PRELIMINARY BEDROCK GEOLOGIC MAP OF THE KANTISHNA HILLS, APRIL 1976

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ROCK UNITS

LATE TERTIARY — HEALY COAL BEARING GROUP

- **Tertiary Sediments** (Ts) POORLY EXPOSED, WEATHERED OUTCROPS OF INTERBEDDED SANDSTONE, SILTSTONE, AND PEBBLE CONGLOMERATE, COAL SEAMS REPORTED FROM MOONLIGHT AND MOOSE CREEKS. VERY NON-RESISTANT

EARLY TERTIARY

- **Tertiary Dikes** (Tgab, Thd, Thf) Tgab- DARK GRAY, HOMOGENEOUS, OLIVINE BEARING LOCALLY, AMPHIBOLE PYROXENE GABBRO WITH K-SPAR; Tap- TAN WEATHERED, PORPHYRO-APHANITIC, SERECETIZED, PLAGIOCLASE K-SPAR QUARTZ PORPHYRY; Thd- GREENISH GRAY, PORPHYRITIC WITH ALTERED K-SPAR AND HORNBLENDE, DACITE PORPHYRY; Thf - HORNFELS

LOWER TO MID PALEOZOIC — TOTATLANIKA SCHIST

- **Limestone** (Pls) LIGHT TO MEDIUM GRAY, PARTIALLY TO COMPLETELY RECRYSTALIZED, LAMINATED, GRITTY, LOCALLY MICACEOUS, LIMESTONE AND MARBLE WITH MINOR INTERBEDS OF GREENSTONE FLOWS AND PHYLLITE, RESISTANT
- **Volcanogenic Sediments** (Pvs) HETEROGENEOUS UNIT OF GREEN AND PURPLE PHYLLITES, SILICIFIED GREENSCHIST, AND GRAPHITIC PHYLLITE, WITH SCATTERED BEDS OF BLUE-QUARTZ EYED, TUFFACEOUS GREENSCHIST NON-RESISTANT
- **Rhyolite Porphyry** (Prhy) GRAY TO PEA-GREEN, MASSIVE, PORPHYRO-APHANITIC WITH EUHEDRAL K-SPAR AND QUARTZ PHENOCRYSTS, CHLORITIZED, SERICITIZED, SUB-SCHISTOSE RHYOLITE PORPHYRY. VERY RESISTANT SILICIFIED
- **Meta-Volcanics and Chert** (Pmv) DARK TO LIGHT GRAY, APHANITIC TO FINE GRAINED, EXTENSIVELY GOSSANIZED AND PYRITIZED LOCALLY, PORPHYRITIC WITH PLAGIOCLASE, META ANDESITES AND RHYOLITES. INCLUDES MINOR BANDED CHERTS, SILICIOUS ARGILLITE, AND LIMESTONE. META ANDESITES DISPLAY PILLOW STRUCTURE LOCALLY.
- **Graphitic Slates** (Psl) MEDIUM TO DARK GRAY, LIMONITICALLY STAINED, VEINED WITH QUARTZ AND CARBONATE, GRAPHITIC SLATES (85%) AND IMPURE LIMESTONE (15%). NON RESISTANT
- **Calc-Schist** (Pcsh) LIGHT GRAY, TAN WEATHERED, BANDED MICACEOUS IMPURE MARBLES AND CALCAREOUS GRAPHITIC SCHIST.
- **Meta-Quartz Latite** (Pql) GRAYISH TAN, PROPOLYTICALLY ALTERED, VERY FINE GRAINED, PORPHYRITIC QUARTZ LATITE
- **Quartzite and Phyllite** (Ps) MEDIUM TO DARK GRAY, USUALLY FINE GRAINED, DISTINCTLY BANDED, ZEBRA QUARTZITE AND SILICEOUS PHYLLITE WITH THICK SECTIONS OF FELSIC PORPHYROBLASTIC (QUARTZ) SCHIST SHOWING CATACLASTIC TEXTURES. FAIRLY RESISTANT; COULD BE BIRCH CREEK SCHIST UNIT ALSO CONTAINS GREEN-PURPLE PHYLLITE

PRE-CAMBRIAN CAMBRIAN

- **Meta-Conglomerate and Quartzite** (CpCq) HETEROGENEOUS UNIT OF SHEARED PEBBLE CONGLOMERATE WITH CLASTS TO 3 CM., DARK GRAY MASSIVE CHERTS AND COMPLETELY CHLORITIZED GREENSTONE, AND CATACLASIZED, GREEN GRIT, QUARTZ EYED, META-VOLCANICS SCHIST. RESISTANT

PRE-CAMBRIAN — "BIRCH CREEK SCHIST"

- **Felsic Ortho Schist** (pCfs) HETEROGENEOUS UNIT OF MASSIVE FELSIC SCHISTS AND GNEISSES CONTAINING GARNET, BIOTITE, MUSCOVITE, MINOR AMPHIBOLE AND ZIRCON, AND MAJOR ALBITE PLUS QUARTZ. OFTEN LIMONITICALLY ALTERED, FORMS BLOCKY, FLAT TOPOGRAPHY NORTH OF CROOKED CREEK. RESISTANT WHEN FRESH
- **Graphitic Schist** (pCgs) DARK GRAY TO DARK GREEN, LIMONITICALLY WEATHERED, CHLORITIC, GRAPHITIC PHYLLITES AND SCHIST. ALMOST ALWAYS COMPLEXLY DEFORMED, VERY NON RESISTANT AND OFTEN FORMS SADDLES
- **Calc-Magnesian Schist** (pCcs) GRAYISH BROWN, DISTINCTLY TAN WEATHERED, CALCAREOUS MUSCOVITE SCHIST AND IMPURE MARBLE WITH AN EQUAL AMOUNT OF INTBEDDED QUARTZOSE SCHIST AND QUARTZITE. RESISTANT
- **Chloritic and Felsic Phyllites** (pCph) A HETEROGENEOUS BUT DISTINCT UNIT OF LIGHT GRAY, QUARTZO-FELDSPATHIC PORPHYROBLASTIC PHYLLITE, GREEN, FINE GRAINED CHLORITE SCHIST AND LIGHT GRAY SILICEOUS SCHIST AND MUSCOVITE QUARTZITE. CONTAINS SOME pCm AND pCh. NON-RESISTANT
- **Marble and Graphitic Schist** (pCm) LIGHT TO DARK GRAY, MEDIUM GRAINED, COMPLETELY RECRYSTALIZED LOCALLY MICACEOUS MARBLES AND GRAY, CHLORITIC GRAPHITIC SCHISTS AND PHYLLITE. INCLUDES SOME pCph AND pCh. NON-RESISTANT, MARBLE USUALLY DISPLAYS COMPLEX PLASTIC DEFORMATION.
- **Amphibolitic Greenstone** (pCg) MEDIUM TO DARK GREEN, MEDIUM TO COURSE GRAINED, CHLORITE, QUARTZ, PLAGIOCLASE, GARNET, BIOTITE, AMPHIBOLE META IGNEOUS GREENSTONE, INCLUDES INTERBEDS OF BIOTITE CHLORITE SCHIST AND "SALT AND PEPPER" BIOTITE MUSCOVITE QUARTZO-FELDSPATHIC SCHIST
- **Undifferentiated Schist** (pCh) HETEROGENEOUS ASSEMBLEDGE OF MICACEOUS QUARTZITES, GARNET, BIOTITE, MUSCOVITE QUARTZO FELDSPATHIC SCHIST, CHLORITE GARNET BIOTITE MUSCOVITE SCHIST, CHLORITE QUARTZO FELDSPATHIC SCHIST, "SALT AND PEPPER" VARIETIES DESCRIBED IN pCg, AND UNMAPPABLE INTERCALATIONS OF OTHER pC UNITS. UNIT IS GENERALLY RESISTANT DUE TO ITS HIGH QUARTZ CONTENT,

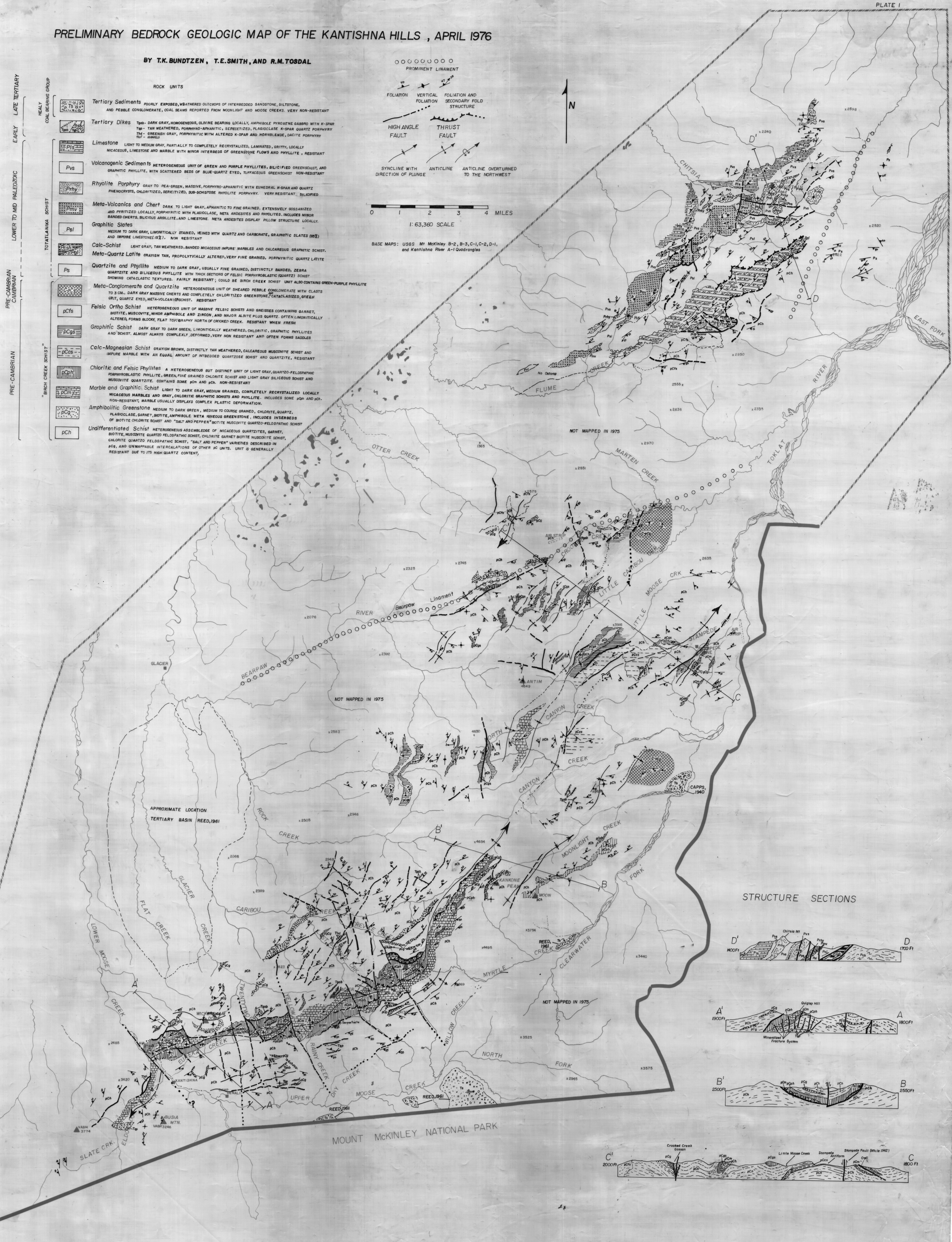
PROMINENT LINAMENT

FOLIATION — VERTICAL FOLIATION — FOLIATION AND SECONDARY FOLD STRUCTURE

HIGH ANGLE FAULT — THRUST FAULT

SYNCLINE WITH DIRECTION OF PLUNGE — ANTICLINE — ANTICLINE OVERTURNED TO THE NORTHWEST

0 1 2 3 4 MILES

1:63,360 SCALE

BASE MAPS: USGS Mt McKinley B-2, B-3, C-1, C-2, D-1, and Kantishna River A-1 Quadrangles