PE-028-02

TERRITORY OF ALASKA
DEPARTMENT OF MINES

PE 28-2

REPORT ON THE EXAMINATION OF THE KOBUK COPPER PROSPECT, SHUNGNAK DISTRICT, ALASKA

by

Robert H. Saunders
Associate Mining Engineer

October 1955

ABSTRACT

The Kobuk copper prospect is on Ruby Creek, tributary to the Shungnak River, in the southern part of the Ambler River Quadrangle at 67° 05' N latitude and 156° 55' W longitude. Copper in the form of bornite and chalcopyrite occurs in lenses, veinlets, irregular masses, and disseminated particles in a shear zone in limestone of Paleozoic age. The mineralized zone has been exposed over a length of 550 feet by trenching; the maximum width exposed is about 80 feet. Eleven samples taken from prospect trenches contained from 0.91 to 7.82 per cent copper. The mineralized zone appears to be large enough so that the upper part can be mined by open-cut methods.

TABLE OF CONTENTS

	page
INTRODUCTION	1
GENERAL INFORMATION	2
GEOLOGY	3
THE MINERAL DEPOSIT	4
SAMPLES AND ASSAYS	5
TABLE I; Results of Assays	7

ILLUSTRATIONS

View looking north showing camp site, large stripped area, and two smaller stripped areas west of camp.	8
Part of camp and large stripped area.	9
Trench where Sample No. 17 was cut.	9
Plate I; Map of Ruby Creek and Vicinity.	10
Plate II; Sketch Map of Kobuk Copper Prospect.	11

INTRODUCTION

As part of its program to furnish aid to prospectors in Alaska, the Department of Mines regularly employs mining engineers to examine mines and prospects. The Kobuk copper prospect was examined in 1952 by Robert H. Saunders, Associate Mining Engineer, and a report of that examination entitled REPORT ON THE PRELIMINARY EXAMINATION OF THE BERG PROSPECT, SHUNGNAK DISTRICT, ALASKA, was written in February, 1953. The owners have been working on the prospect each summer since the time of that examination, and, by the summer of 1955, enough new exposures of the deposit had been made so that another examination was required to bring the description of the deposit up-to-date. Accordingly, an examination was made in August, 1955, by Peter O. Sandvik, Assayer-Engineer, and Robert H. Saunders, Associate Mining Engineer; this report describes the prospect as it was at the time of the 1955 examination.

The report written in 1953 contains some general information about the region that is not repeated in this present report, however, all the pertinent information about the geology of the region and about the mineral deposit is included.

GENERAL INFORMATION

The Kobuk copper prospect is on Ruby Creek, tributary to the Shungnak River, in the southern part of the Ambler River Quadrangle at 67° 65' N latitude and 156° 55' W longitude. Plate I shows the location of the prospect.

Since 1952 the prospecting has extended the known area in which mineralization occurs, and at the present the prospect is covered by 36 lode claims. The location certificates are recorded in the records of the U. S. Commissioner at Kotzebue.

The development and mining of the property will require the construction of 12 to 16 miles of road from the prospect to the Kobuk River. There is now a tractor trail from Kobuk village to the prospect. Between Kobuk village and Dahl Creek this trail goes over much soft and swampy ground that probably could be avoided by a more nearly direct route from upper Wesley Creek to the Kobuk River. The part of the trail that goes up Wesley Creek to the head of Ruby Creek is on solid ground. On upper Ruby Creek the trail traverses some swampy areas, but these probably could be by-passed by a road if it were built on the lower hillside slopes along the side of the valley.

All the freight that comes into the upper Kobuk River region comes either by boat up the river from Kotzebue or by air. In 1955 the cost of freighting fuel from Kotzebue to Kobuk village is $6.75 per drum, and other freight is hauled at comparable rates.

The cost of diesel fuel at Kobuk village is 40.1 cents per gallon; furnace oil is 35.1 cents per gallon; and gasoline is 46.0 cents per gallon.

GEOLOGY

The geology of the Shungnak District has been described by Philip S. Smith in USGS Bulletin 536, THE NOATAK-KOBUK REGION, ALASKA. Paleozoic and pre-Paleozoic schists constitute the bedrock underlying most of the area between the Shungnak and Kobuk Rivers. An east-west trending, three-mile-wide belt of rocks, younger than the schists but also of Paleozoic age, crosses upper Ruby Creek. These younger rocks are chiefly limestone, dolomite, and calcareous schist. The prospect is in this belt of younger rocks. The older schists lie on both the north and south sides of the younger rocks. Layers of greenstone and greenstone schist occur in both groups of Paleozoic sediments. Along some of the limestone-greenstone contacts, tremolite and other contact minerals have been formed. On Asbestos Mountain the mining of one such deposit of tremolite and chrysotile asbestos has been attempted. The nephrite variety of jade has been found in the greenstone and in boulders in some of the streams that cut through the Paleozoic rocks.

There are granitic intrusions to the north on the divide between the Noatak and Kobuk Rivers and to the south in the Zane

Hills. One large boulder that appeared to be granitic pegmatite was bulldozed from one of the prospect pits on Ruby Creek.

THE MINERAL DEPOSIT

On the Iron Cap and Wallis Whitney claims near the camp on Ruby Creek, an area about 700 feet long and 150 feet wide has been stripped by bulldozer. In most of this area only a part of the unconsolidated material overlying bedrock has been removed. Within the area, several bulldozer trenches have been dug to bedrock, and, in the trenches, pits have been blasted in the bedrock. Plate II shows the outline of the partly-stripped area and the location of the trenches.

The mineralization is in a brecciated zone in limestone of Paleozoic age. This zone is exposed in the trenches in the northern part of the partly-stripped area. The mineralization is not uniform throughout the zone but is in lenses, veinlets, and irregular masses. Much of the ~~mi~~lime stone within the zone contains disseminated copper minerals. The overall size and shape of the zone have not been determined. In the northern part of the partly-stripped area the zone is exposed in all of the trenches, and it appears to be continuous between the trenches. The length of the zone thus exposed is about 550 feet, and the maximum width exposed is about 80 feet.

In the southern part of the partly-stripped area there

appears to be mostly limestone, but there is some copper mineralization in the trench at the extreme south end of the area. Possibly the mineralized zone turns to the southwest near the center of the Wallis Whitney claim and passes under the trenches containing gossan to the southwest of the partly-stripped area.

The most predominant metallic minerals in the deposit are pyrite, bornite, and chalcopyrite. Small amounts of gold and silver have been detected in some of the samples from the prospect. Uranium has also been identified in specimens of ore from this prospect. At the time of this examination a Geiger counter gave high readings over the entire area that had been stripped, but no rock specimens could be found that would give a high reading away from that area. All samples were checked for radioactivity at the Department of Mines Assay Office at College, and none was detected. As work on the prospect continues, samples should be checked for radioactivity to detect any possible concentration of uranium in any part of the deposit.

SAMPLES AND ASSAYS

Eleven samples were taken during this examination, and they were assayed at the Territorial Department of Mines office at College, Alaska, by William F. Attwood, Assayer. The manner in which each sample was taken was determined by the nature of the exposure of the mineral deposit; the length and width sampled

were determined by the size and shape of the excavation. The location where each sample was cut is shown on plate II, and the assay results are shown in Table I.

The samples taken in 1955 were noticeably higher in grade than the samples taken during the first examination in 1952; this is probably because the more recent samples were taken from deeper excavations and therefore consisted of less-altered material. Although none of the samples taken in 1955 contained silver, two of the samples taken in 1952 contained 0.5 ounces per ton.

TABLE I

Sample Number	Length	Ounces per Ton Gold	Ounces per Ton Silver	Per Cent Copper	Remarks
7	4 ft	nil	nil	2.97	Samples 7 and 8 were taken from one channel 10 feet long.
8	6	tr	nil	0.91	
9	-	nil	nil	7.82	Random chips from an area measuring 18 feet by 27 feet.
10	-	nil	nil	4.07	Random chips from an area measuring 15 feet by 20 feet.
11	4⅔	0.02	nil	1.96	Samples 11 and 12 were taken from one channel 8⅓ feet long.
12	4⅔	tr	nil	2.57	
13	45	0.02	nil	2.47	Samples 13, 14, and 15 were taken by chipping rock particles at 5-ft intervals along the bottom of a trench for a distance of 155 feet.
14	55	tr	nil	2.20	
15	55	0.02	nil	2.03	
16	5	0.02	nil	3.94	Channel cut from top to bottom of a pit.
17	70	tr	nil	2.25	Sample taken by chipping rock particles at 5-ft intervals along bottom of a trench.

View looking north showing camp site, large stripped area, and two smaller stripped areas west of camp.

Part of camp and large stripped area.

Trench where Sample No. 17 was cut.

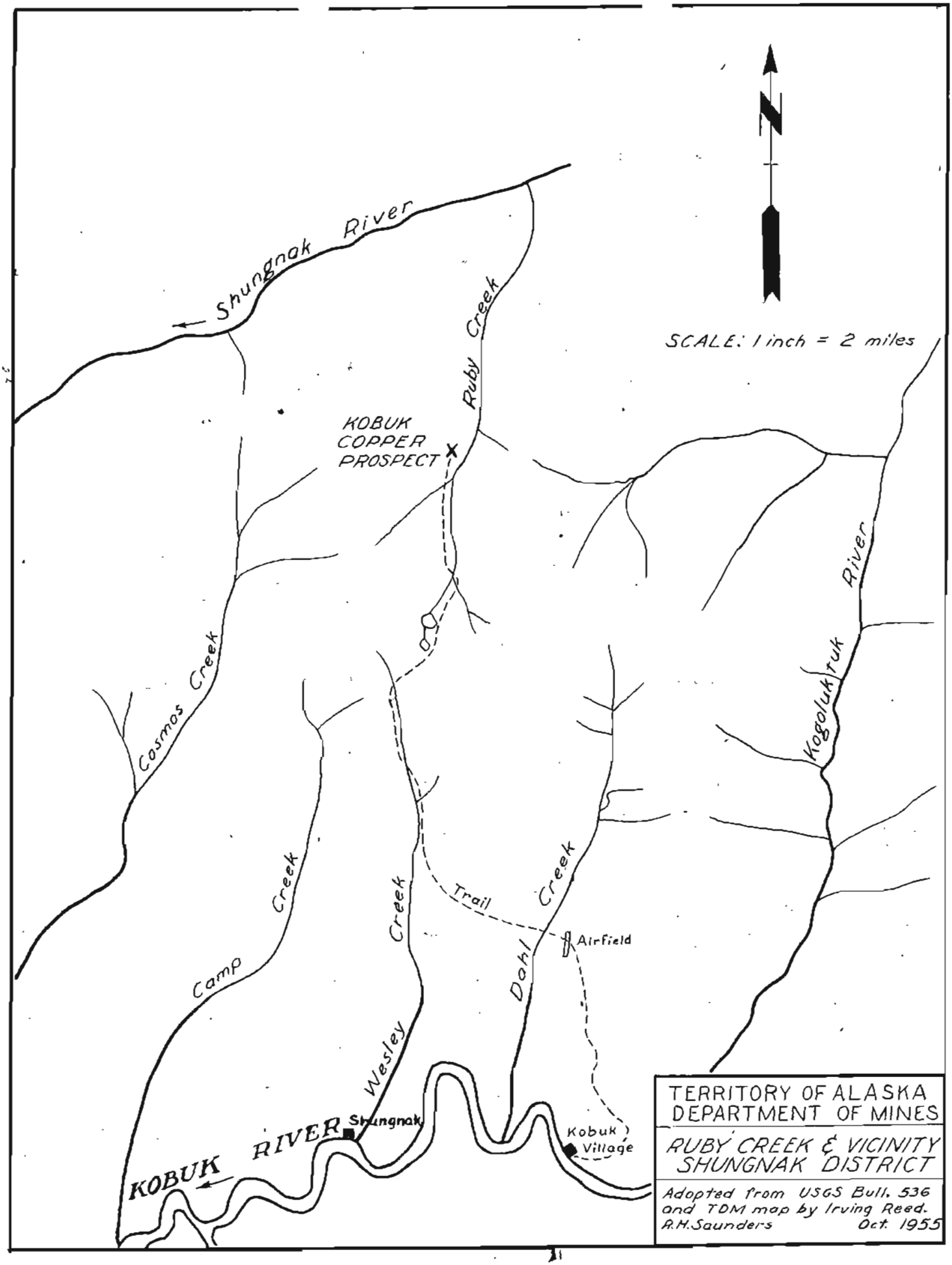
N
SCALE: 1 inch = 2 miles
Shungnak River
Ruby Creek
KOBUK
COPPER
PROSPECT
Cosmos Creek
Kogoluktuk River
Camp Creek
Wesley Creek
Trail
Dahl Creek
Airfield
KOBUK RIVER
Shungnak
Kobuk
Village
TERRITORY OF ALASKA
DEPARTMENT OF MINES
RUBY CREEK & VICINITY
SHUNGNAK DISTRICT
Adopted from USGS Bull. 536
and TDM map by Irving Reed.
R.H. Saunders Oct. 1955

PLATE I

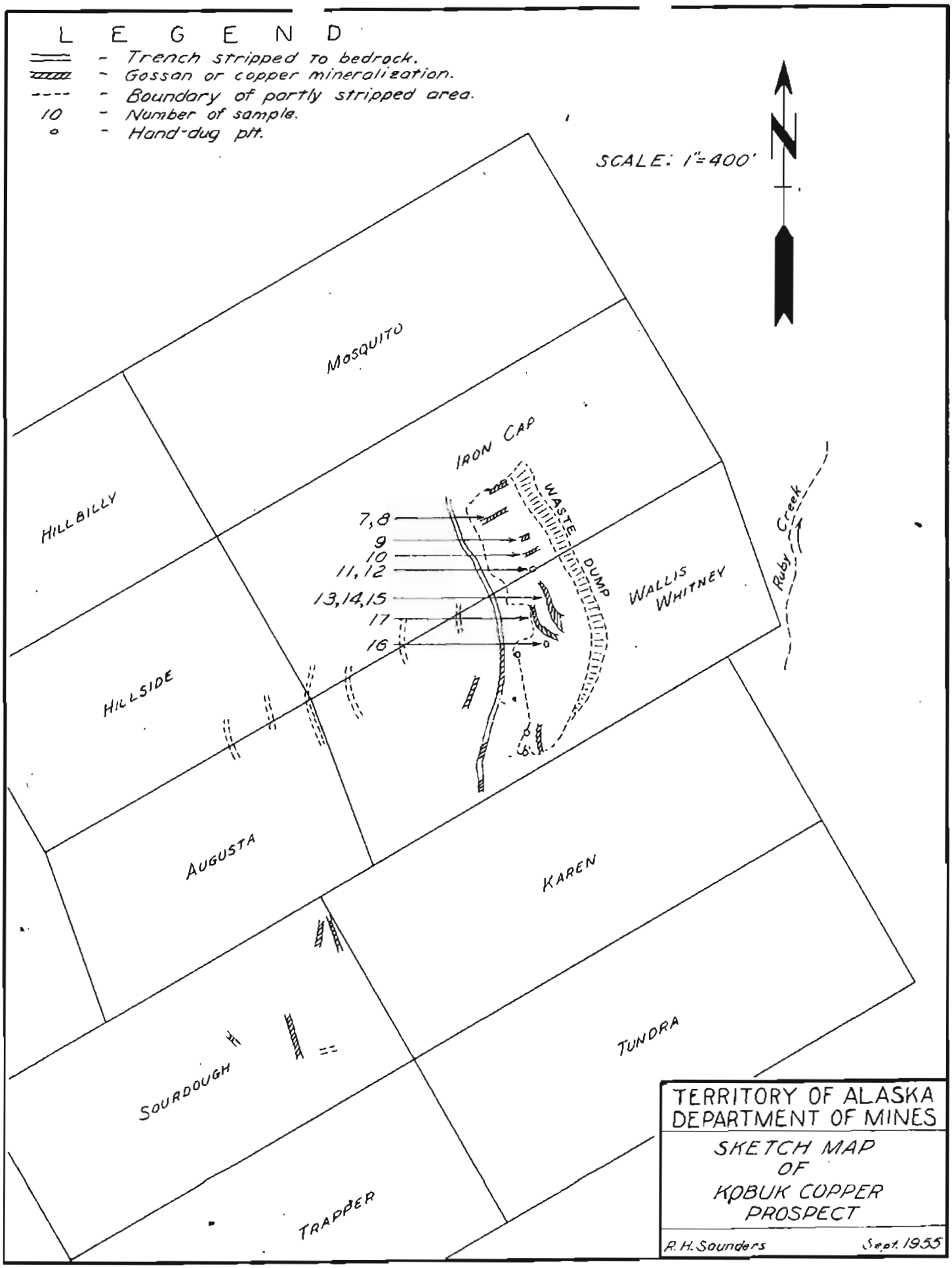
LEGEND
- Trench stripped to bedrock.
- Gossan or copper mineralization.
- Boundary of partly stripped area.
10 - Number of sample.
o - Hand-dug pit.
SCALE: 1"=400'
N
MOSQUITO
IRON CAP
HILLBILLY
HILLSIDE
AUGUSTA
KAREN
SOURDOUGH
TUNDRA
TRAPPER
WALLIS WHITNEY
WASTE DUMP
Ruby Creek
7,8
9
10
11,12
13,14,15
17
16
TERRITORY OF ALASKA
DEPARTMENT OF MINES
SKETCH MAP
OF
KOBUK COPPER
PROSPECT
R. H. Saunders
Sept. 1955

PLATE II