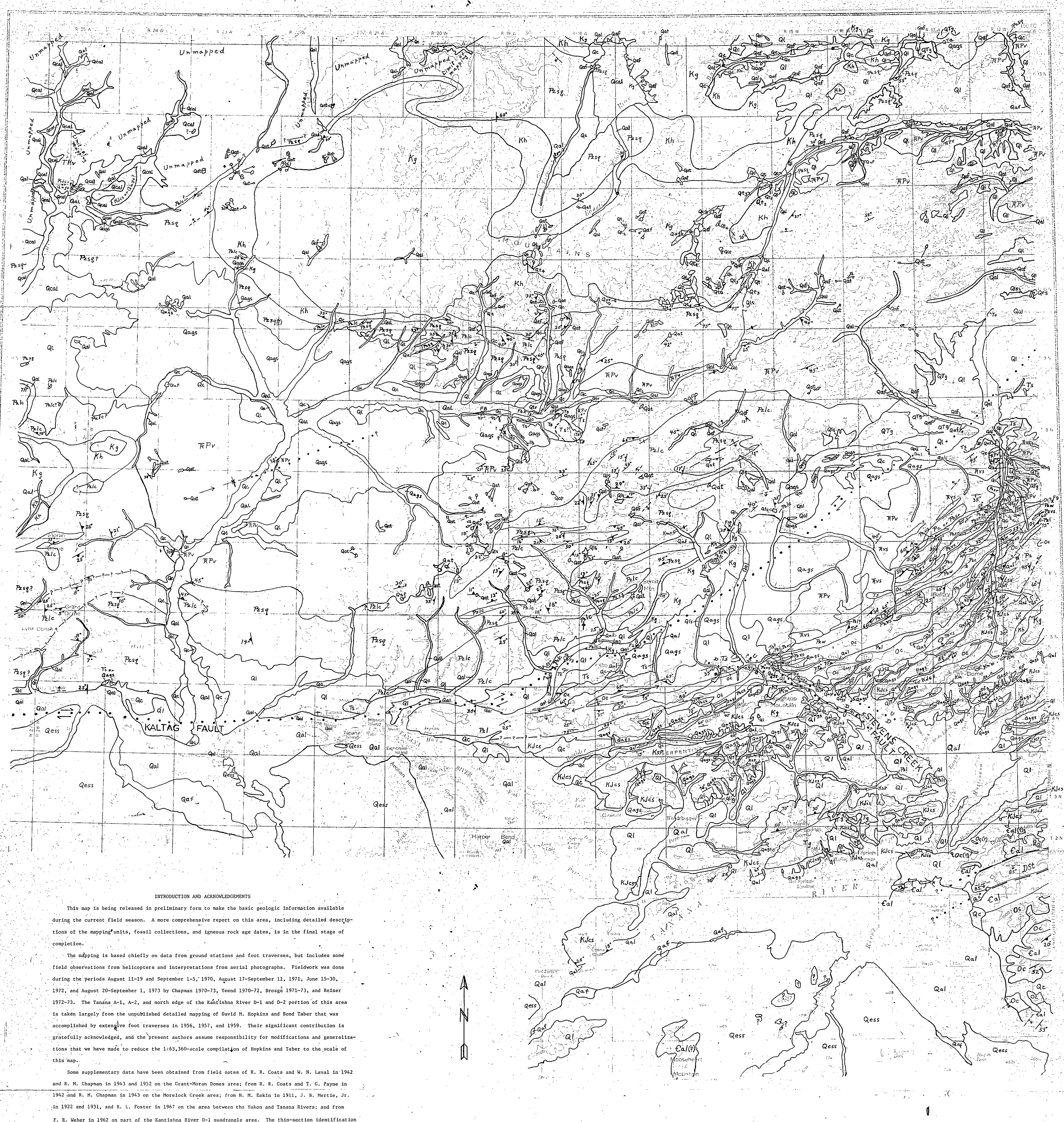
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN FILE MAP
75-337

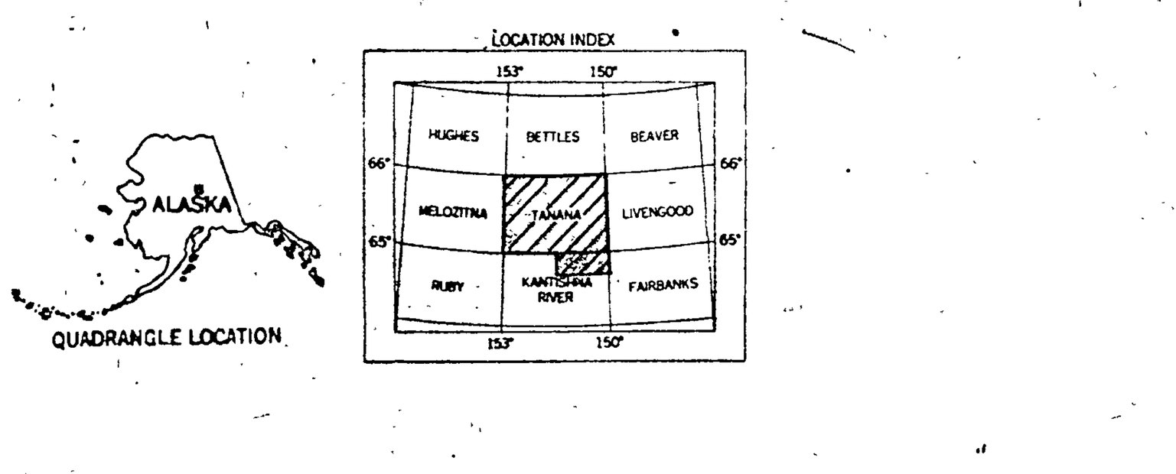


INTRODUCTION AND ACKNOWLEDGEMENTS

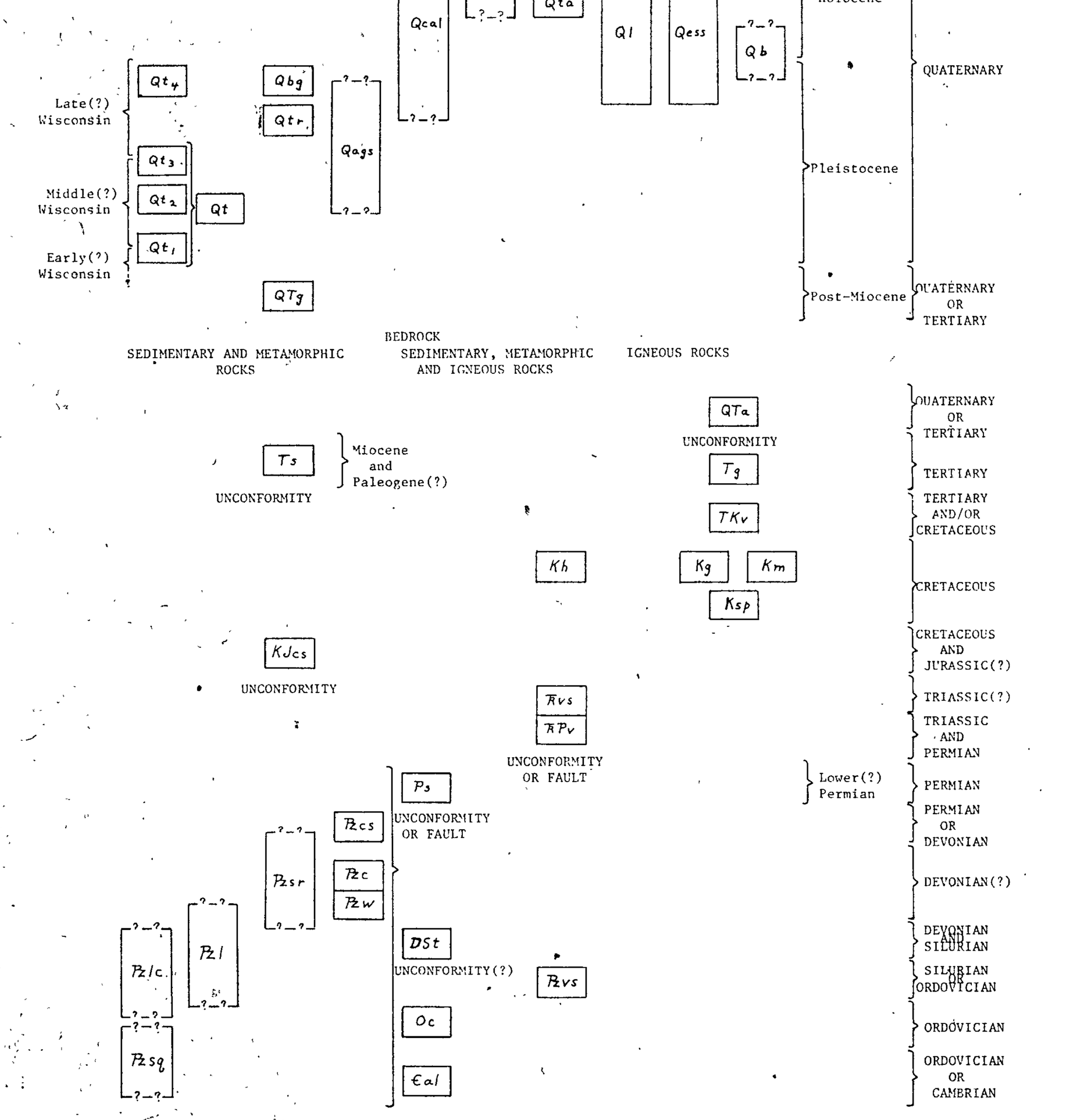
This map is being released in preliminary form to make the basic geologic information available during the current field season. A more comprehensive report on this area, including detailed descriptions of the mapping units, fossil collections, and igneous rock age dates, is in the final stage of completion.

The mapping is based chiefly on data from ground stations and foot traverses, but includes some field observations from helicopters and interpretations from aerial photographs. Fieldwork was done during the periods August 11-19 and September 1-5, 1970, August 17-September 11, 1971, June 15-30, 1972, and August 20-September 1, 1973 by Chapman 1970-73, Yeend 1970-72, Brosgé 1971-73, and Reiser 1972-73. The Tanana A-1, A-2, and north edge of the Kantishna River D-1 and D-2 portion of this area is taken largely from the unpublished detailed mapping of David M. Hopkins and Bond Taber that was accomplished by extensive foot traverses in 1956, 1957, and 1959. Their significant contribution is gratefully acknowledged, and the present authors assume responsibility for modifications and generalizations that we have made to reduce the 1:63,360-scale compilation of Hopkins and Taber to the scale of this map.

Some supplementary data have been obtained from field notes of R. R. Coats and W. N. Laval in 1942 and R. M. Chapman in 1943 and 1952 on the Grant-Moran Domes area; from R. R. Coats and T. G. Payne in 1942 and R. M. Chapman in 1943 on the Morelock Creek area; from H. M. Eakin in 1911, J. B. Mertie, Jr. in 1922 and 1931, and R. L. Foster in 1967 on the area between the Yukon and Tanana Rivers; and from F. R. Weber in 1962 on part of the Kantishna River D-1 quadrangle area. The thin-section identification work of Glenn J. Mac Pherson and Michael L. Throckmorton is gratefully acknowledged.



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

UNCONSOLIDATED DEPOSITS

GLACIAL

- Qt_4 Till, cirque glaciation
- Qt_3 Till
- Qt_2 Till
- Qt_1 Till
- Qt Till, undifferentiated

ALLUVIAL

- Qal Recent alluvium
- Qaf Alluvial fan deposits
- Qbg Low-level bench gravel of Minook Creek
- Qtr Terrace deposits
- Qags Older alluvium
- QTg High-level gravel

COLLUVIAL AND ALLUVIAL

- Qcal Colluvium and alluvium, undifferentiated

COLLUVIAL

- Qrs Recent slide and slump deposits
- Qls Older landslide deposits
- Qc Colluvium, undifferentiated
- Qta Talus

EOLIAN

- Ql Loess
- Qess Sand and silt

EROSIONAL SURFACES

- Qat Altiplanation terrace
- Qb Rock-defended terraces on Minook Creek

BEDROCK

SEDIMENTARY AND METAMORPHIC ROCKS

- Ts Sandstone, conglomerate, shale and lignite
- KJcs Sandstone, quartzite, conglomerate, siltstone and slaty shale
- Ps Slaty shale, siltstone, graywacke and conglomerate
- Pzcs Siltstone, slate, phyllite and argillite
- Pzc Calcareous schistose siltstone and sandstone, and some phyllite
- Pzw Quartz wacke
- Pzsr Quartz-mica-garnet schist, with some quartzite schist, calcareous schist, marble and phyllite
- DSt Tolovana Limestone
- Pzl Limestone, dolomite, basaltic greenstone and chloritic schist, with some argillite, phyllite, and quartz-mica schist
- Oc Chert and some slaty shale
- Pzlc Limestone, dolomite, basaltic greenstone, chert and chloritic schist
- Єal Maroon and green argillite and slate, with quartzite, grit and some phyllite
- Pzsq Quartz-mica schist, quartzite, phyllite and slate

SEDIMENTARY, METAMORPHIC AND IGNEOUS ROCKS

- Kh Hornfels and gneiss
- Ꞧvs Rhyolitic lava and breccia, tuff, chert and shale
- ꞦPv Extrusive and intrusive basaltic and diabasic rocks, tuff, chert, argillite, slate and rarely clastic limestone
- Pzvs Foliated basaltic lava, tuff, slaty shale, phyllite and some limestone and chert

IGNEOUS ROCKS

- QTa Andesitic lava
- Tg Granite
- TKv Felsic volcanic rock
- Kg Granitic rocks
- Km Gabbro and diorite
- Ksp Serpentinite with some diabase, gabbro and mafic volcaniclastic rocks

EXPLANATION OF SYMBOLS

Contact; solid where observed or approximately known; dashed and queried where inferred. May include some faults.

Fault or zone of faulting approximately located or inferred; dotted where inferred beneath unconsolidated deposits. Arrows show directions of inferred lateral movement; U and D indicate up and down sides where vertical movement is inferred.

Anticline or antiform approximately located or inferred, showing direction of plunge.

Syncline or synform approximately located or inferred, showing direction of plunge; dotted where inferred beneath unconsolidated deposits.

20° Strike and dip of beds; may include some overturned beds.

Strike of vertical beds.

Strike and dip of beds interpreted from distant observations or aerial photographs.

40° Strike and dip of foliation, inclined and vertical.

Flowing spring, hot or warm.

X F2 Fossil locality; F1 through F8 are pollen and/or plant material, F9 is foraminifera, and F10 is a rugose coral.

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Base from U.S.G.S. 1:250,000 topo series: TANANA, 1956; KANTISHNA RIVER, 1952; 200 ft.; ALASKA. Compiled by Menlo Park Base Map Unit. (1-73) (8-22)

SCALE 1:250,000

PRELIMINARY GEOLOGIC MAP OF THE TANANA AND NORTHEAST PART OF THE KANTISHNA RIVER QUADRANGLES, ALASKA

BY

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1975