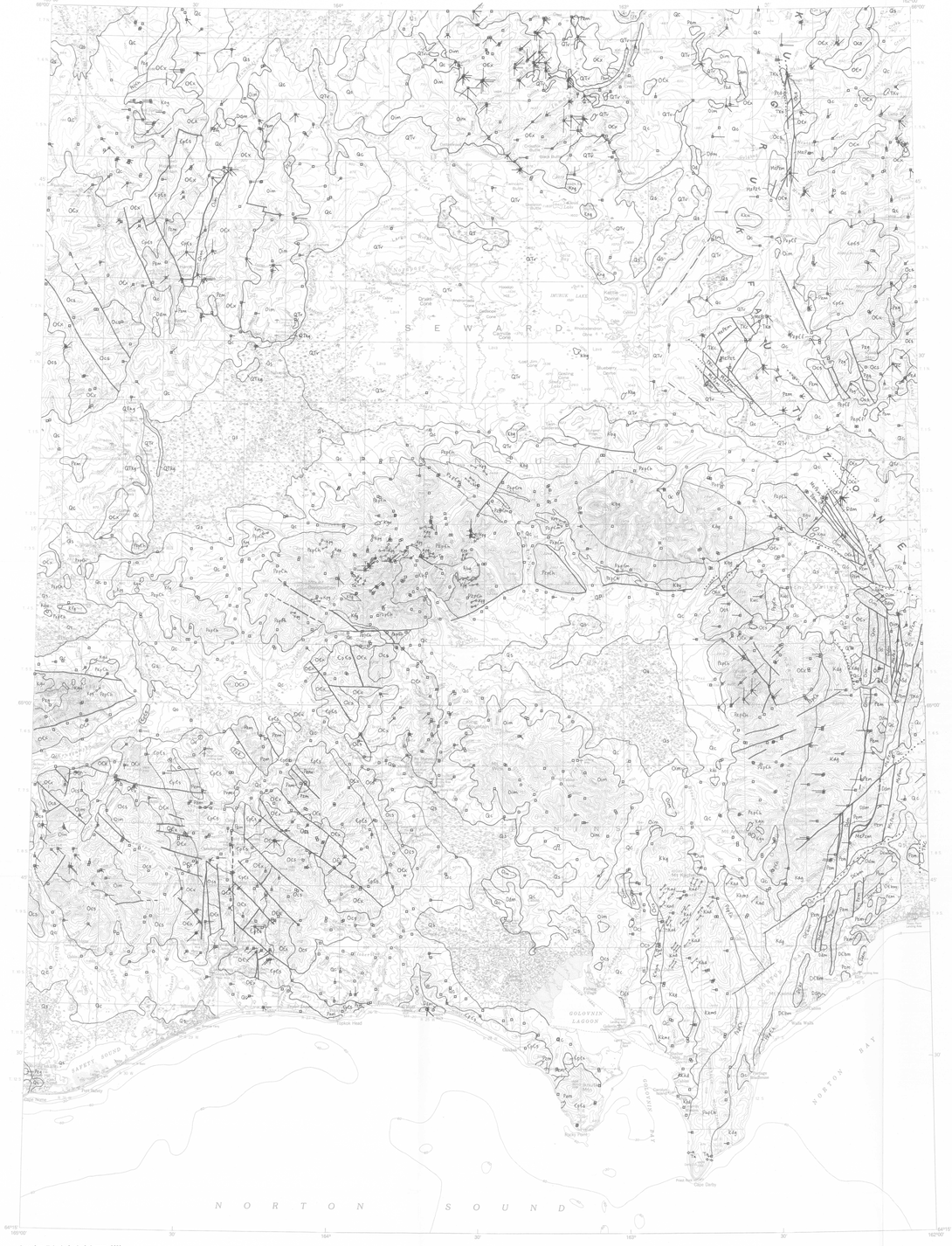
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-2071-B
PAMPHLET ACCOMPANIES MAP



Base from U.S. Geological Survey, 1950

Geology modified from Till and others (1986)

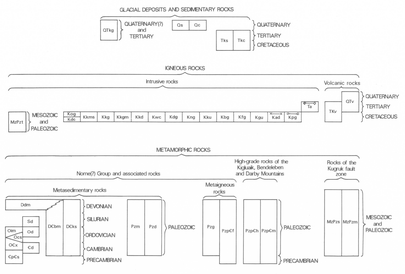
SCALE 1:250 000

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100-FOOT INTERVALS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAP A.–DISTRIBUTION AND ABUNDANCE OF Ba, Co, Cu, Mo, Ni, Pb, AND Zn

[Note: The following "Correlation of Map Units," "Description of Map Units," and symbols are for the geologic base maps shown in gray]

CORRELATION OF MAP UNITS BY ROCK TYPE
(Age relation between rock types uncertain)



DESCRIPTION OF MAP UNITS

GLACIAL DEPOSITS AND SEDIMENTARY ROCKS

Qa Silt and peat deposits (Quaternary)--Predominantly found in low-lying areas that support numerous thaw lakes; minor beach deposits and barrier bars

Qc Colluvium, alluvium, glacial drift, and dune sand deposits (Quaternary)--Silt, sand, gravel, and peat

QTkg Kougarok Gravel (Quaternary(?) and Tertiary)--Oxidized, quartz-rich pebble and cobble gravel containing lenses of silt, sand, and abundant detrital plant debris

TKs Sandstone (Tertiary and Cretaceous)--Tan to light-gray siltstone, sandstone, and pebbly sandstone; poorly exposed and locally deformed; contains pollen of Tertiary and Cretaceous age

TKc Carbonate conglomerate (Tertiary and Cretaceous)--Light-gray-weathering conglomerate predominantly of poorly sorted, rounded, and subrounded marble, metalimestone, and dolostone clasts in a matrix of calcite and carbonate sand; minor sandstone and pebbly sandstone

IGNEOUS ROCKS

Intrusive rocks

Ta Altered quartz latite (Tertiary)--Light-tan- to orange-weathering, altered porphyritic dike, sills, and plugs of quartz latite, rhyolite, and possibly andesite; hypabyssal textures

Kog Conatut Granite Complex (Cretaceous)--Predominantly monzogranite with lesser syenogranite; easternmost of tin granites on Seward Peninsula; placer deposits of gold and cassiterite occur on streams draining the pluton; K-Ar ages range from 69 to 72 Ma

Kkmk Kachauik pluton (Cretaceous)

Kkms Monzonite-syenite--Monzonite-syenite phase of Kachauik pluton; cut by aplite, quartz latite porphyry, lamprophyre, and alkaline dikes; K-Ar age 100 Ma

Kkg Granodiorite--Granodiorite-quartz monzonite phase of Kachauik pluton; cut by aplite, quartz latite porphyry, lamprophyre, and alkaline dikes

Kkgm Gneissic monzonite--Gneissic monzonite of Kachauik pluton, which may be border phase to monzonite-syenite (Kkms)

Kkd Diorite--Hybrid diorite of Kachauik pluton; may be border phase to monzonite-syenite (Kkms)

Kwc Windy Creek pluton (Cretaceous)--Quartz monzonite, granite, and alkali feldspar granite; contains nepheline syenite boulders reported from streams on east side; pluton locally altered and contains veins with fluorite, molybdenite, galena, sphalerite, and scheelite

Kdg Darby pluton (Cretaceous)--Monzogranite and local granodiorite characterized by alkali feldspars that are perthitic; K-Ar age 97 Ma

Kng Granitic rocks of the Nimrod Hill area (Cretaceous)--Monzogranite, quartz monzonite, syenogranite, and syenite of Anvil Creek, Crowsfoot Butte, and Nimrod Hill stocks; K-Ar age of 70 Ma obtained from one stock

Kkv Kuguk pluton (Cretaceous)--Quartz monzonite to granodiorite; K-Ar age of 91 Ma; local diorite border phase; K-Ar age 94 Ma

Kbg Granitic rocks of the Bendeleben Mountains (Cretaceous)--Quartz monzonite, monzogranite, quartz monzodiorite, and granodiorite of the Pargon, Bendeleben, and Kuzitrin plutons; K-Ar ages range from 81 to 83 Ma

Kfg Foliated granitic rocks (Cretaceous)--Foliated, lens- to sill-shaped bodies mostly of leucocratic syenogranite; contacts are conformable to surrounding metamorphic rocks

Kgu Granitic rocks, undivided (Cretaceous)--Dikes, sills, and small plugs; variable accessory mineralogy

Kad Alkaline dikes (Cretaceous)--Nepheline syenite and peralkaline porphyry dikes as much as 10 m wide and 900 m long; monzonite-syenite of Kachauik pluton (Kkms) is highly radioactive adjacent to dikes; K-Ar age 96 Ma

Kpg Pegmatite (Cretaceous)--Alkali feldspar granite to quartz monzodiorite containing large number of accessory minerals; one dike in Kiglaik Mountains yielded a K-Ar age of 81 Ma

Kdc Dry Creek pluton (Cretaceous)--Nepheline syenite; K-Ar age 108 Ka

MzPzt Tonalite of Spruce Creek (Mesozoic and Paleozoic)--Light-tan- to white-weathering tonalite; poorly exposed and locally altered

Volcanic rocks

QTv Volcanic rocks, undivided (Quaternary and Tertiary)--Basalt lava flows and associated vent deposits; mostly alkali olivine basalt, lesser olivine tholeiite; ages range from 29 Ma to Holocene

TKv Felsic volcanic rocks (Tertiary and Cretaceous)--Limonite-stained porphyritic sanidine-quartz felsite flow or tuff and fragmental silicic flow or vent breccia

METAMORPHIC ROCKS

Nome(?) Group and associated rocks

Metasedimentary rocks

Ddm Dolostone and marble (Devonian)--Medium- to dark-gray-weathering, black to dark-gray dolostone and marble containing tabulate and rugose corals, stromatoporoids, brachiopods, rare bryozoans, and conodonts

DCbm Metalimestone and marble (Devonian through Cambrian)--Black to dark-gray metalimestone, marble, and dolostone; thin bedded and exposed on sea cliffs of Bendeleben coast; contains black to dark-gray marble and subordinate fissile marble, calcareous schist, and mafic schist exposed in eastern part of Solomon 1° x 3° quadrangle; contains conodonts of Cambrian, Ordovician, Silurian, and Devonian age

DCkn Calc-schist of Mt. Kelsluk (Devonian through Cambrian)--Interlayered, well-foliated, gray-white mica-chlorite-calcite schist; relict crossbedding and graded bedding; interlayered with unit Ddm

Sd Dolostone (Silurian)--Light-gray-weathering, light- to dark-gray, fine-grained dolostone and subordinate black dolostone and marble

Od Dolostone (Ordovician)--Light- to medium-gray- or tan-weathering, gray to tan, fine-grained dolostone; relict sedimentary features include color mottling (reflecting bioturbation), zebra dolomite, and fenestral fabric

OIm Impure chlorite marble (Ordovician)--Buff- to orange-weathering, well-foliated, impure marble to calc-schist; impurities most commonly chlorite, albite, and white mica; contains abundant quartz veins and veinlets subparallel to marking foliation and fold surfaces, especially abundant in lower parts of unit; massive light-green bodies of metabasite found at base of unit; Ordovician conodonts obtained from dolostone boudin in upper part of unit

Ocs Casadepaga schist (Ordovician)--Light-green and dark-gray, well-foliated, quartz-albite-mica schist and metabasite; lithologies variable but dominated by mafic and calcareous components interlayered on a centimeter to meter scale; mafic rocks contain glaucophane, actinolite, albite, chlorite, garnet, epidote, and sphene

OCx Mixed unit (Ordovician and Cambrian)--Interlayered pure and impure marble, quartz-graphite schist, pelite, calcareous schist, and mafic schist; light- to medium-gray-weathering, dark-gray- to black-weathering quartz-graphite schist dominates; quartz-graphite schist known only in this unit; locally contains metabasite bodies similar to those found in Casadepaga schist; recrystallized radiolaria found locally; conodonts of Ordovician age obtained from upper part of unit

Cd Dolostone (Cambrian)--Light- or medium-gray to pinkish-orange dolostone; contains a few percent quartz and white mica; contains Cambrian lapworthellids (a phosphatic microfossil)

CpCs Siliceous schist (Cambrian and Precambrian)--Light-gray-weathering, dark-gray to black schist, predominantly pelite with subordinate calc-schist; commonly, 1- to 2-cm-thick bands of quartz are interlayered with micaceous minerals and trace lasolinal and chevron folds axial planar to foliation

Pzm Marble, undivided (Paleozoic)--Light-gray-weathering, white to medium-gray, medium to coarse crystalline marble; includes rocks of Cambrian age as well as those of unknown age

Pzd Dolostone, undivided (Paleozoic)--Light-colored, fine-grained featureless dolostone; includes rocks of unknown age as well as those of several ages; may include rocks correlative with units Od, Sd, or Ddm

Metagneous rocks

Pzg Metagranitic rocks (Paleozoic)--Foliated metagranitic and tonalitic rocks; U-Pb age of 38112 Ma obtained from easternmost body at Kiwalik Mountain

PzgCf Felsic schist (Paleozoic and Precambrian)--Light-orange to light-green, fine- to coarse-grained quartz-feldspar-white mica schist and metavolcaniclastic rocks

High-grade rocks of the Kiglaulk, Bendeleben, and Darby Mountains

PzpCk **High-grade schist, undivided (Paleozoic and Precambrian)**--Metasedimentary and metagneous schist above biotite grade; includes lithologies similar to those in units Ddm, Ocs, OCx, and CpCs

PzpCm **High-grade marble (Paleozoic and Precambrian)**--Light-gray-weathering, coarse crystalline, pure and impure marble

Rocks of the Kuguk fault zone

MzPzs **Serpentinite (Mesozoic and Paleozoic)**--Light-green-weathering, dark-greenish-black serpentinite

MzPzm **Metabasaltic rocks (Mesozoic and Paleozoic)**--Predominantly fine-grained, medium-black-gray, foliated metabasalt; porphyroclasts of relict igneous clinopyroxene define foliation imparts a millimeter-scale color banding; blue amphibole (crossite) and lawsonite present in northern part of unit, actinolite and epidote in southern part; also subordinate dark-green, dark-red, and dark-gray veinular metabasalt with epidote, pumpellyite, and chlorite in rare fault slices

Contact

Fault--Strike slip or vertical; dashed where inferred; dotted where concealed

EXPLANATION OF GEOCHEMICAL SYMBOLS FOR MAP A

Sample locality

Elements present in nonmagnetic heavy-mineral-concentrate samples from stream sediment--Length of ray indicates anomalous concentration or range of concentrations as explained in figure 1 for element whose chemical symbol is shown at outer end of ray

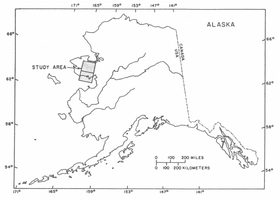
Zn Pb Mo Cu Ba Ni Co

EXPLANATION OF GEOCHEMICAL SYMBOLS FOR MAP B

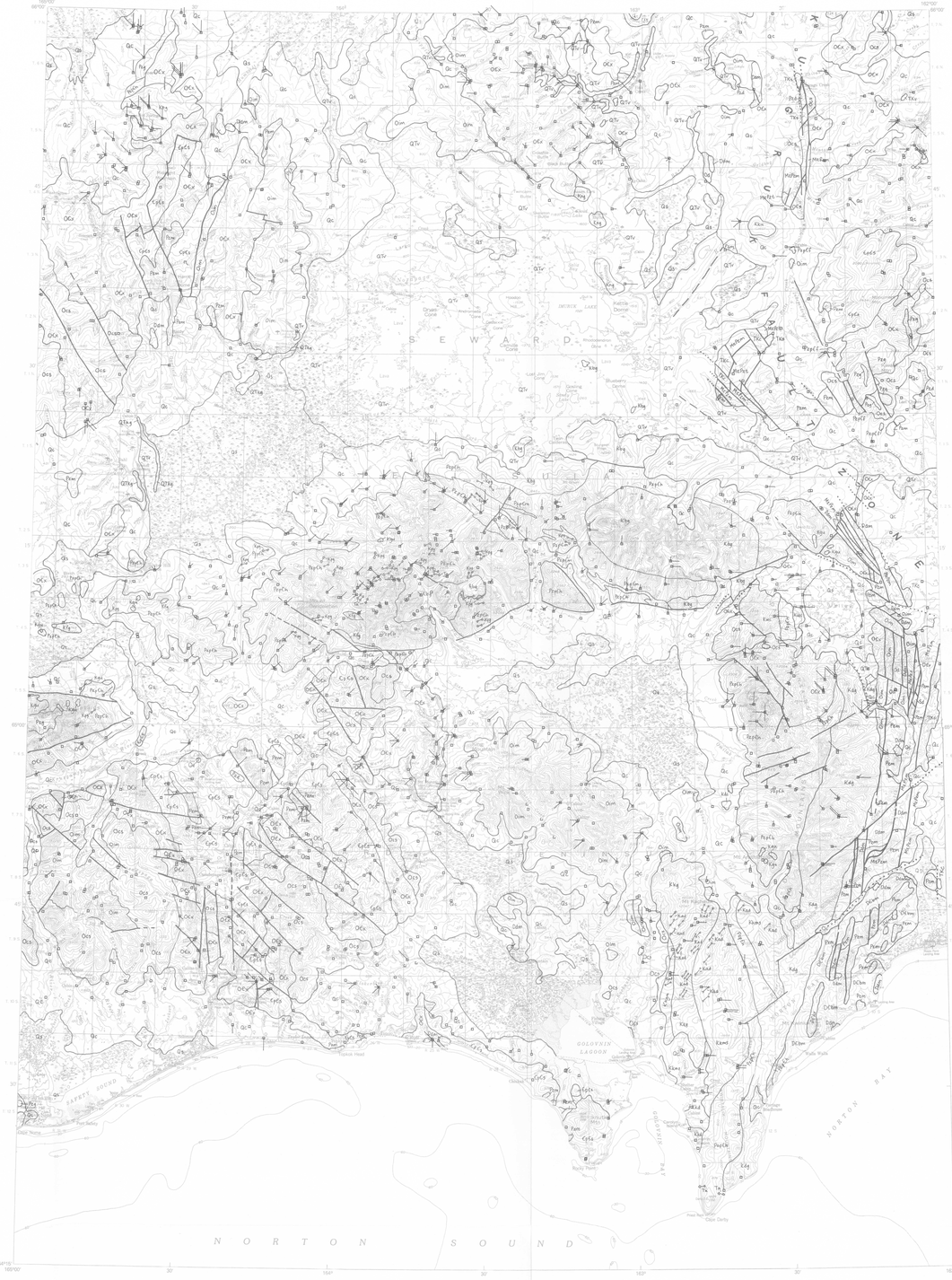
Sample locality

Elements present in nonmagnetic heavy-mineral-concentrate samples from stream sediment--Length of ray indicates anomalous concentration or range of concentrations as explained in figure 2 for element whose chemical symbol is shown at outer end of ray

W Sn Be Ag Th Au As Sb



INDEX MAP SHOWING LOCATION OF THE SOLOMON AND BENDELEBEN 1° x 3° QUADRANGLES, SEWARD PENINSULA, ALASKA



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MAP B.–DISTRIBUTION AND ABUNDANCE OF Ag, As, Au, Be, Sb, Sn, Th, AND W

GEOCHEMICAL MAPS SHOWING THE DISTRIBUTION AND ABUNDANCE OF SELECTED ELEMENTS IN NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM STREAM SEDIMENT, SOLOMON AND BENDELEBEN 1° x 3° QUADRANGLES, SEWARD PENINSULA, ALASKA

By
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