IR-078-01

IR 78-1

TERRITORY OF ALASKA

DEPARTMENT OF MINES

JUNEAU, ALASKA

Report of Observations and Mining Investigations during
Trip from Fairbanks to Anchorage
By
J. C. Roehm
Associate Mining Engineer
September 3-7, inclusive — 1946 —

BJS.

An auto trip was made from Fairbanks to Anchorage which included visits to the Nabesna Mine and the newly reported disturbed area in the vicinity of Mud Mountain, Mile 141, Glenn Highway. The trip was made in the Department truck accompanied by A. E. Glover, Assayer-in-Charge, Territorial Assay Office, College, and Bruce Thomas, Associate Mining Engineer. Literature explaining the services of the Territorial assay offices and information on the cutting and polishing of rocks and gems was distributed to several road houses en route. This literature and information was received with keen interest by the operators of the road houses, and a yearly trip by a Department employee over the same route would help to create an interest in prospecting. At a future date it is recommended that these road houses be supplied with small displays of specimens of common ore minerals, and copies of laws relative to the location of lode and placer claims in Alaska.

The following information regarding placer mining in the Chisana district was received from Carl Whitham at Nabesna:

KK-78-4

Lou Anderton was reported hydraulicking on Bonanza Creek.

Joe Davis was operating with bulldozer and hydraulic on Skookum and Little Eldorado creeks.

KK-78-39

N. C. Nelson was hydraulicking on Claim No. 8 Above Discovery on Bonanza Creek with two men employed.

KK-78-37

John Hondel was operating alone on Gold Run Creek.

Harry Sutherland and Earl Hirst were reported to be hydraulicking on No. 2 Above Discovery on Bonanza.

Jack Richards and Melvin Chase were reported working on a high grade gold lode near Ten-Mile Creek near Chitina.

The Nutzotin Mining Company, under the direction of Wm. James of Chisana, was reported to be selling stock in the above company at Anchorage. The company holds several placer claims in the Chisana district.

KX-78-3, 264-27

The Nabesna Mine has again resumed operations after having been closed down since 1941. The greater part of this season was devoted to building a road, ore bins and chutes, compressor house, and installing machinery at an adit site 335 feet below the Golden Eagle ore outcrop. The later part of the season was concentrated on mining ore from the outcrop, milling and driving the Golden Eagle adit. This adit was advanced 100 feet and it is expected to encounter the Golden Eagle ore shoot at this depth. The ore shoot appears as a tabular mass of nearly massive sulphides occurring as a replacement in limestone bordering the contact of a diorite dike. The extent of the ore shoot is not known, but the adit below is expected to prove its downward continuation.

The Nabesna mill was visited by A. E. Glover and Bruce Thomas. Reports were that new concentrating tables had been installed this year. The use of the cyanide plant, the flotation cells and the sanders has been discontinued. A nearly pure sulphide concentrate is taken off the concentrating tables, which was reported to contain sufficient values in gold and silver for shipment.

Mr. Whitham was very optimistic regarding the reopening of the Nabesna Mine and the gold industry in general. His reasons for this unusual optimism at this time were not learned by the writer.

The party stopped at Mile 141 on the Glenn Highway to investigate reports of a slide disturbance in the area and reports of the finding of large pearly fossils.

Mud Mountain Slide Area:

The area of disturbance was found to have been caused by earthquake tremors and subsequent sloughing along the south slope of Mud Mountain, located approximately one mile north of Mile 141 on the Glenn Highway. Mud Mountain lies adjacent to the highway and is located geographically between the Little Nelchina River and Cache Creek, tributaries of the Nelchina River to the south. (Note location on attached map). The mountain top appears from the highway as a long east-west ridge with low slopes and covered nearly to the top with conifers and brush. The highway traverses the south slope of the mountain in a slightly north of east direction at an approximate elevation of 3000 feet. The top of the mountain has an elevation of 4000 feet.

The slide-earthquake area is one and a half miles in length and nearly one-half mile in width at the center or widest portion and it is situated along the south slope of the mountain several hundred feet below the top. It cuts across the south slope in a direction between 20 and 30 degrees north of west, while the trend of this slope is east-west. The area can be easily observed from the highway and begins at an elevation slightly above the highway to nearly the top of the mountain.

Slides of a minor nature were reported in this area prior to this disturbance by officials of the Alaska Road Commission. The present disturbance was reported to have occurred in late May or early June, 1945. It apparently was not investigated until a year later when Mr. Ryan of Ryans Road House, Mile 156, visited the area. Mr. Ryan's investigation revealed the nature of the disturbance and the abundance of the fossils. Later this year several tourists and travelers visited the area. In order to learn more regarding the causes of this disturbance and to collect fossils for determination of the geologic age, the present investigation was made.

Photo No. 1 - View of slide area from Glenn Highway, Mile 141.

The major structural feature is the central fault displacement area near the center and striking parallel to the elongated portion of the area. This fault trend is easily traced by the steep footwall in relation to the lower hanging wall which indicates normal faulting. (Note Photos Nos. 2 and 3.

Photo No. 2 - Shows the depression which marks the fault trend to the northwest from a small lake situated near the center of the upper portion of the disturbance.

Photo No. 3 - Shows the continuation of the fault trend southeast from the same lake as shown in No. 2. Note the trees leaning each way toward the fault line.

Photo No. 4 - Shows a close-up of the north shore of the lake shown on Photos Nos. 2 and 3, indicating the steepness of the footwall of the fault.

Transverse faults of a minor nature appear to intersect the major fault in the vicinity of this lake, which probably created the deep depression which later filled with water, forming the lake.

The apparent displacement along the major fault zone resulted in the lowering of the hanging wall and the vibrations or tremors which followed caused a large section of the footwall to slough, reaching nearly to the top of the mountain. This slough is represented by a large semi-circular shaped basin, surrounded on the upper side by a nearly vertical bank two to three hundred feet in height.

Photo No. 5 - Shows the upper basin and the 200-300 foot bank marking the limits of the area to the north and representing a slough which occurred after the main displacement along the fault zone. The

surface material or the upper 20 to 30 feet of this bank consists of unconsolidated sand and gravel. The remaining exposure below the sand and gravel consists of a limy to sandy Upper Cretaceous shale ranging in color from a greenish gray to nearly black. The dark colored shale contains considerable carbonaceous material. The shale formation has a northwest-southeast strike and contains a very low dip to the northeast. The shale slacks readily upon exposure, breaking into small bits and forming talus cones.

The entire disturbance took place by faulting, sloughing and some sliding during a series of earthquake tremors and without the aid of ground water. There appears no evidence on the bottom or south side of the slide area of any mud flow or flowage of water, other than that caused by local rains after the time of the disturbance. During the early stages of the disturbance, and probably during the displacement of fault walls, the shale formation was apparently broken into large and small blocks. Violent tremors apparently followed, causing further breaking up of the shale blocks and causing the loosened blocks to work upward to the surface, and further causing the unconsolidated material including the greater portion of the trees and small vegetation to move downward between the blocks. Disintegration or slacking of the shale from the blocks filled and covered the open cracks and spaces. This finely broken shale covered the greater portion of the remaining trees and sand and gravel of the former surface.

Photo No. 6 - View looking southwest across the slide area. Note the absence of trees in the disturbed area and the dense forest along the edge. Note the enumerable cone-shaped piles, which were solid blocks of shale lifted to the surface by violent earthquake tremors, and which rapidly disintegrated, forming talus cones.

Photos Nos. 7 & 8 - These photos show the abundance of talus cones which range in size from very minute, one to two inches, up to 30 or 40 feet in height. The size and height of the cones was determined by the size of the shale blocks. The vibrational effect on the blocks was also a factor in their disintegration. The existence of these enumerable cones is one of the most striking features of the area.

The fossil content of these shales is another feature of interest. The rapid disintegration of the shales exposed the fossil content, since the shale surrounding the fossils was slightly harder and more resistent, as were the fossils themselves. The most intact fossils were found at the tops of the talus cones, and in many instances formed the tops of some of the smaller cones.

The following fossils were identified by Dr. J. B. Reeside, Jr. of the U. S. G. S. and reported to be of high Upper Cretaceous age. (Senonian of the European Sequence). The following species were recognized by Dr. Reeside from a collection sent to the Smithsonian Institute by A. E. Glover:

Pelecypod:	Inoceramus cf. sagensis (Owen)
Ammonites:	Pachydiscus (large ammonite) Anchylloceras Baculites (small, straight)
Gastropod:	Turritella
Wood:	Unidentifiable coniferous.

The shale varies somewhat in color from a dull earthy green to gray with strata of nearly black from the carbonaceous material contained. Field observations indicated a high content of alumina with some lime, gypsum, iron and silica. A large sample was taken from the dull greenish colored shale near the lower end of the slide area and turned over to A. E. Glover for tests as to its desirability for use in the manufacture of brick and cement.

According to a report by A. E. Glover of November 22, 1946 to B. D. Stewart, Commissioner of Mines, the preliminary tests made on this shale indicate that it has a content favorable for its use in the manufacture of brick and tile. Further, the report indicates that the shale is amenable to use in the manufacture of cement. Mr. Glover is reporting on the economic feasibility of these shales.

Costs at the Nabesna Mine

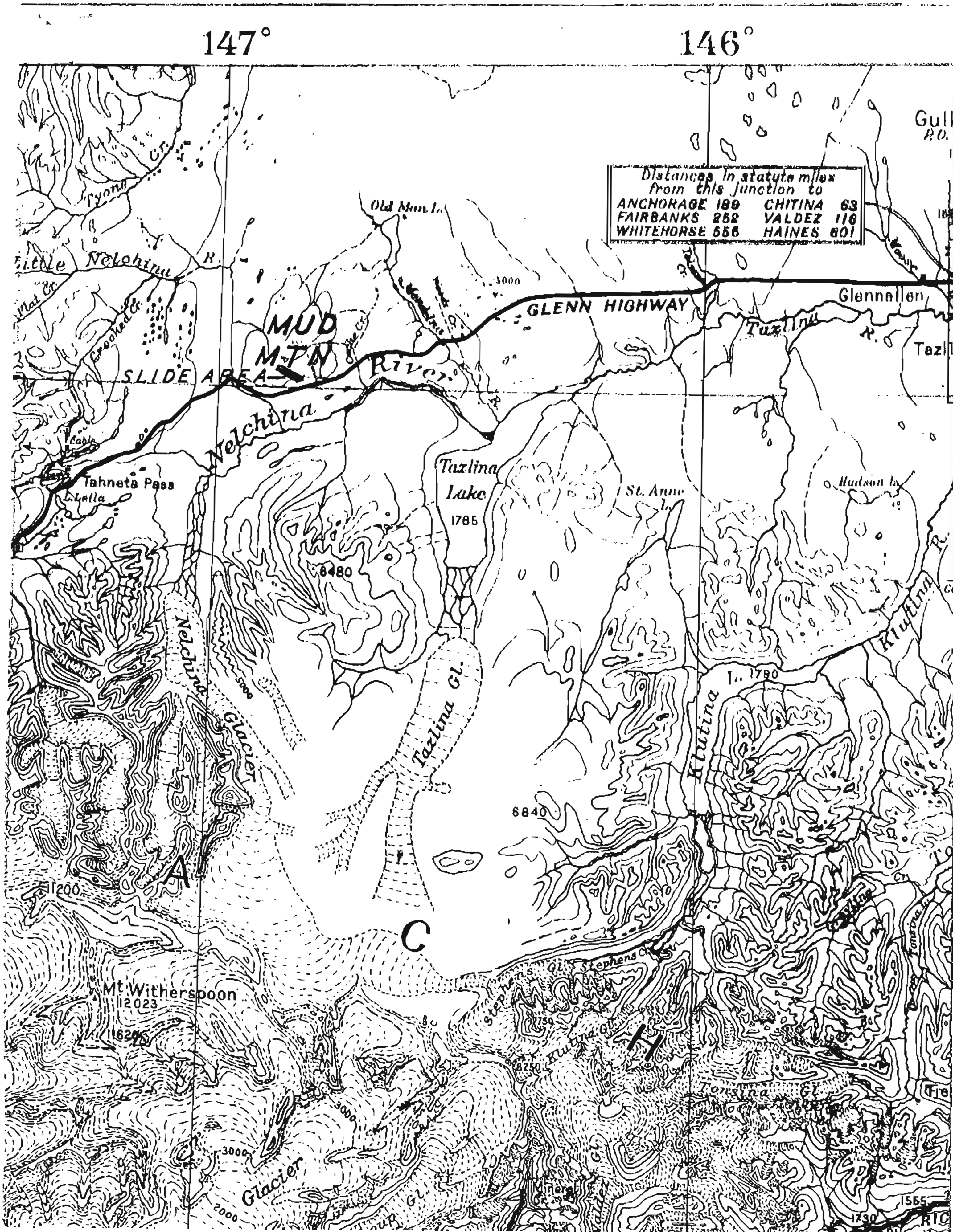
Diesel oil:

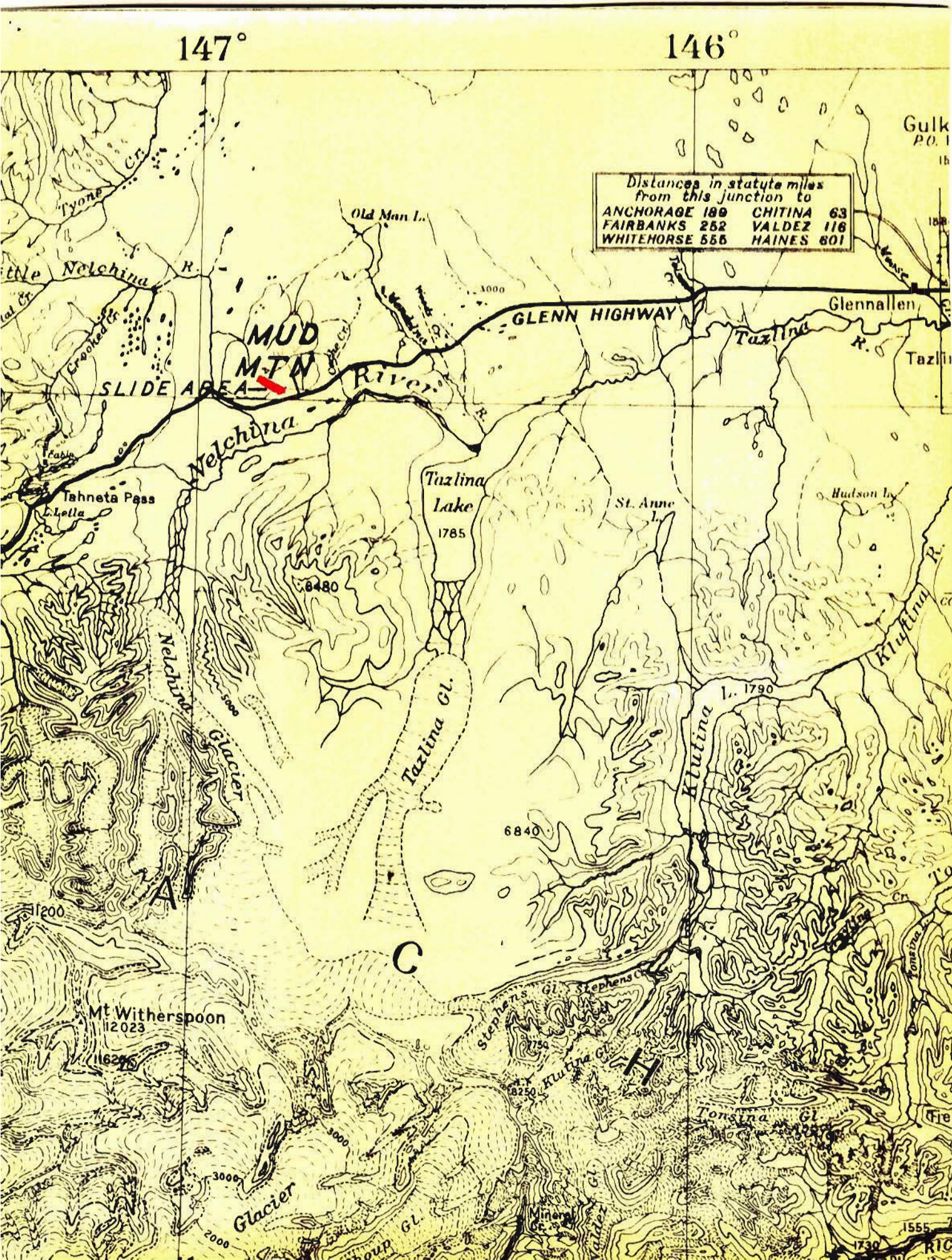
Cost at Valdez	$0.11 per gallon
Valdez to Nabesna	.09 " "
Transportation tax	.01
	.21 total cost per gallon.

Wages:

Miners - 56-hr. week $64.00, rate $1.14 per hr.
Muckers - 56-hr. week, $56.00, rate per hr. $1.

Charge for board - $10.50 per week.


147°
146°
Distances in statute miles
from this junction to
ANCHORAGE 189
CHITINA 63
FAIRBANKS 252
VALDEZ 116
WHITEHORSE 556
HAINES 601
Old Man L.
Little Nelchina R.
Tyone Cr.
Crooked Cr.
MUD MTN
SLIDE AREA
Nelchina River
GLENN HIGHWAY
Glennallen
Tazlina R.
Tahneta Pass
Taxlina Lake
1785
St. Anne L.
Hudson L.
6480
Nelchina Glacier
5000
Taxlina Gl.
Klutina L. 1790
Klutina R.
Klutina
6840
A
C
H
11200
Mt Witherspoon
12023
11620
Stephens Gl.
Klutina Gl.
6250
Tonsina Gl.
3000
Glacier
2000
1730
1565


147°
146°
Distances in statute miles from this junction to
ANCHORAGE 189
FAIRBANKS 252
WHITEHORSE 555
CHITINA 63
VALDEZ 116
HAINES 601
GLENN HIGHWAY
MUD MTN SLIDE AREA
Nelchina R.
Tyone Cr.
Little Nelchina R.
Crooked Cr.
Old Man L.
Glennallen
Tazlina R.
Tahneta Pass
L. Lella
Tazlina Lake
1785
St. Anne L.
Hudson L.
Klutina R.
L. 1790
Nelchina Glacier
Tazlina Gl.
Klutina Gl.
Stephens Gl.
Stephens Cr.
Tonsina Gl.
Mt Witherspoon
12023
Glacier
Mineral Cr.
6480
6840
11200
8250
1555
1730