements by atomic absorption spectroscopy, as described by Ward and others (1969). The present map shows the sample collection sites of 1117 stream sediment samples and 852 heavy mineral concentrates which were analyzed for copper by the spectrographic method. Complete analytical data for copper by the spectrographic method, and discussion of plus location maps, station coordinates, and discussion of sampling and analytical procedures for samples from sites shown on the present map are published in a report by Miller and others (1978). Concentration of metals in geochemical samples varies for different lithologies and in different areas. Because of this, as well as variability introduced from other sources such as sampling practice, analytical variance, and degree of chemical weathering, it is impossible to select a specific analytical level above which values might indicate the presence of copper deposits. For this reason, the analytical values have been grouped into ranges (see histograms), each range being represented by a different symbol on the map. Higher values may indicate a greater likelihood of copper deposits, but confidence levels are low for "single-element" anomalies and for results which are not supported by neighboring values.

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MAP SHOWING GEOCHEMICAL DISTRIBUTION AND ABUNDANCE OF COPPER IN STREAM SEDIMENTS AND HEAVY MINERAL CONCENTRATES, TALKEETNA MOUNTAINS QUADRANGLE, ALASKA

by  
R. J. Miller, G. C. Curtin, and Bela Coseley, Jr.  
1978

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.