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State of Alaska
DIVISION OF MINES AND MINERALS

CURSORY INVESTIGATION
MUIR INLET "NUNATAK" MOLYBDENUM DEPOSIT

by

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Cursory Investigation
Muir Inlet "Nunatak" Molybdenum Deposit

The molybdenum deposit near Muir Inlet has been called the Nunatak deposit by former investigators because twenty years ago it was surrounded by glacier ice on three sides and the Inlet on the west side.

It is now a barren peak surrounded on three sides by glacial till and the western side by Muir Inlet. The morain is evidently settling as a result of buried remnants of the glacier melting, and erosion of the till by heavy rains. There are presently depressions (kettles) resembling dry lake beds, and steep sided stream beds a few of which have been cut to bedrock.

The geology of the deposit is described in Bulletins 947-B and 800. Also Economic Geology, Vol. 33, No. 1, pages 56-57, by J.C. Reed. The deposit has been sampled by the U.S. Bureau of Mines and these results presented in R.I. 4421. The deposit was quite thoroughly sampled by American Metal Climax Corporation, but these results are not known by the Division of Mines and Minerals.

The Nunatak was investigated by Mr. Elmer Winters of the Phelps Dodge Corporation, accompanied by W. H. Race, on the 8th and 9th of August, 1963. Transportation was by air from Juneau with Loken Air charter.

Three geologists working under a National Science Foundation Grant, in conjunction with the Polar Ice Group, were camped on the shore of Nunatak Cove and invited the visitors to stay with them. Since they were equipped with 10x12 tents, and we were equipped with pup tents, the offer was thankfully accepted.

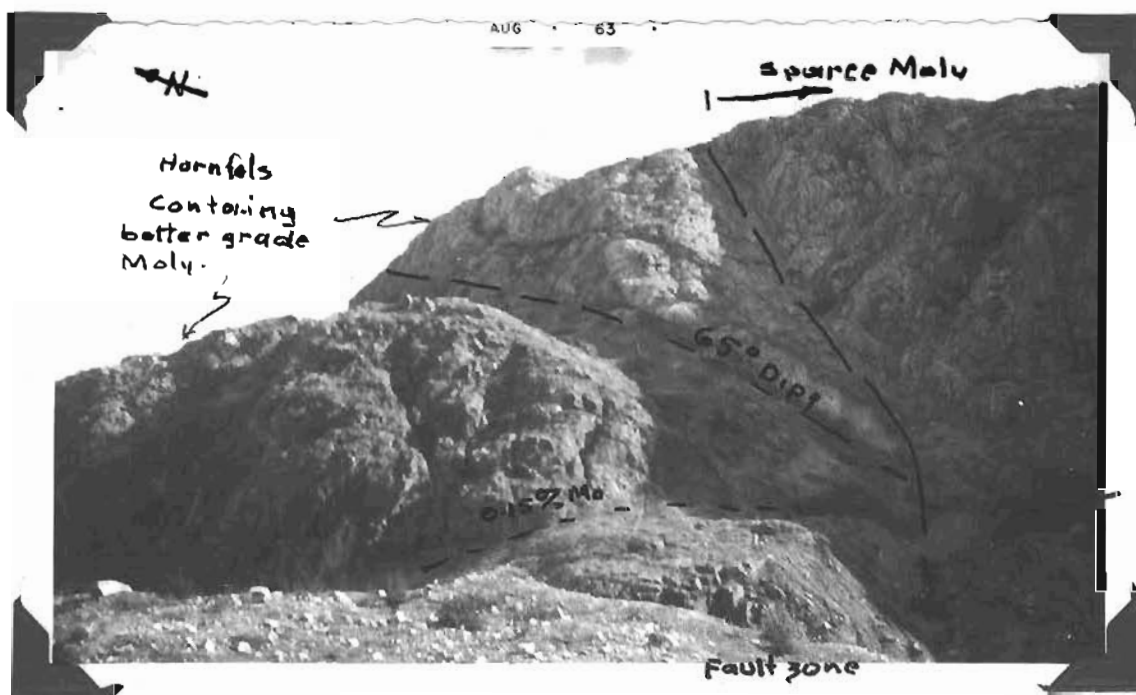
Shortly after arrival we started our investigation from the south end to the north end via the east side. Winters chose the locations and took samples for his company. Race sampled two streams and took one thirty foot chip sample of freshly exposed bedrock in a stream bottom. The bedrock was a chert with many

with many small veinlets of quartz and contained visible iron sulfide. The sample assayed 0.1% Cu, no Mo, Tr. Au, Tr. Ag. Soil samples taken nearby indicated the presence of copper. A scattered chip sample along the southeast side assayed 0.1 - 0.2% Cu. Visible moly was not found until the northeast fault zone was approached. An attempt was made to climb the peak from the northeast, but was found to be too steep. Evidence of American Metals Climax channel samples were seen during this attempt. It was obvious that they must have used ropes.

Bedrock was observed outcropping along the Muir Inlet north of the Nunatak. This occurrence was investigated and found to be barren. The return to camp was made along the west side.

Samples were taken the next day along the west side from the south to the north. No visible moly was found until the fault area near the lake was reached. A hand picked specimen from the northwest side assayed 0.2 - 0.3% Cu and 0.5 - 0.6% Mo. This sample would represent the best metallization seen.

The return to Juneau was made on the evening of the 9th. The flight was up Adams Inlet and down the Endicott River to Lynn Canal. The watershed of Adams Inlet is relatively free of overburden and several prominent rust-stained areas were visible from the plane. Adams Inlet heads easterly, so affords a reasonably good cross section of the geological trend of the area. It would seem to be one of the better locations in Southeastern Alaska for geologic mapping and geochemical investigation.

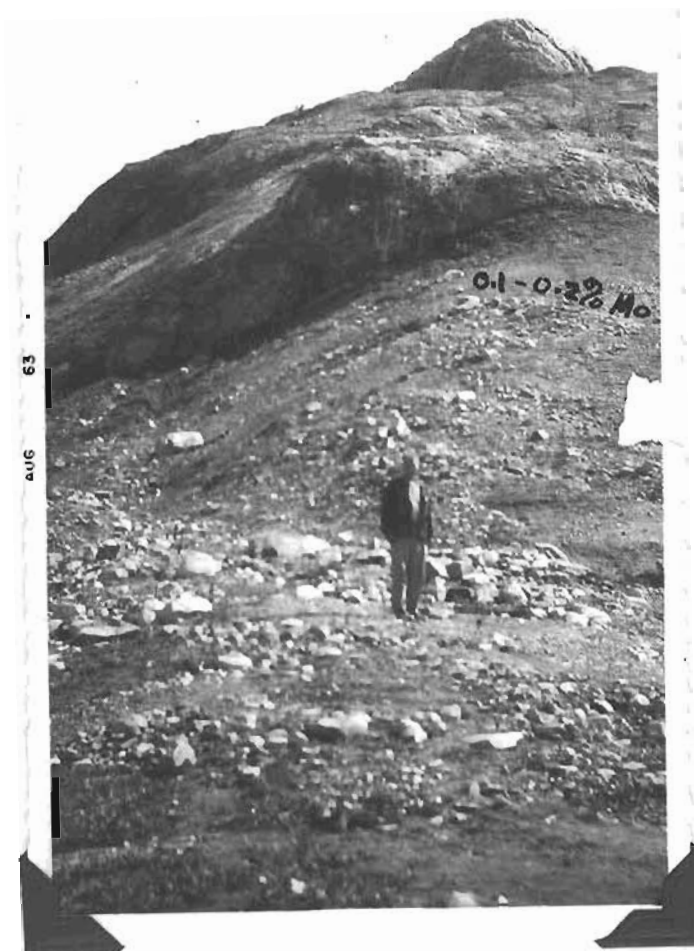


Fault zone on West side of Nunatak



Campsite North shore Nunatak Cove

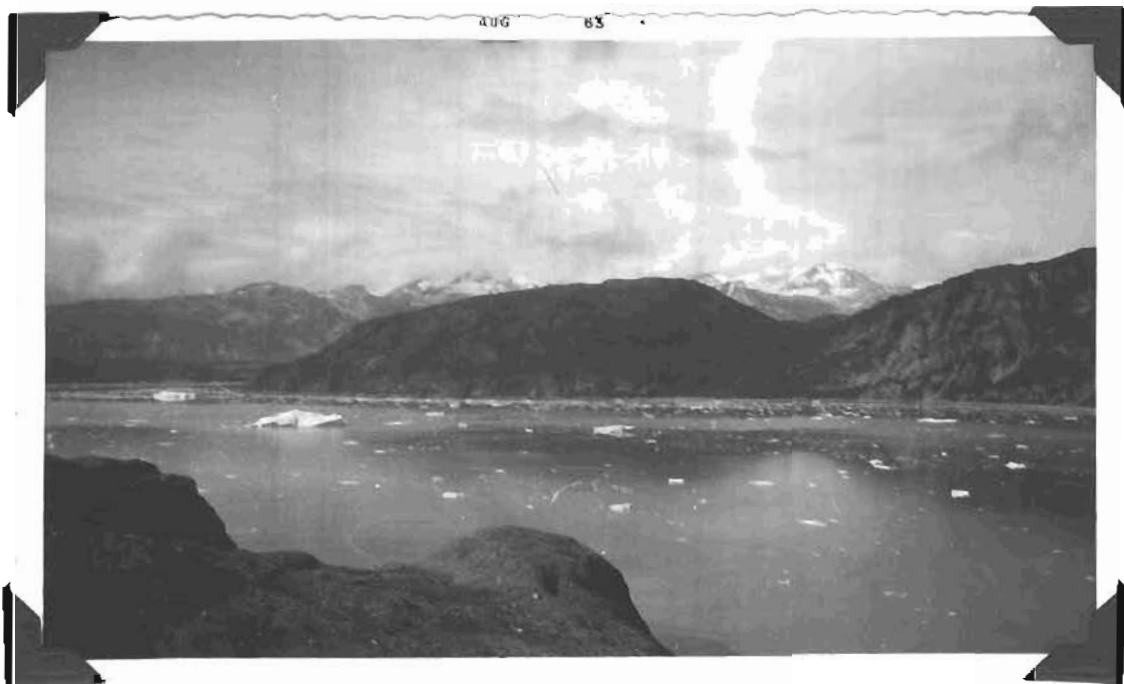
North end Nunatak - area well
sampled by Am. Climax & U.S.B.M.



South of fault zone near the lake.
Very little visible Moly but some
visible Fe-Cu sulfides.



Polar Ice Group Camp - Nunatak Cove



Westward from North End of Nunatak



Northward from North end of Nunatak. (Muir Glacier
behind point indicated by arrow.)



Southward from lake. Arrow indicates mouth of Adams Inlet.

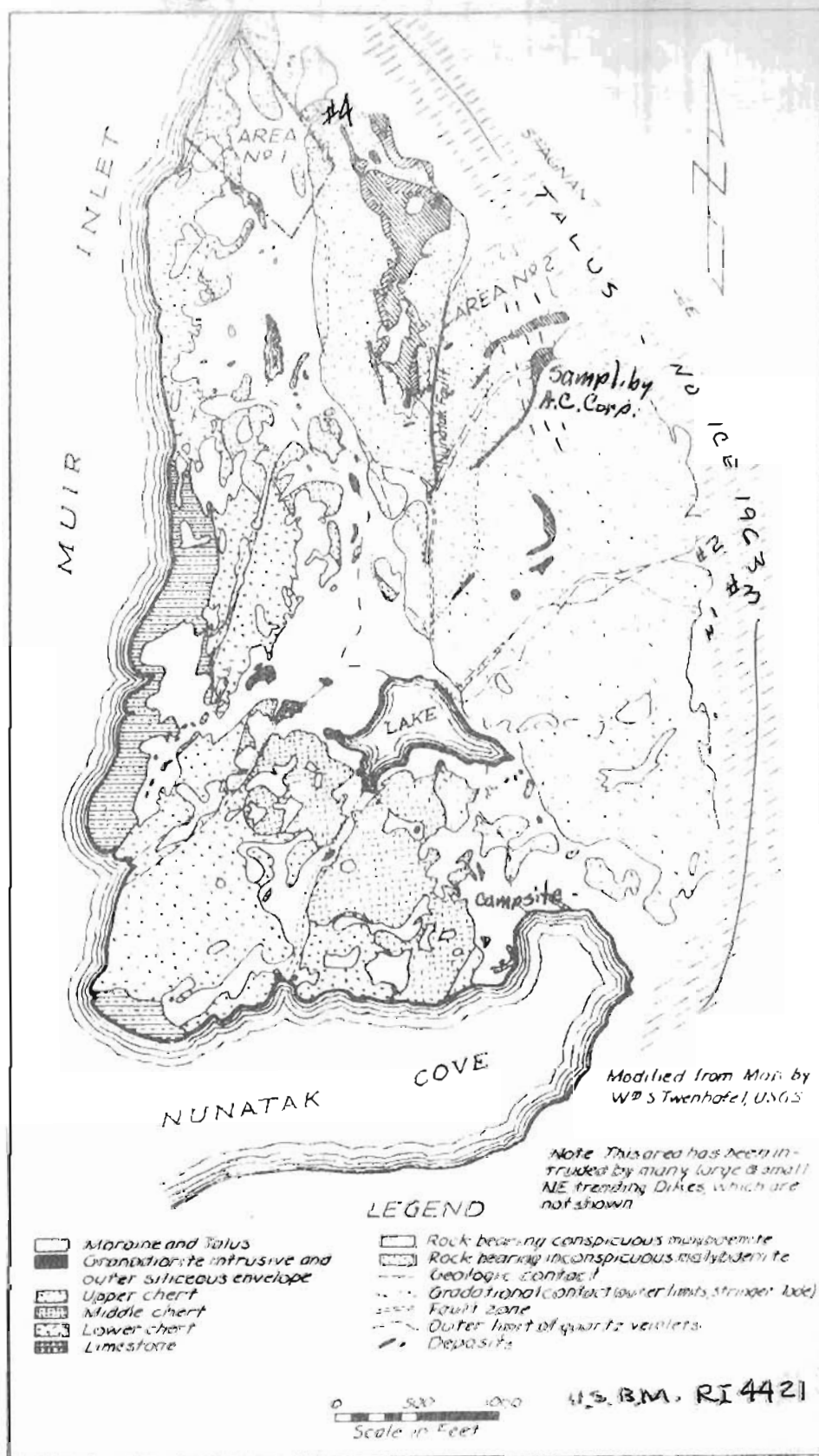


Figure 3. - Generalized geologic map, Nunatak area.

EXPLANATION

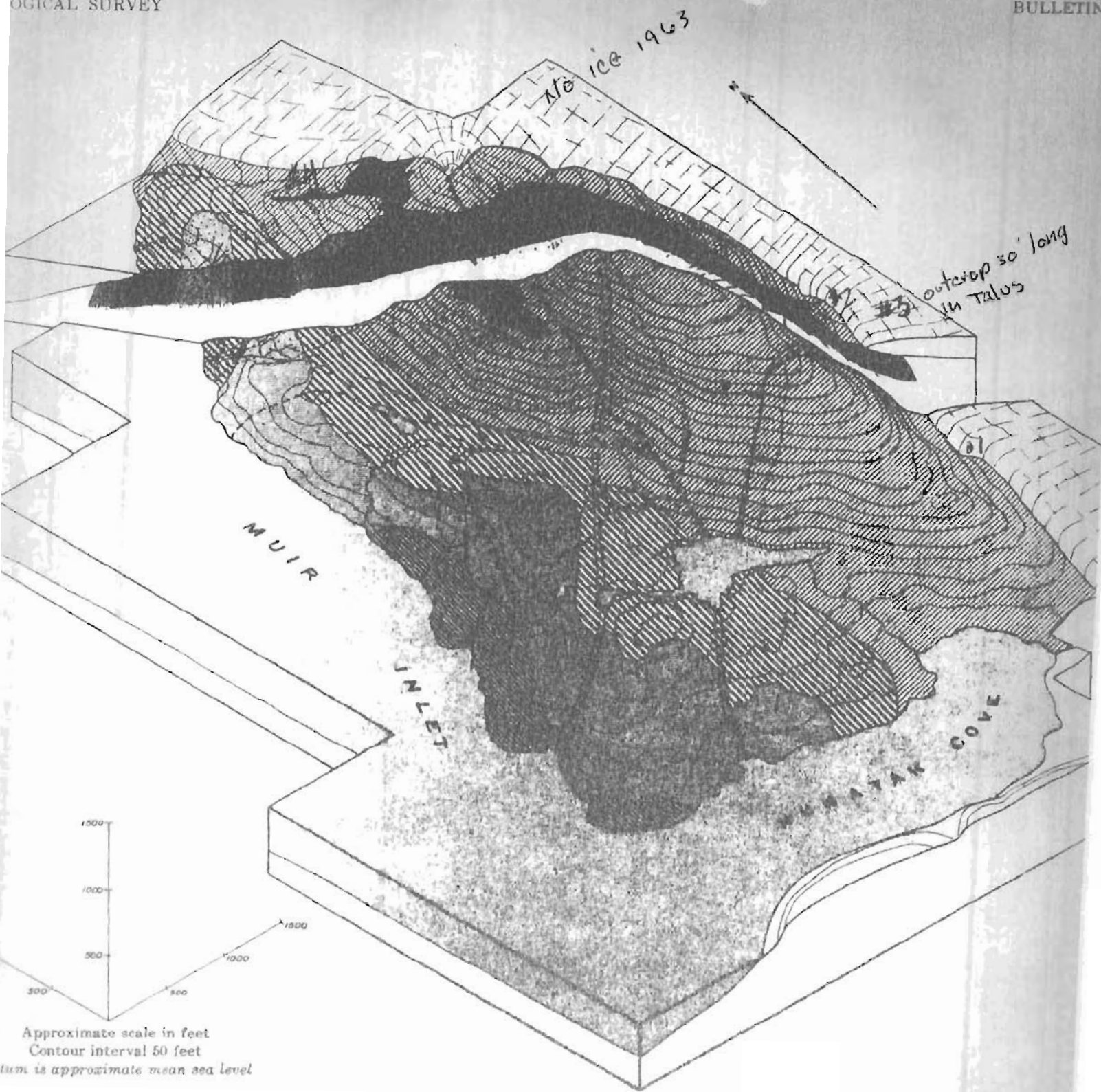
<div data-bbox="1258 1396 1323 1491" data-label="Image"></div> <div data-bbox="1234 1386 1266 1501" data-label="Text"> <p>Volcanic rocks</p> </div>	<div data-bbox="1177 1396 1242 1491" data-label="Image"></div> <div data-bbox="1153 1386 1185 1501" data-label="Text"> <p>Intrusive rocks</p> </div>	<div data-bbox="1096 1396 1161 1491" data-label="Image"></div> <div data-bbox="1071 1386 1104 1501" data-label="Text"> <p>Hornfels</p> </div>	<div data-bbox="1031 1396 1096 1491" data-label="Image"></div> <div data-bbox="1006 1386 1039 1501" data-label="Text"> <p>Limestone</p> </div>	<div data-bbox="966 1396 1031 1491" data-label="Image"></div> <div data-bbox="941 1386 974 1501" data-label="Text"> <p>Gneiss</p> </div>

DEVONIAN (?) CRETACEOUS (?) CENOZOIC (?)



Base modified from U. S. Coast and Geodetic chart 8305

GEOLOGIC SKETCH MAP OF HEAD OF MUIR INLET, GLACIER BAY, SOUTHEASTERN ALASKA



GEOLOGIC ISOMETRIC BLOCK DIAGRAM OF NUNATAK AREA,
MUIR INLET, GLACIER BAY, SOUTHEASTERN ALASKA



TRUE NORTH