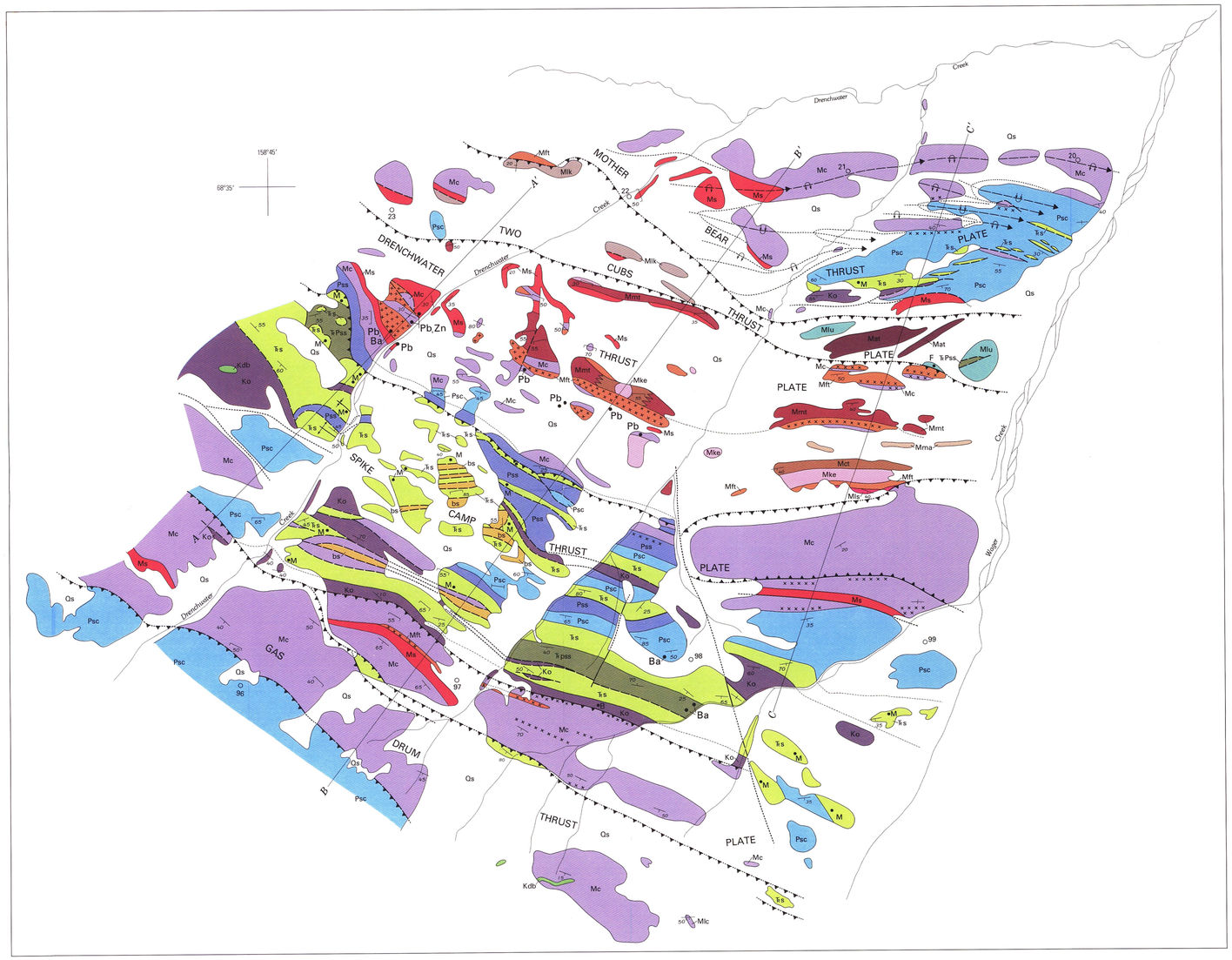
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1209
PLATE I



Drainage features plotted from U.S. Geological Survey aerial photographs, series BAR-346, 1949

APPROXIMATE MEAN DECLINATION, 1982

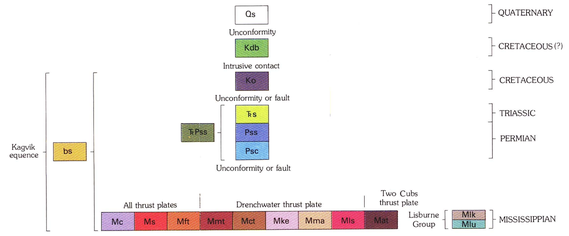
APPROXIMATE SCALE 1:19 800

1 MILE
1 KILOMETER

AREA OF MAP

Geology by W. J. Nokleberg, G. R. Winkler, C. Huie, I. Ellersieck, M. Churkin, and C. Mayfield, 1977

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

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

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; average grain size, 0.5 to 1 mm. Diabasic texture. In places, unit grades into fine-grained olivine gabbro. Occurs only in Gas Drum and Spike Camp thrust plates

KAGVIK SEQUENCE

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, 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; 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

Trs 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 thinner than 50 m. 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).

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 radiolarians and sparse barite concretions

TrPss SHUBLIK AND SIKSIKPUK FORMATIONS, UNDIVIDED (Triassic and Permian)—Undifferentiated chert

CHERT, SHALE, TUFF, KERATOPHYRE, AND MINOR LIMESTONE (Mississippian)—Was designated "dark facies of Lisburne Group," by Tailleur, Kent, and Reiser (1966). Specific units restricted to certain thrust plates. See correlation of map units. Original stratigraphic position of following units unknown

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

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

Mft Fine-grained felsic tuff—Maximum thickness, 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

Mmt Medium-grained felsic tuff—As much as 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

Mct Coarse-grained felsic tuff—As much as 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

Mke Keratophyre—As much as 80 m thick. Medium gray. Contains coarse-grained feldspar and fine-grained biotite phenocrysts in a fine-grained matrix. Occurs as sills or flows adjacent to felsic tuff. Radiometric age of 319 m.y. by K-Ar method on biotite (Tailleur and others, 1966)

Mma Mafic tuff—Mottled dark-green to light-gray tuff

Mls Crinoidal and coralline limestone—Light- to medium-gray, as thick as 35 m. Grades downward into fine-grained felsic tuff

Mat Medium-grained pyroxene andesite and fine-grained andesitic tuff—Occurs only in Two Cubs thrust plate. Pyroxene andesite weathers dark brown, with black fresh surfaces. Andesitic tuff weathers medium brown, with pale-olive-gray fresh surfaces. Mainly massive calcareous crystallithic tuff, with sparse pyroxene and plagioclase phenocrysts. Locally, unit consists of alternating sills, flows, and tuff. Radiometric age of 330 m.y. by K-Ar method on biotite

bs Undifferentiated black shale of the Okpikruak, Shublik, and Siksikpuk Formations and the Mississippian unit

LISBURNE GROUP

Mlk KOGRUK FORMATION (Upper and Lower Mississippian)—Light- to medium-gray crinoidal limestone and calcareous shale. 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 fossils including proetid trilobite, fenestrate bryozoan, brachiopod *Leptagonia analoga*, brachiopod comparable to *Brachythyris suborbicularis*, schuchertellid brachiopod, and zaphrentoid coral. Occurs only in the Two Cubs thrust plate

Contact— 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—Showing trace of axial surface, direction of dip of limbs, and plunge. Dashed where approximately located; dotted where concealed

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

Strike and dip of beds

55 Inclined

Vertical

Strike and dip of cleavage

60 Inclined

Vertical

Sulfide and sulfate mineral localities

•Pb Galena

•Zn Sphalerite

•Ba Barite

× × × × Iron stain from weathered sulfide minerals

Fossil localities

•M *Monotis*

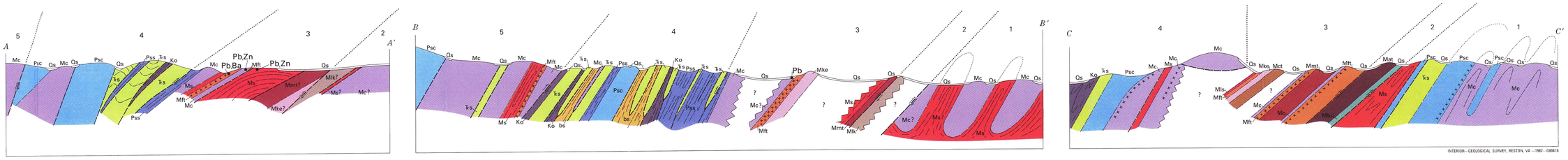
•B *Buchia*

•F Corals, brachiopods, trilobites, and bryozoans

○99 Center of aerial photograph with BAR-346 series number

THRUST PLATES

1—Mother Bear 2—Two Cubs 3—Drenchwater 4—Spike Camp 5—Gas Drum



INTERIOR—GEOLOGICAL SURVEY, RESTON, VA.—1982—G80416

STRATIFORM ZINC-LEAD DEPOSITS IN THE DRENCHWATER CREEK AREA, HOWARD PASS QUADRANGLE, NORTHWESTERN BROOKS RANGE, ALASKA