ALASKAN GEOLOGY BRANCH
TECHNICAL DATA FILE

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN FILE REPORT

78-70C

PLATE 1

Geology by W. J. Nokleberg, G. R. Winkler,

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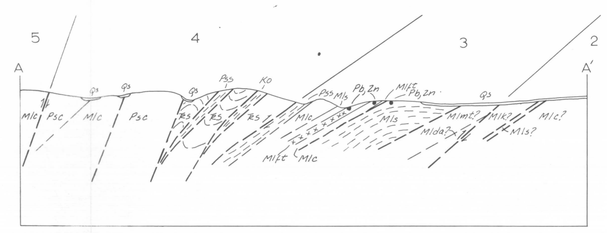

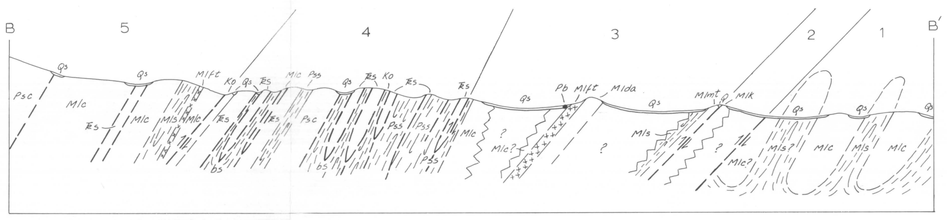

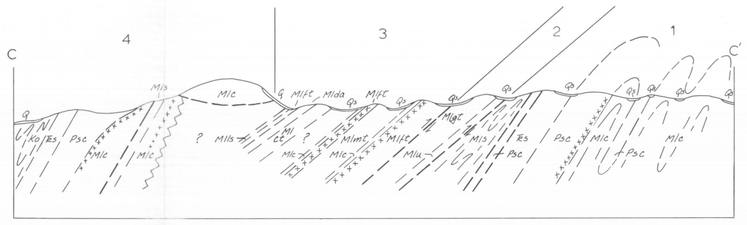

THRUST PLATES

1- MOTHER BEAR

2- TWO CUBS

3- DRENCHWATER

4- SPIKE CAMP

5- GAS DRUM

Superseded by PP 1209.

CORRELATION OF MAP UNITS

Qs		QUATERNARY
Unconformity		
Kdb		CRETACEOUS(?)
Intrusive Contact		
Ko		CRETACEOUS
Unconformity or Fault		
ℛPss	ℛs	TRIASSIC
	Pss	PERMIAN
	Psc	PERMIAN
Unconformity or Fault		

Ds

All thrust plates			Drenchwater thrust plate					Two Cubs thrust plate		
Mlc	Mls	Mlfc	Mlmt	Mlct	Mlda	Mlga	Mlls	Mlgt	Mlk	Mlu

Lower part of Lisburne Group — MISSISSIPPIAN

Contact--Dashed where approximately located; dotted where concealed

Fault--Dashed where approximately located; dotted where concealed

Thrust fault--Dashed where approximately located; dotted where concealed. Sawteeth on upper plate

Overturned anticline--Dashed where approximately located; dotted where concealed. Showing direction of dip of limbs and plunge, and trace of axial surface

Overturned syncline--Dashed where approximately located; dotted where concealed. Showing direction of dip of limbs and plunge, and trace of axial surface

Strike and dip of beds

25 Inclined

Vertical

Strike and dip of cleavage

35 Inclined

Vertical

Sulfide and sulfate mineral localities

• Pb Galena

• Zn Sphalerite

• Ba Barite

xxxxx Iron stain from weathered sulfide minerals

Fossil localities

•M Monotis

•B Buchia

○ 55 Center of aerial photograph with BAR 346 series number

DESCRIPTION OF MAP UNITS

Qs — SURFICIAL DEPOSITS (Quaternary)--Undifferentiated alluvium, colluvium, glacial deposits, talus and gravels

Kdb — DIABASE (Cretaceous?)--Mafic sills and dikes forming bold outcrops and prominent rubble piles. Most outcrops are several meters to several tens of meters thick. Weathers dark brown with dark gray to black fresh surfaces. Major minerals- olivine, plagioclase and pyroxene and average grain size is 1/2 to 1 mm. Diabasic texture. In places, unit grades into fine-grained olivine gabbro. Occurs only in Gas Drum and Spike Camp thrust plates

Ko — OKPIKRUAK FORMATION (Cretaceous)--Lithic sandstone, siltstone, and mudstone. Occurs as strongly deformed and partly fault-bounded units several tens to several hundreds of meters thick. Sandstone and siltstone weather dark brown and mudstone weathers dark gray to black. Major clasts in the sandstone are plagioclase, dark chert, quartz, and unidentified lithic fragments. Coarse-ribbed Buchia and plant fragments occur along partings. Abundant cleavage, and lenses formed from disrupted isoclinal folds. A unit of sheared mudstone occurs between the Spike Camp and Gas Drum thrust plates. Occurs only in the Mother Bear, Spike Camp, and Gas Drum thrust plates

ℛs — SHUBLIK FORMATION (Triassic)--Predominantly medium-bedded chert with lesser amounts of black paper shale and thin limestone. Chert weathers gray and yellow with distinctive mottled green surfaces. Fresh surfaces are medium gray. Contains abundant Monotis on limestone partings. Commonly less than 50 m thick. Intricately folded and faulted. Occurs only in the Mother Bear, Spike Camp, and Gas Drum thrust plates

SIKSIKPUK FORMATION (Permian)--Total thickness approximately 70 m (Tailleur and others, 1966). Occurs in all but the Two Cubs and Drenchwater thrust plates

Pss — Red and green siliceous shale. Strongly cleaved and locally intensely folded and faulted

Psc — Yellow, green and gray chert. Medium bedded with dark gray fresh surfaces. Contains scattered radiolaria and sparse barite concretions

ℛPss — SHUBLIK AND SIKSIKPUK FORMATIONS (Triassic and Permian)--Undifferentiated chert

LOWER PART OF LISBURNE GROUP (Mississippian)--Dark facies as described by Tailleur and others (1966). Specific units restricted to certain thrust plates. See correlation of map units. Stratigraphic succession of following units unknown

Mlc — Black, medium-bedded chert, approximately 100 m thick (Tailleur and others, 1966). Locally forms extensive outcrops with many folds and faults. Partly recrystallized to fine-grained quartzite along Drenchwater Creek. Weathers dark gray locally. Locally contains galena, sphalerite and pyrite

Mls — Black shale, approximately 100 m thick (Tailleur and others, 1966). Intensely faulted and sheared. Locally contains galena, sphalerite, and barite in veins and concretions

Mlfc — Fine-grained felsic tuff, with maximum thickness of 80 m. Weathers bright rust with light gray fresh surfaces. Contains sparse microphenocrysts of biotite and feldspar, angular fragments of black chert, and disseminated pyrite

Mlmt — Medium-grained felsic tuff, up to 250 m thick. Weathers light brown with light gray fresh surfaces. Locally grades into calcareous sandstone. Contains abundant medium-grained feldspar phenocrysts in a fine-grained matrix, and sparse fine-grained biotite phenocrysts

Mlct — Coarse-grained felsic tuff, up to 200 m thick. Weathers medium gray with green-gray fresh surfaces. Contains abundant coarse-grained feldspar phenocrysts in a fine-grained matrix, sparse biotite phenocrysts, and minor amounts of calcite cement

Mlda — Medium gray dacite porphyry up to 80 m thick. Contains coarse feldspar and fine biotite phenocrysts in a fine-grained matrix. Occurs as sills or flows adjacent to felsic tuffs. Radiometric age of 319 m.y. by K-Ar methods on biotite (Tailleur and others, 1966)

Mlga — Mottled, dark green to light gray volcanic agglomerate up to 30 m thick. Consists of dark, rounded chloritic clasts, 1/2 to 3 mm diameter, in a pale gray calcareous matrix

Mlls — Light to medium gray, crinoidal and coralline limestone, up to 35 m thick. Grades downward into fine-grained felsic tuff

Mlgt — Medium-grained olivine gabbro and fine-grained basaltic tuff. Occurs only in Two Cubs thrust plate. Olivine gabbro: weathers dark brown with black fresh surfaces; major minerals- olivine, plagioclase, pyroxene, and hornblende; average grain size of 1/2 to 2 mm. Basaltic tuff: weathers medium brown with pale olive-gray fresh surfaces; mainly massive, calcareous, crystal-lithic tuff with sparse hornblende and plagioclase phenocrysts. Locally, unit consists of alternating sills, flows, and tuffs

Mlk — KOGRUK FORMATION (Upper Mississippian)--Light to medium gray, crinoidal limestone and calcareous shales. Several tens of meters thick, thick bedded (Tailleur and others, 1966). Occurs only in the Two Cubs thrust plate

Mlu — UTUKOK FORMATION (Lower Mississippian)--Purplish gray, thin-bedded limestone, dolomite, and sparse calcareous siltstone. Several tens of meters thick. Sparse crinoids, brachiopods, trilobites, and bryozoans (Tailleur and others, 1966). Occurs only in the Two Cubs thrust plate

Ds — Undifferentiated black shales of the Okpikruak, Shublik, and Siksikpuk Formations, and the Lisburne Group

GEOLOGIC MAP OF THE DRENCHWATER CREEK AREA, HOWARD PASS QUADRANGLE, BROOKS RANGE, ALASKA

By

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1978

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

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