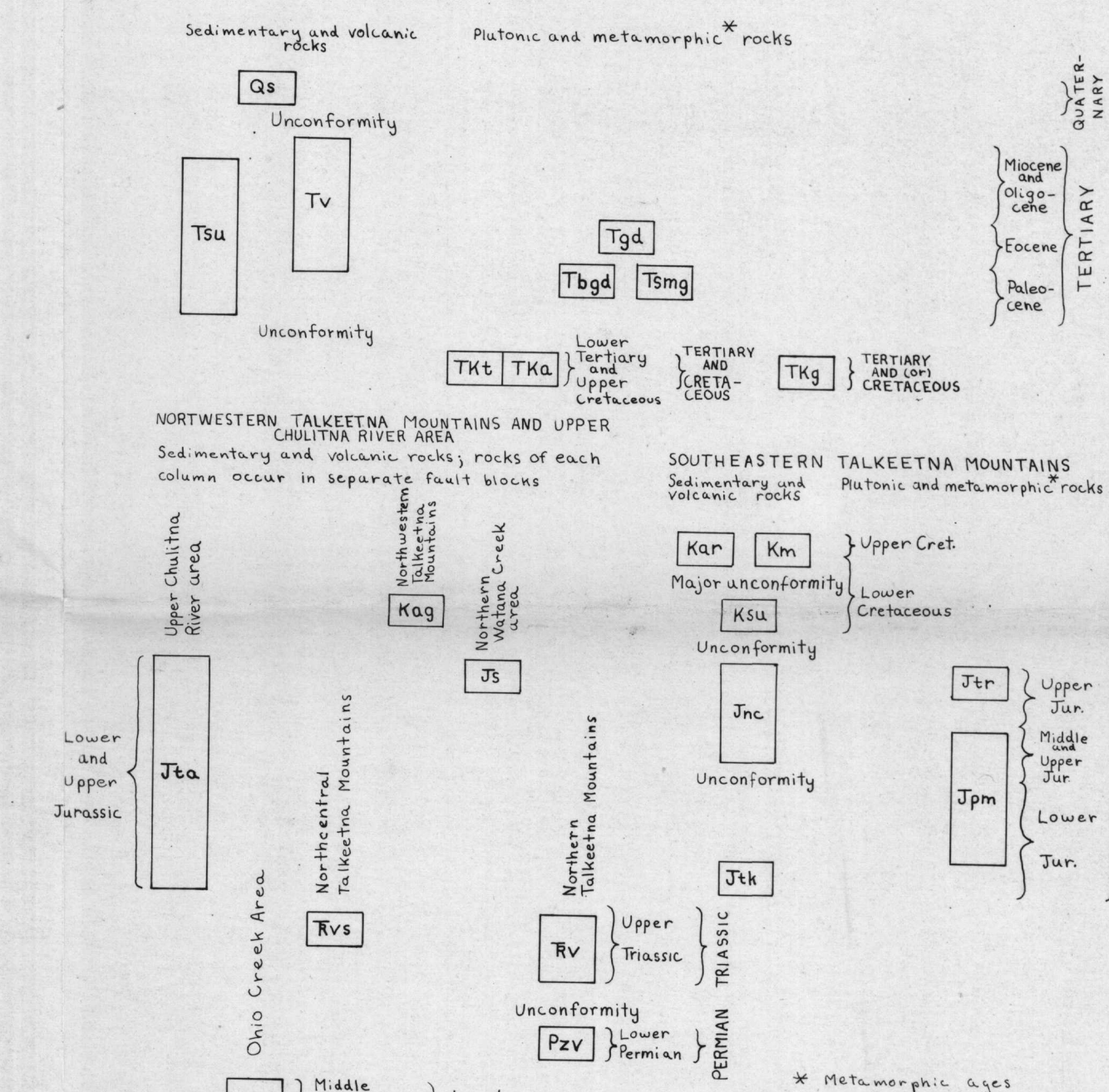




CORRELATION OF MAP UNITS

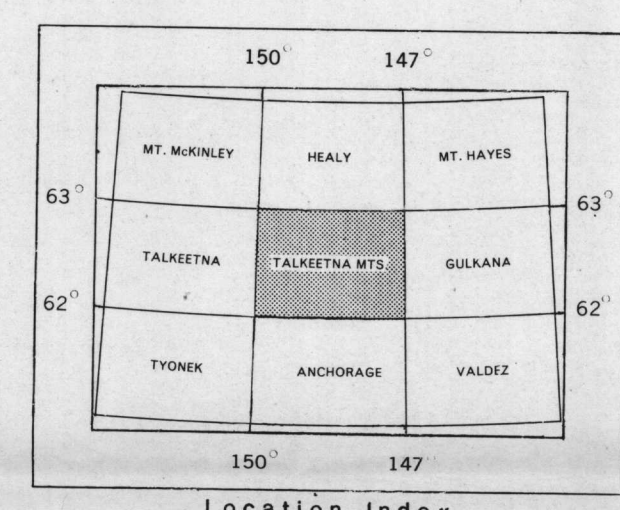
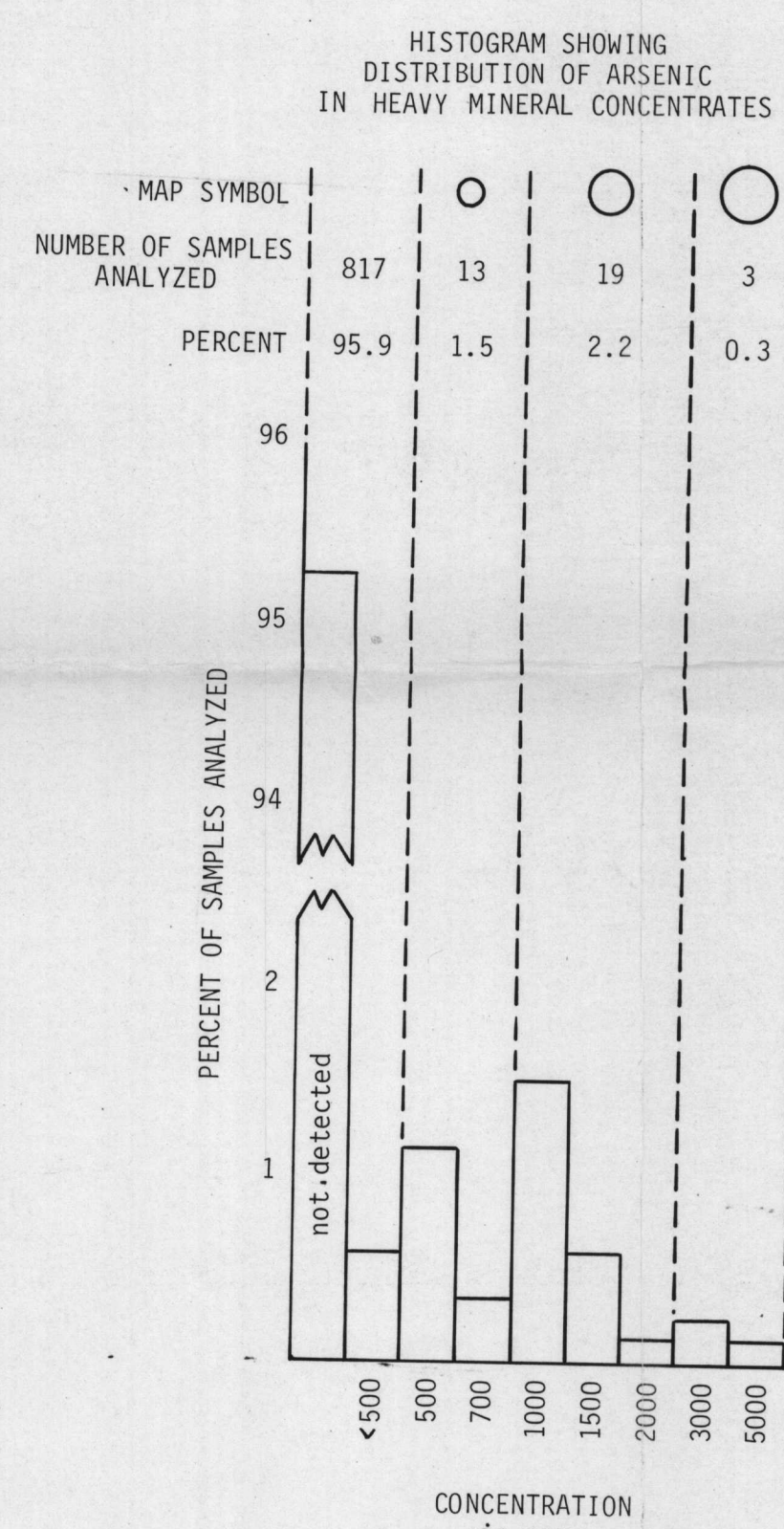
Geology generalized after Csejtey and others, 1978



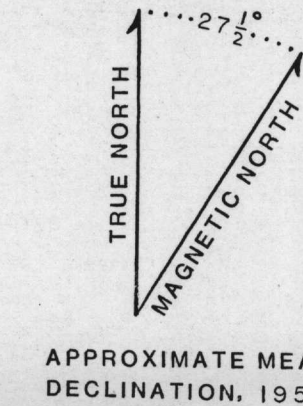
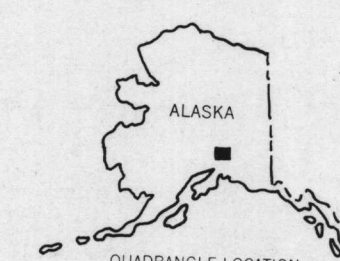
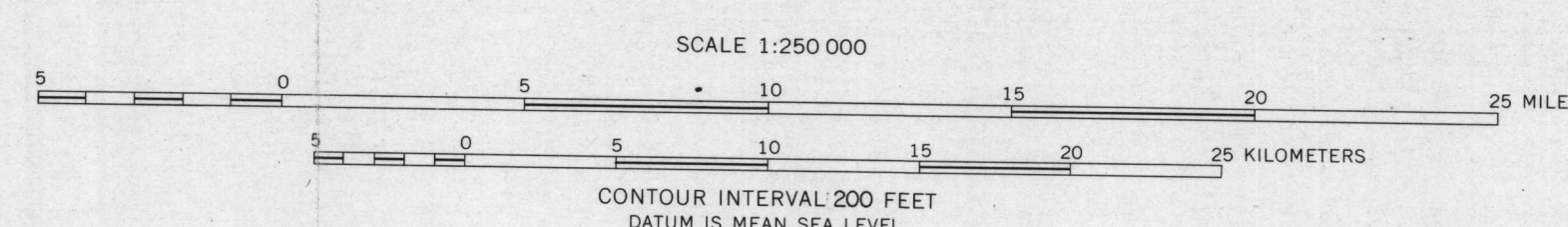
DESCRIPTION OF MAP UNITS

- Qs SURFICIAL DEPOSITS, UNDIFFERENTIATED (Quaternary).
- Tv VOLCANIC ROCKS, UNDIFFERENTIATED (Paleocene to Pleistocene) felsic and mafic subaerial volcanic rocks and related shallow intrusions.
- Tsu TERTIARY SEDIMENTARY ROCKS, UNDIFFERENTIATED (Paleocene to Miocene)-Terrestrial, mostly fluvial-lacustrine strata with a few lignite interbeds.
- Tgd GRANODIORITE (Eocene).
- Tgpd BIOTITE AND HORNBLende GRANODIORITE (Paleocene, in part early Eocene).
- Tsmg SCHIST, MICA-SCHIST, AND GRANITE (Paleocene intrusive and metamorphic ages)-Migmatitic border zone of biotite and hornblende granodiorite.
- Tkc TONALITE (Upper Cretaceous and lower Paleocene).
- Tka ADMELITE (Upper Cretaceous and lower Paleocene).
- Tkg GRANITIC ROCKS, UNDIFFERENTIATED (Cretaceous and/or Tertiary).
- Kar KANIGSE RIDGE FORMATION (Lower and/or Upper Cretaceous).
- Km MIMASOIA FORMATION (Lower and Upper Cretaceous).
- Ksu SEDIMENTARY ROCKS, UNDIFFERENTIATED (Lower Cretaceous)-Shallow marine sequence of calcareous sandstone, claystone, and massive clastic limestone.
- Kag ARCELLITE AND LITHIC GRANWACKE (Lower Cretaceous)-Intercalated, marine, flyschlike sequence.
- Js SEDIMENTARY AND VOLCANIC ROCKS, UNDIFFERENTIATED (Upper Jurassic)-Marine sequence of argillite, gneiss, conglomerate, and andesitic to basaltic felsic porphyry dikes and intercalated flows.
- Jtr TRONKHEIMITE (Upper Jurassic).
- Jnc JURASSIC SEDIMENTARY ROCKS, UNDIFFERENTIATED (Middle and Upper Jurassic)--Includes Nakag and Chisina formations, and Tuvoni Group.
- Jka CRYSTAL TUFF, ARGILLITE, GYPS, GRANWACKE, AND LIMESTONE (Lower to Upper Jurassic)-shallow to moderately deep marine, intercalated sequence.
- Jpb PLUTONIC AND METAMORPHIC ROCKS, UNDIFFERENTIATED (Lower to Upper Jurassic)-Mainly quartz diorite, granodiorite, amphibolite, and gneissitic.
- Jka TALKEETNA FORMATION (Lower Jurassic).
- Jts METASALT AND SLATE (Upper Triassic)-Intercalated, shallow-water marine sequence.
- Jtv BISALTIC METAVOLCANIC ROCKS (Upper Triassic)-Mainly shallow-water marine metabasalt flows.
- Jzv 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.
- Jsp GRANWACKE, 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
 - Heavy mineral concentrate sample with possibly significant arsenic 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 8 elements by atomic absorption spectrophotometry, as described by Ward and others (1969). The present map shows the sample collection sites of 1117 stream sediment analyses and 957 heavy mineral concentrates which were analyzed for arsenic by the spectrographic method. None of the stream sediment analyses showed arsenic concentrations above the lower limit of analytical determination, complete analytical data 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 in different lithologies and in different areas. Because of this, 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 arsenic deposits. For this reason, the analytical values have been represented by a different symbol on the map. Higher values may indicate a greater likelihood of arsenic deposits, but confidence levels are low for "single-element" anomalies and for results which are not supported by neighboring values.

EXPLANATION OF GEOLOGIC MAP SYMBOLS

- Contact, approximately located
- Approximate contact of surficial deposits
- Fault
- Long dashed where approximately located; short dashed where inferred; dotted where concealed. U indicates upthrown side where direction of displacement is known. Arrows indicate relative lateral movement.
- Thrust fault
- Long dashed where approximately located; dotted where concealed. Teeth indicate upthrown side.
- Approximate axis of intense shear zone of variable width, possibly marking a thrust fault
- Dotted where concealed; teeth indicate possible upthrown side of postulated thrust.

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

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

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