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War Minerals Report 229

DAHL CREEK ASBESTOS DEPOSITS

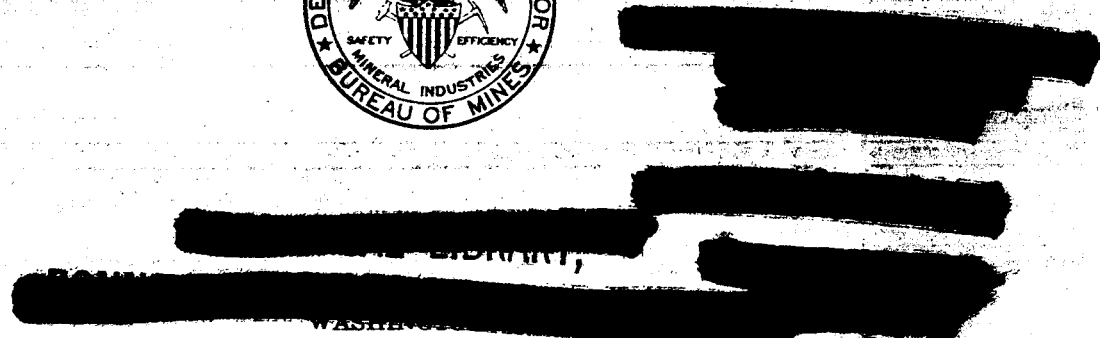
KOBUK RIVER REGION, ALASKA

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WAR MINERALS REPORT

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

W.M.R. 229 - Asbestos

August 1944

DAHL CREEK ASBESTOS DEPOSITS
Kobuk River Region, Alaska

SUMMARY

For many years, asbestos has been reported to occur adjacent to Dahl Creek, a tributary of the Kobuk River, near Shungnak, Alaska. The district is above the Arctic Circle in an isolated and thinly populated area.

Small deposits of long-fibered tremolite asbestos occur irregularly in a serpentine area. The tremolite is suitable for use by the chemical and steel industries, is in demand at the present time, and commands a good market price.

Exposures of asbestos on Dahl Creek were too limited in number and size to warrant exploration by the Bureau of Mines on Dahl Creek alone. However, the Cosmos Hills, through which Dahl Creek flows, are geologically favorable for the occurrence of asbestos, and large exposures of float asbestos have been located on the Shungnak River.

The Bureau proposes to continue examination of asbestos deposits in the area and to initiate extensive exploration at selected sites, if such is found to be justified.

INTRODUCTION

The presence of asbestos in the Dahl Creek region has been reported since 1910.¹ Early reports stated that the quality of the asbestos was poor, but later prospecting and subsequent examination by Irving Reed, associate engineer, Territorial Department of Mines, in 1931, indicated that high-quality chrysotile asbestos occurred adjacent to Dahl Creek. The deposits examined are accessible by river transportation from Kotzebue, a port on the Arctic Ocean, to Shungnak, within 8 miles of the prospects. A small landing field for planes now exists in the Kobuk Valley near Dahl Creek, and the Civil Aeronautics Authority has a larger field under construction at Kalla, about 4 miles above Shungnak, and on the Kobuk River.

A Bureau of Mines engineer,² accompanied by Robert B. Coats of the Geological Survey and Eskil Anderson of the Territorial Department of Geological Survey, Mineral Resources of Alaska, 1910; Bull. U.S. Geol. Surv.,

The War Minerals Reports of the Bureau of Mines are issued by the United States Department of the Interior to give official expression to the conclusions reached on various investigations relating to domestic minerals. These reports are based upon the field work of the Bureau of Mines and upon data made available to the Department from other sources. The primary purpose of these reports is to provide essential information to the war agencies of the United States Government and to assist miners and operators of mining properties in the production of minerals vital to the prosecution of the war.

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Mines, examined the Dahl Creek asbestos deposits August 7 to 11, 1943, inclusive. The party examined only the deposits adjacent to Dahl Creek. Other deposits reported as occurring on Kogoluktuk and Shungnak Rivers and Jade Creek, in the same general area, were examined by Anderson, who remained after the departure of the other members of the party.

In view of the present shortage of high-quality asbestos, this examination was made to determine the possible available quantity of such material.

A paced traverse was carried by Coats, and his sketch maps are used in this report.

HISTORY

Some effort was made to mine asbestos on Dahl Creek before 1910. Samples found at that time were said to have been poor-grade. Further prospecting was undertaken by Michael Garland in 1931 and 1932. Slip-fiber asbestos with fibers a foot long was found at one place, and a sample forwarded to the Bureau of Mines was identified as chrysotile asbestos of fine grade. Garland located a large group of claims.

So far as known, nothing has been done on the prospects until recently. In 1943, J. S. Robbins, of Candle, Alaska, located asbestos claims on some of the old Garland group, and by the time this investigation was undertaken, he had done a small amount of surface trenching.

Asbestos was reported in the Cósmos Hills, and these deposits were examined by Eskil Anderson.

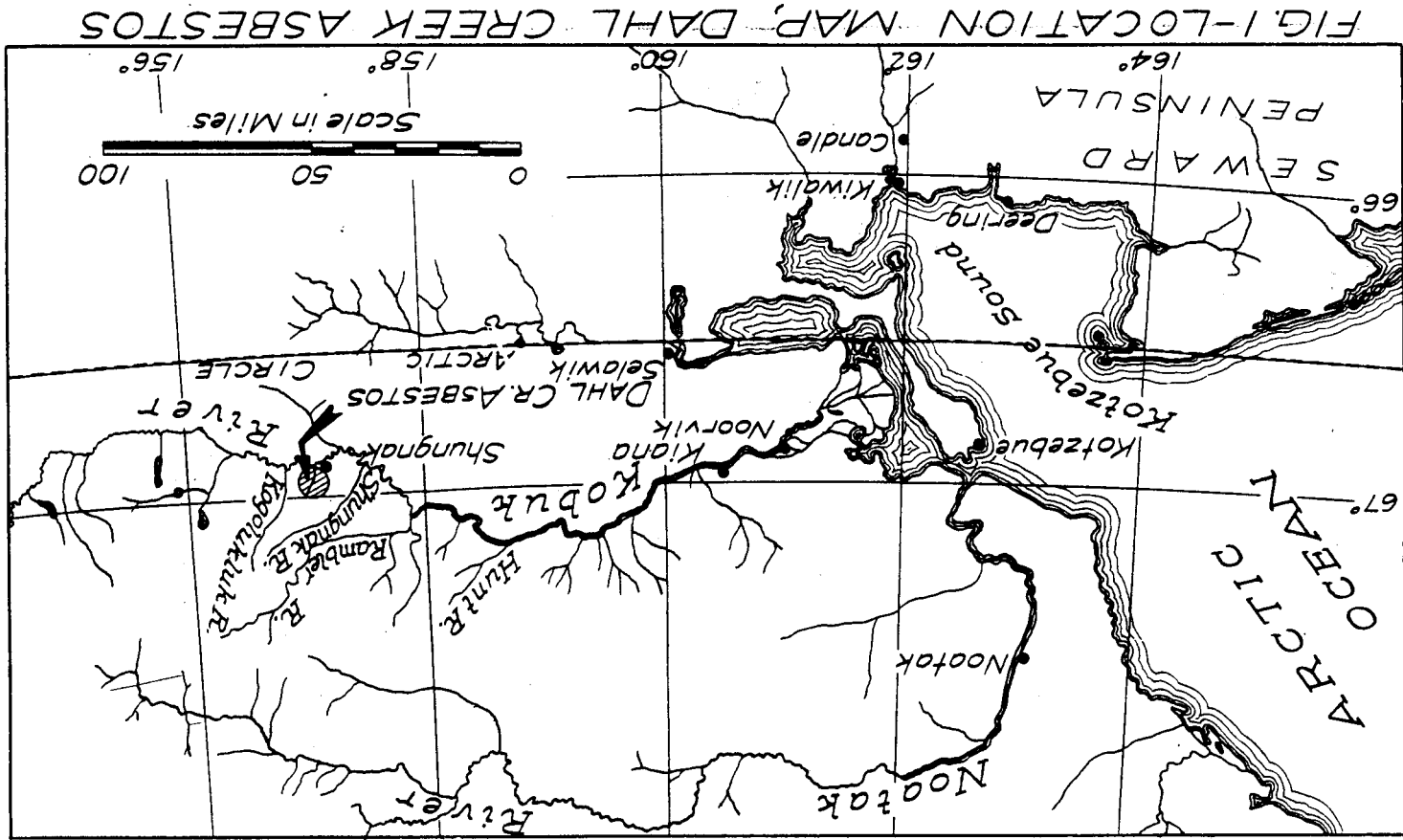
PHYSICAL FEATURES

The asbestos deposits examined are on the north side of the divide, between Dahl Creek and the Kogoluktuk River, near the crest of the divide, approximately 8 miles north of the confluence of Dahl Creek and the Kobuk River. They may be reached by about 5 miles of good mountain trail from the nearest landing field. The topography adjacent to the deposits is of strong relief. The best outcrops observed lie near the top of Asbestos Mountain at an altitude of approximately 2,500 feet and 1,600 feet above the nearest point on Dahl Creek.

There are no roads, and transportation of equipment or supplies would be difficult and costly. Freight from Continental United States would be carried by ocean vessels to Kotzebue, lightered ashore there, and transferred to shallow-draft river boats or barges for shipment up the Kobuk River as far as Shungnak. Very little labor is available.

The climate is typical of the Arctic Regions but more like that of the interior than the coastal region. Small spruce, willows, and alders grow abundantly to an altitude of about 1,500 feet.

The only development consists of a few shallow surface trenches and small opencuts.



DEPOSITS

The only asbestos found adjacent to Dahl Creek occurs in a basic greenstone intrusive that has been serpentinized. Some asbestos exists in the serpentine area. The occurrences of chrysotile asbestos are infrequent and irregular, and the individual areas are small.

Although intense metamorphism has taken place in the serpentine adjacent to the schist contact and considerable antigorite has formed, development of chrysotile asbestos along the contact has been neither marked nor continuous.

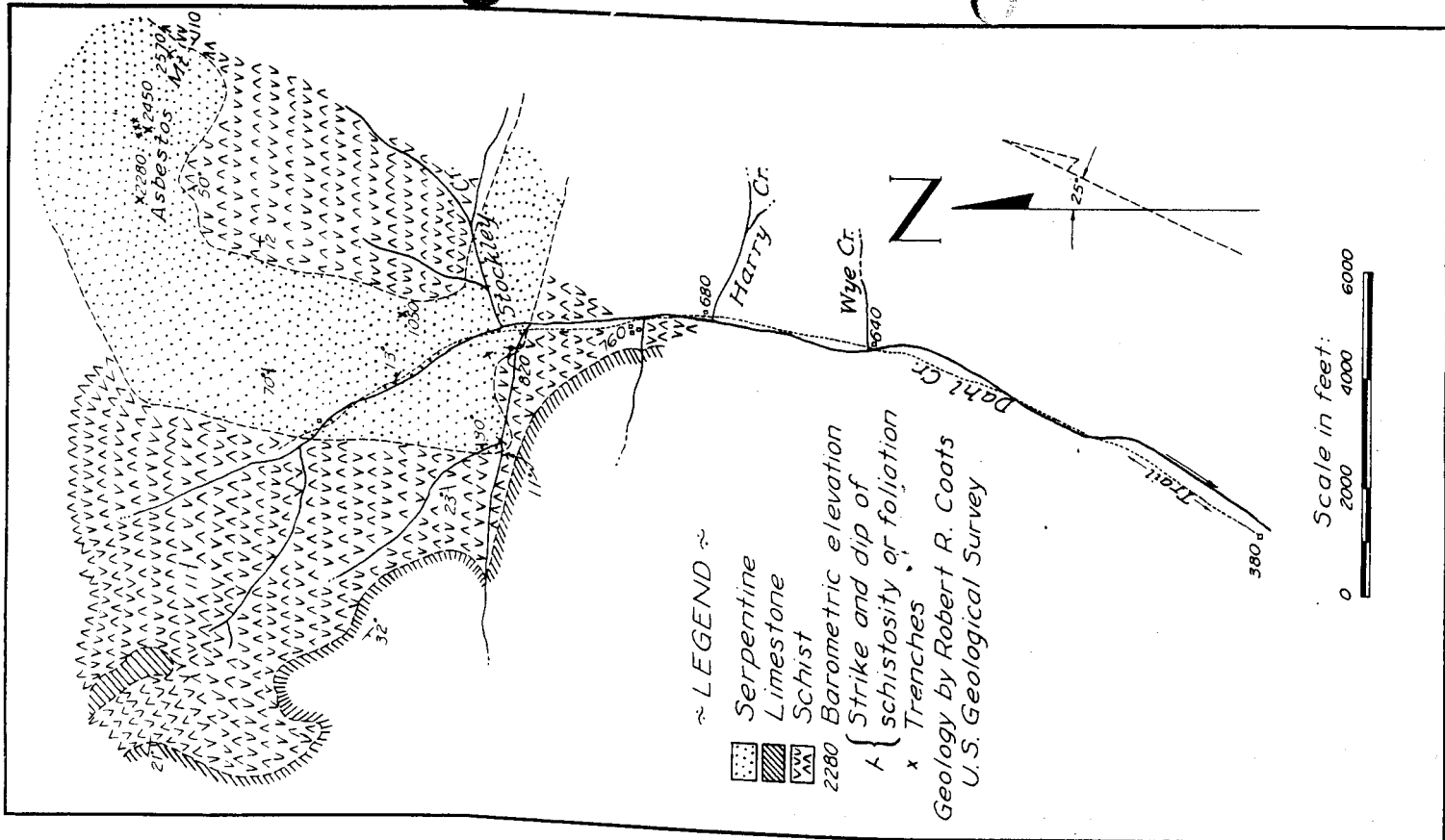
Within the main body of the serpentine, occasional outcroppings were noted containing small amounts of asbestos variable in quantity and quality. However, no strong structures were observed, and no connection appeared to exist between one outcrop and another. The best exposure occurs near the top of Asbestos Mountain, and there was evidence of a weak shear zone trending approximately N. 50° E. Strong local magnetic anomalies were noted, and all magnetic bearings given in this report are only approximate. Several trenches have been excavated across the northern end of the zone, and a 5- or 6-inch vein of asbestos was seen in the northernmost of those. The strike of this asbestos vein is N. 15° E., and the dip is 60° to 70° south-east. Asbestos fibers from this outcrop are as much as 18 inches long and are light gray to white in color. Possibly owing to weathering, the fibers are of weak tenacity. The asbestos has been determined as tremolite in the Bureau of Mines laboratory and is suitable for use in the chemical and steel industries. Demand for this type appears to be constant.

About 200 yards southeast of the trenches, indications of the same type of zone were observed. Much of the ground is covered by overburden, and it is possible that continuity of structure exists, but no float or other indications of asbestos bodies of any size were observed.

Within the 200 feet along the strike covered by trenches is considerable surface float of long-fibered asbestos. The character of the float indicates that several other narrow stringers of asbestos occur nearby.

Most of the area of serpentine on the Dahl Creek slopes was traversed during the examination without discovering other deposits of economic importance. Much of the bedrock was hidden by a heavy overburden of soil and vegetation, which covered a considerable portion of the serpentine.

On the Shungnak River, approximately 10 miles from Dahl Creek, Eskil Anderson found extensive areas to be covered with asbestos float. No outcrops were discovered, as rock surfaces were commonly covered by overburden. Samples of surface float taken by Anderson were of two varieties identified in the Bureau of Mines laboratory as antigorite and chrysotile, respectively. The antigorite gave a good test for nickel, and the chrysotile is of good spinning quality. Although some of the chrysotile is of long fiber and good spinning quality, much of it is less than 1 inch



long and of low tensile strength, possibly owing to long exposure to the weather, according to Anderson.

PROPOSED INVESTIGATION BY
BUREAU OF MINES

Preliminary investigation of the asbestos deposits of this district indicated that further study would be justified. It is proposed that each occurrence be trenched and otherwise prospected. If this initial work discloses the presence of any extensive deposits, more intensive exploration will be undertaken on those sites. It is estimated that the initial investigation could be completed in one month by an adequately equipped party. More detailed work on selected deposits might require several more months to complete. Costs are estimated as follows:

<u>Initial investigation (1 month):</u>	
Supervision.....	\$ 450
Labor.....	1,400
Equipment.....	350
Transportation of men and equipment.....	1,000
	<u>3,200</u>
<u>Detailed investigation (2 months):</u>	
Supervision.....	900
Labor.....	5,500
Additional equipment.....	500
Transportation of men and equipment.....	1,500
	<u>8,400</u>

CONCLUSIONS

A small deposit of long-fiber asbestos occurs near the top of Asbestos Mountain. Indications are that several 1- to 6-inch stringers trending N. 15° E. may carry slip-fiber asbestos for about 200 feet along a weak shear zone that trends N. 50° E.

With the exception of the asbestos found in the trenches on top of Asbestos Mountain, no important quantity of long-fiber asbestos was seen. The evidence obtained during the examination is not conclusive but does indicate that asbestos deposits in the Dahl Creek region are small, scattered, discontinuous bodies of variable quality. No great tonnage of asbestos appears available.

Asbestos has been reported by prospectors and eskimos as frequently occurring for a considerable distance north of the Kobuk River from Jade Creek on the west to Kogoluktuk River on the east, a distance of 45 miles. Much of the area is unsurveyed, and it is possible that extensive deposits of asbestos occur therein. Some asbestos found by Eskil Anderson near the Shungnak River contained fibers about 3 inches long, which were flexible, of high tenacity, and pronounced to be good-quality chrysotile.

Further investigation of other asbestos occurrences in the Cosmos Hills is proposed.