U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT
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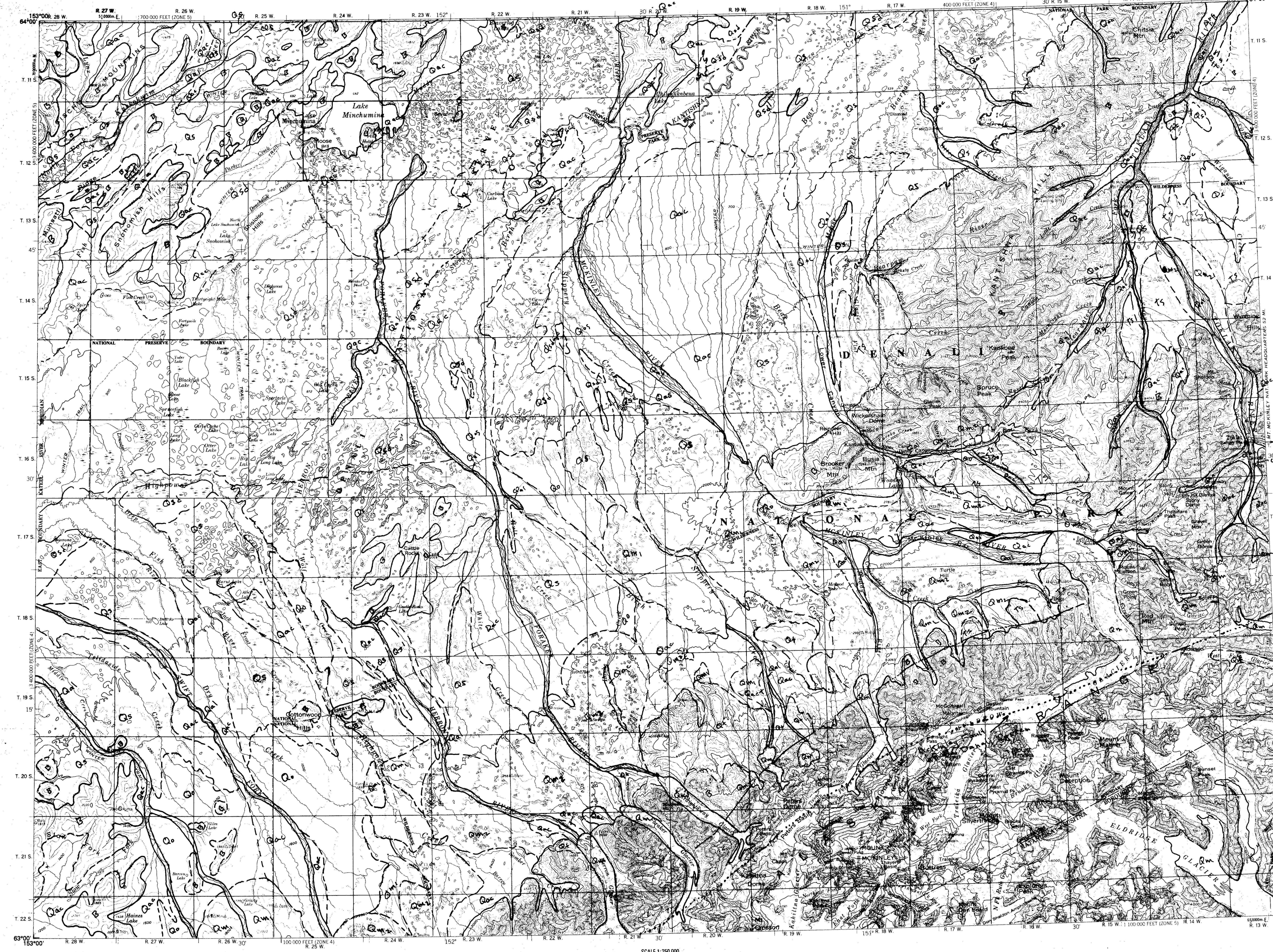

Base from U.S. Geological Survey 1958

SCALE 1:250 000

5 0 5 10 15 20 MILES

5 0 5 10 15 20 25 30 KILOMETERS

CONTOUR INTERVAL 200 FEET
DOTTED LINES REPRESENT 100 FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

CORRELATION OF MAP UNITS

Qm	Qal	Qac	Qs	Qo	Qsd	Holocene	QUATERNARY
					Qm2	Pleistocene	
					Qm1		
					Qt		
					Ts	Late Tertiary	TERTIARY
					B		TERTIARY TO PRECAMBRIAN

LIST OF MAP UNITS

Qal	Alluvium (Holocene)
Qm	Superglacial moraines (Holocene)
Qac	Alluvium and colluvium (Holocene)
Qs	Silt (Holocene and Pleistocene)
Qsd	Sand (Holocene and Pleistocene)
Qm_2	Till (Pleistocene)
Qm_1	Till (Pleistocene)
Qo	Outwash (Pleistocene)
Qt	Till (Pleistocene)
Ts	Nenana Gravel (Tertiary)
B	Bedrock, undifferentiated (Tertiary to Precambrian)

The surficial geologic mapping of the Mount McKinley quadrangle was based on a study of (1) black and white aerial photographs which were flown in the early 1950's, (2) field work with helicopter support during the summers of 1994,95, and 96, and (3) previous mapping (Reed, 1961). An overview of the glacial history of the Alaska Range has been presented by Thorson (1986).

UNIT DESCRIPTIONS

Qal - Modern Alluvium -- Sand and gravel along streams and rivers which make up the modern floodplain, generally unvegetated to slightly vegetated. Boulder-sized material is confined to the highlands and mountain front.

Qm - Superglacial moraines -- Boulder to clay size rock fragments resting on glacier ice. In some areas the sediments completely cover the ice. Little, if any, vegetation is present on the moraines.

Qac - Alluvium and colluvium -- Angular to rounded gravel to clay size rock fragments which make up alluvial and outwash fans and stream and river terraces. The deposits are generally layered with poor to fair sorting. These deposits include talus in steep-sided valleys.

Qs - Silt -- Gray to gray-brown fine grained silt which may include some fine sand. The silt may be partially loess in origin. The area is thickly vegetated with few natural exposures. Thermokarst topography is common. These deposits may overlay outwash gravels near the mountain front.

Qsd - Sand -- Poorly to moderately well stratified eolian sand. Linear dunes predominantly trend NE-SW. The area is heavily vegetated with few natural exposures. The presence of many small lakes aided in the mapping and delineation of the boundaries of these deposits.

Qm2 - Drift, younger -- Poorly sorted boulder to clay size rock fragments making up younger moraines. Topography is fresh with little modification since deposition. Kettle lakes and erratics are common.

Qm1 - Drift, older -- Poorly sorted boulder to clay size rock fragments making up older moraines. Topography has been modified since deposition with moderately well-developed drainage. Soil is moderately developed. Kettle lakes and erratics are rare.

Qo - Outwash -- Poorly to well rounded boulders and cobbles with sand and silt matrix. The deposits are heavily vegetated with few exposures. This unit was deposited during or soon after glaciation of the area.

Qt - Till -- Gravel to clay-size rock fragments which cap high level ridges. The deposits are believed to be of glacial origin. The deposits are mapped at the mountain front in the south-central part of the map.

Ts - Nenana Gravel -- Conglomerate, sandstone, claystone. Clasts are commonly well rounded and iron-stained. The gravel is moderately well to poorly indurated and occasionally bedded.

B - Bedrock -- Undifferentiated.

———— — — — Contact - Dashed where approximately located

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Bibliography

Reed, J.C., Jr., 1961, Geology of the Mount McKinley quadrangle, Alaska: U.S. Geological Survey Bulletin 1108-A, p. 1-36, 1 sheet, scale 1:250,000.

Thorson, R.M., 1986, Late Cenozoic glaciation of the northern Nenana River Valley, *in* Hamilton, T.D., Reed, K.M., and Thorson, R.M., eds., Glaciation in Alaska: The geologic record: Anchorage, Alaska Geological Society, p. 99 -121.

RECONNAISSANCE GEOLOGIC MAP OF SURFICIAL DEPOSITS OF THE MOUNT MCKINLEY QUADRANGLE, ALASKA

By

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1997