PE 49-14

TERRITORY OF ALASKA

DEPARTMENT OF MINES

PE-049-14

REPORT ON THE SAWTOOTH MOUNTAIN ANTIMONY PROSPECT, LIVENGOOD QUADRANGLE

LL 49-143

by

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Territorial Mining Engineer

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INTRODUCTION

The Sawtooth Mountain antimony prospect was discovered in 1942 by Fred Wackwitz of Fairbanks. Mention of the prospect is made in Territorial Department of Mines Pamphlet No. 2, STRATEGIC MINERAL OCCURRENCES IN INTERIOR ALASKA, by Henry R. Joesting. During 1950-51 the prospect was mined while under lease to Alamco, Inc. of Fairbanks. This mining venture began when the price of antimony was high, but only a part of the ore that was mined reached the market before the price dropped, and the venture was financially unsuccessful.

In 1957 a trip for the Department of Mines was made in the Rampart District along a route that came within a few miles of Sawtooth Mountain; thus an opportunity to examine the prospect was provided. The examination, made primarily to acquire information for the Department of Mines files, was made on June 25, 1957, by Robert H. Saunders, Territorial Mining Engineer. This report is written from notes taken during that examination and from information furnished by Fred Wackwitz in a conversation on December 19, 1957.

LOCATION AND ACCESSIBILITY

The prospect is in the western part of the Livengood Quadrangle at 65° 23' N latitude and 149° 30' W longitude. It is on the east side of Sawtooth Mountain at 4400 feet altitude. The prospect is 35 miles by tractor trail from Livengood, and there is a gravel road from Livengood to Fairbanks, a distance of 80 miles. A road is now being built from Livengood westward to Eureka in the Manley Hot Springs District. When this road is completed, it should be

not more than 10 miles by tractor trail from the new road to the prospect.

On the low divide between Buckeye Creek and Gazzam Creek about two miles from the prospect, some clearing has been done with a bulldozer preparatory to building an airstrip. An abundant growth of Alaska cotton in the places where the bulldozer was working indicates that the site is not well drained.

The tractor trail that was used by Alamco, Inc. goes along upper Buckeye Creek and up the south side of Sawtooth Mountain. The highest point on the trail is 160 feet higher by aneroid barometer than the prospect. From this summit the trail goes southward down to Buckeye Creek. The average grade for a distance of one-half mile southward from the summit is minus 23 per cent, and in places the grade is much steeper than the average. This grade has made the hauling of supplies and ore both difficult and expensive, and there appears to be no easier route that a tractor trail could follow to reach the outcrop. If the orebody is large enough, however, the steep grade could be avoided by building an aerial tramway from the shaft down the southeast face of the mountain to the head of Chocolate Creek, or by driving a cross-cut adit into the southeast face of the mountain to intersect the orebody below the outcrop. At the head of Chocolate Creek, slopes gentle enough for tractor haulage are approximately 1000 feet in altitude below the outcrop. Considerable exploration would be required to prove enough ore to justify the expense of an adit, a tramway, or a combination of adit and tramway that would bring the ore down to a place from which it could be hauled by tractor.

HISTORY AND PRODUCTION

The property was mined by Alamco, Inc. of Fairbanks during 1950-51; Howard Sparks of Fairbanks was in charge of the work. A vertical shaft was started on the orebody, and the deposit was mined as shaft sinking progressed. The ore was hoisted to the surface with a hand windlass and was packed in drums at the shaft collar. The full drums were hauled by tractor and goodevil down the steep slope to Buckeye Creek, where a dump of filled drums was built; Drums from the dump were loaded on an Athey trailer and hauled by tractor to Livengood. From Livengood they were hauled by truck to Fairbanks, where they were shipped by rail. A total of about 500 tons was mined, but not all of this reached the smelter.

PROPERTY AND OWNERSHIP

The prospect was discovered and staked in 1942 by Fred Wackwitz of Fairbanks, who still owns the claims. The claims are recorded in the office of the U. S. Commissioner at Fairbanks. According to Fred Wackwitz, all of the mined stibnite on the property and along the trail belongs to the Alaska National Bank of Fairbanks.

GENERAL GEOLOGY

The geology of the area in which the prospect lies has been described in USGS Bulletin 872, THE YUKON-TANANA REGION, ALASKA, by J. B. Mertie, Jr. The country rock in the immediate vicinity of the prospect is a formation of Mississippian age; the rocks making up this formation are non-calcareous meta-sediments including slate, argillite, chert, conglomerate, and sandstone. The main part of

the top of Sawtooth Mountain is Tertiary quartz monzonite. The stibnite prospect lies a short distance from the contact on the southeast side of the intrusion. There are also rocks of Devonian and Cretaceous ages in the surrounding area. The rock formations present are shown on the accompanying map.

MINERAL DEPOSITS

The stibnite deposit is in a fracture zone or a fault that strikes N 42° E and dips vertically. At the surface the width of the deposit is about six feet, but the width is reported to vary in depth. The orebody is lenticular in shape, and its length along the strike is reported to vary. The shaft is reported to have reached a depth of 83 feet, and the orebody was of at least sufficient size to produce 500 tons of ore between the surface and that depth. According to Fred Wackwitz, the shaft was still in ore when sinking was stopped. From the dump it appears that part of the material mined was stibnite mixed with varying amounts of quartz, and part was coarsely crystalline stibnite without quartz.

In the saddle at the highest part of the tractor trail a bulldozer trench has been dug on the east side of the trail. The sides of the trench have sloughed so that the bedrock no longer is exposed. Fred Wackwitz reported that another stibnite deposit had been uncovered by this trench. He reported that the strike and dip of this deposit are not the same as the strike and dip of the orebody at the shaft, and he believes this deposit to be in a different fracture zone or fault.

DEVELOPMENT AND WORKINGS

There are no underground workings except the shaft and the stopes beside it. At the time of the examination, the shaft was filled with ice to within six feet of the collar. The tripod head-frame and the hand windlass that were used for hoisting are still in place over the shaft.

A shelter cabin of rock and timber has been built near the shaft; a photograph of the cabin is included in the appendix.

SAMPLES AND ASSAYS

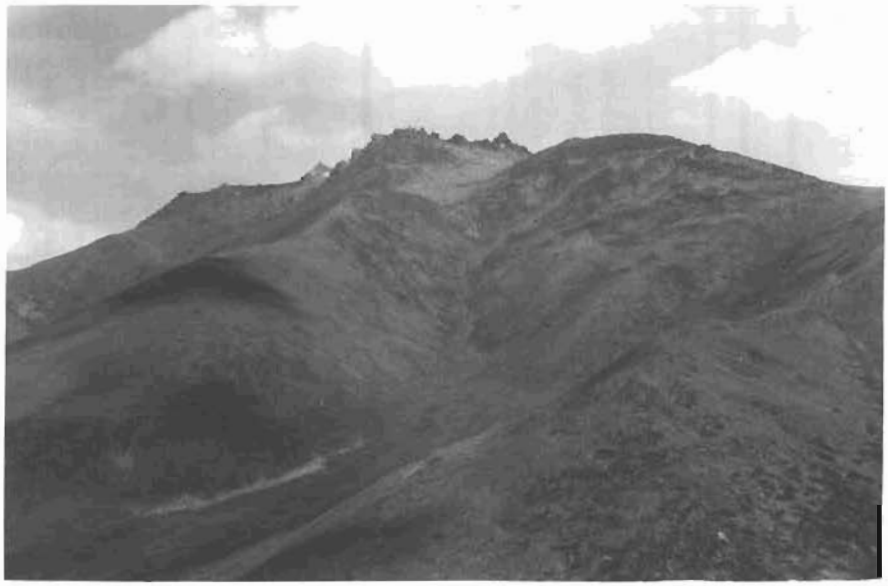
During this examination one sample was taken from the dump near the shaft; it was assayed at the Territorial Department of Mines Assay Office at College by Donald Stein, and it contained 46.19 per cent antimony, 0.02 ounces per ton of gold, and 0.44 ounces per ton of silver.

ORE RESERVES

Mining by Alamco, Inc. was done during the summers of 1950 and 1951. Freighting of ore and supplies was done in late winter and early spring while the ground was frozen. Early in 1952 the price of antimony began to drop, and it soon became so low that even the ore that was already mined could not be marketted profitably. Freighting was stopped and some stibnite was left on the property and along the trail to Livengood. According to Fred Wackwitz, all of this mined stibnite is owned by the Alaska National Bank of Fairbanks; it consists of the following:

the dump near the shaft	35 tons
a pile of broken sacks on upper Buckeye Creek, (reported by F. Wackwitz)	10
the dump of drums on upper Buckeye Creek, (90 drums)	45
at the Athey trailer on Buckeye Creek, (35 drums)	17
at the mouth of Chocolate Creek, (reported by F. Wackwitz)	5
Total	112 tons.

There are no unmined ore reserves blocked out, however, the ore shoot that has been partly mined reportedly extends in depth below the bottom of the shaft. There is a possibility that other ore shoots may lie along the fracture zone or fault, and the discovery in the trench near the summit of the tractor trail indicates that there is at least one other mineralized zone.



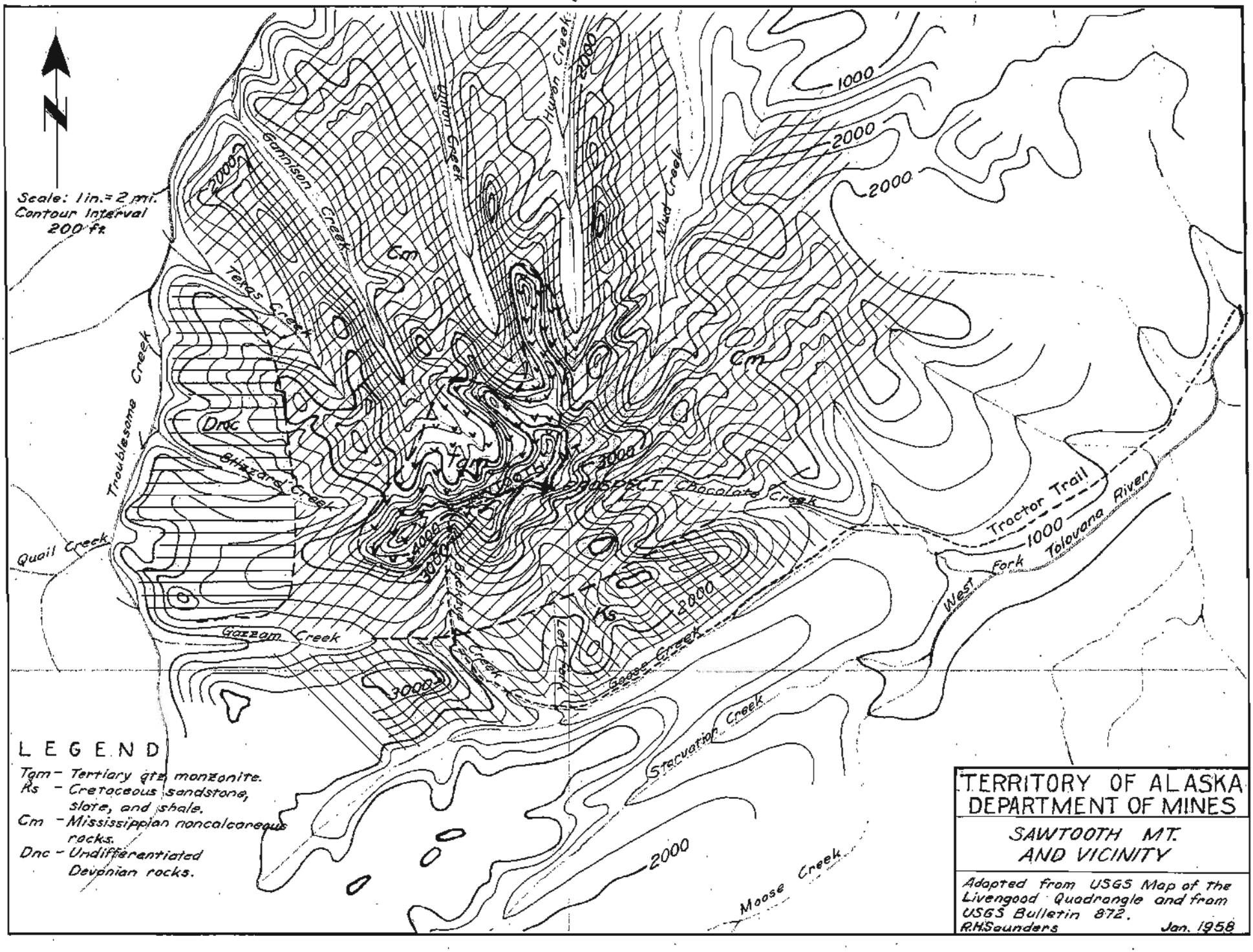
Sawtooth Mountain from the west.

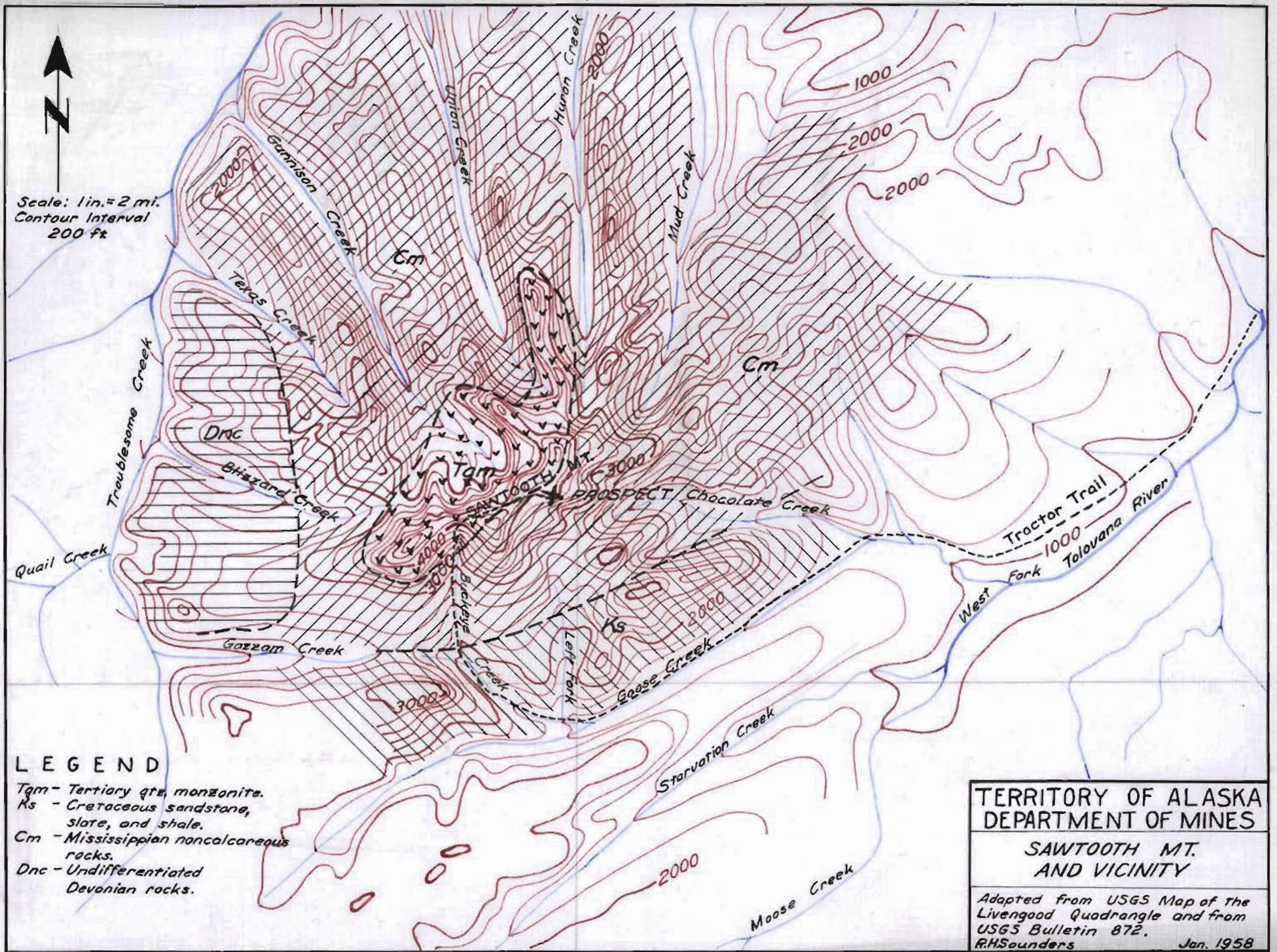
Shelter cabin and site of shaft.

Shelter cabin.

Dump and headframe at collar of shaft.

Athey trailer and filled drums on Buckeye Creek.


149°30'
65°2
Scale: 1 in. = 2 mi.
Contour Interval 200 ft
Gammison Creek
Hyman Creek
Mud Creek
Texas Creek
Troublesome Creek
Quail Creek
Blizzard Creek
Chocolate Creek
Tractor Trail
Tolovana River
West Fork
Goozam Creek
Goose Creek
Starvation Creek
Moose Creek
Cm
Dnc
Tqm
Rs
1000
2000
3000
4000
LEGEND
Tqm - Tertiary qtz. monzonite.
Rs - Cretaceous sandstone, slate, and shale.
Cm - Mississippian noncalcareous rocks.
Dnc - Undifferentiated Devonian rocks.
TERRITORY OF ALASKA
DEPARTMENT OF MINES
SAWTOOTH MT. AND VICINITY
Adapted from USGS Map of the Livengood Quadrangle and from USGS Bulletin 872.
R.H.Saunders
Jan. 1958


N
Scale: 1 in. = 2 mi.
Contour Interval 200 ft
Union Creek
Huron Creek
Mud Creek
Gunnison Creek
Texas Creek
Troublesome Creek
Blizzard Creek
Quail Creek
Gazzam Creek
Buckeye Creek
Left Fork
Goose Creek
Starvation Creek
Moose Creek
West Fork Toiovana River
Chocolate Creek
Tractor Trail
SAWTOOTH MT.
PROSPECT
Cm
Dnc
Tqm
Ks
1000
2000
3000
4000
65°20
LEGEND
Tqm - Tertiary qtz. monzonite.
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