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COOK PROPERTY

JEFFERSON COUNTY, COLORADO

by

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and
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COOK PROPERTY
JEFFERSON COUNTY, COLORADO

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Abstract

The Cook property, owned by H. E. Cook and son of Denver, Colorado, is in sec. 10, T. 7 S., R. 70 W., Jefferson County, Colorado. It was examined for radioactivity in June 1949. Radiometric traverses were made of the surface exposures and mine workings.

The mine workings consist of a 150-foot inclined shaft; about 230 feet of side workings on three levels; three adits totaling 170 feet in length; and three shallow prospect pits.

Pyrite, chalcopyrite, sphalerite, and galena occur in lenses of schist near the contact of pre-Cambrian Pikes Peak granite and Idaho Springs schist. Malachite and azurite occur in fractures in a fine-grained granite dike that is followed by two of the adits.

The radioactivity measured on the property did not exceed twice the average background; therefore, this deposit is not considered a possible source of uranium.

Introduction

The Cook property, in Jefferson County about 18 miles southwest of Denver, is about 2 miles north of Foxton, Colorado (fig. 1). The

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Figure 1.--Index map showing the location of the Cook property, Jefferson County, Colorado

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workings are about a quarter of a mile east of Kennedy Gulch (Casto Creek) in sec. 10, T. 7 S., R. 70 W.

The property consists of three unpatented claims owned by H. E. Cook and his son of Denver, Colorado. H. C. Granger and E. P. Beroni spent approximately three-fourths of a day on the property on June 1, 1949. On June 19, 1949, R. U. King spent part of a day at the property.

This examination, which had been requested by an interested party in February 1948, was made in connection with the general reconnaissance of the Front Range area now in progress. During this more general investigation it was deemed advisable for comparative purposes to examine some mineral deposits irrespective of whether or not they were expected to be radioactive.

Development

The Cook property mine workings consist of a shaft, three short adits, and three prospect pits (fig. 2). The 150-foot shaft is

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Figure 2.--Sketch map of mine workings, Cook property, Jefferson County, Colorado

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inclined at 30° - 35° to the northeast. The main level, at the base of the shaft, extends about 127 feet to the northwest and 30 to 40 feet to the southeast. Several areas have been stoped above this level. Two stopes have been made in the hanging wall of the shaft, and two short crooked levels and several shallow prospects are cut in the sides of the shaft.

About 25 feet south of the shaft are two adits. Adit A trends northeast for 20 feet and now serves as a forge room. Adit B extends S. 30° E. for about 45 feet along a nearly vertical, brecciated, granitic dike, then is inclined for 60 feet or more S. 70° E. At the time of the examination, development was underway at the top of the incline, just beyond the turn, where a drift was being driven northward. Fifty feet south of these adits another 20-foot adit (Adit C) also follows the granitic dike.

Three shallow pits, 150 to 225 feet west of the shaft, are approximately 30 feet apart and are not over 10 feet deep.

Geology

The Cook property is probably near the contact between pre-Cambrian Idaho Springs schist and Pikes Peak granite. The granitic rock was intruded, lit-par-lit, as thin layers or lenses along and across the schistosity to form an injection gneiss. This injection gneiss forms the wall rock of the mineral deposit.

The granite layers and lenses have a granitic to pegmatitic texture, and are generally pink to red in color because of the abundance of potash feldspar. Thin lenses of biotite are oriented parallel to the walls of the granitic layers.

The schist layers and lenses in the gneiss are usually dark colored and consist of biotite-rich and amphibole-rich beds. The schist consists of quartz, biotite, feldspar, chlorite, and the calcic amphiboles: hornblende, tremolite-actinolite, and anthophyllite.

The sulfide minerals are most abundant in ~~the~~ lenses of schist containing biotite and amphibole. Pyrite and chalcopyrite, occasionally stained by covellite, are the most common sulfides. Sphalerite and galena were seen in several places in Adit B.

The injection gneiss has an average strike of N. 65° W. and dips 25° - 45° NE. The inclined shaft follows the dip of the gneiss and, from a depth of 75 feet to the bottom, follows a vertical vein that strikes N. 45° E. The vein structure has a maximum thickness of six inches, but, in places between pegmatitic lenses, is only a fracture. It contains a soft, moist, iron-stained mass of quartz grains and clay minerals.

The owner, Mr. Cook, stated that wide fractures containing large galena crystals have been found in a stope above the south-east drift on the third level. These were not exposed at the time of the examination.

The granite dike followed by two of the adits (fig. 2) is from six inches to six feet thick and consists mainly of iron-stained pink potash feldspar and quartz. It strikes N. 30° W., dips 85° NE., and has been minutely fractured and later healed with iron oxides. Malachite and azurite occur in small quantities in and near this dike.

Malachite and azurite are exposed in the three prospect pits in the west part of the property. The east pit is ten feet deep and exposes a flat dipping vein which ranges in thickness from one-half inch to two inches, and strikes northwest parallel to the schistosity.

The vein filling consists of a soft iron-stained mass of quartz grains, clay minerals, and altered biotite. Some pyrite was seen in the widest part of the vein. Efflorescent brochantite is present on the walls. The other two prospects display fractures in the granite that are stained by azurite and malachite.

It is probable that supergene enrichment from primary copper minerals has resulted in the development of malachite, azurite, and brochantite in the near surface deposit. The owner stated that the first ore taken from the shaft ran 200 ounces in silver, and since similar ore was not encountered at depth, it appears likely that silver was also enriched in the upper part of the vein.

According to Mr. Cook, the assay made in 1949 indicated a value of $40 to $69 per ton. Zinc and copper, the main constituents of the ore, assayed 15 per cent each in the better samples. These assays probably represent the highest grade ore and are not representative. Without further study it is impossible to state whether these sulfides are of pre-Cambrian age or of more recent origin.

Radioactivity

The mine workings on the Cook property were carefully tested for radioactivity with an El-Tronics Geiger counter, but the rate meter readings did not exceed twice the average background. This difference is no greater than might normally be expected within rocks of the type found in this area. The background at the surface averaged 4 to 5 scale divisions on the 0.2 milliroentgens per hour scale. In the workings it was slightly lower.

Recommendations

The absence of radioactive minerals eliminates this property as a possible source of uranium. However, the mineral assemblage of the Cook deposit is similar to the assemblages observed at other deposits containing uranium. Therefore, it may be desirable in the future to restudy the mineralogy of this property in order to compare or contrast it with the uranium-bearing deposits of the Colorado Front Range.

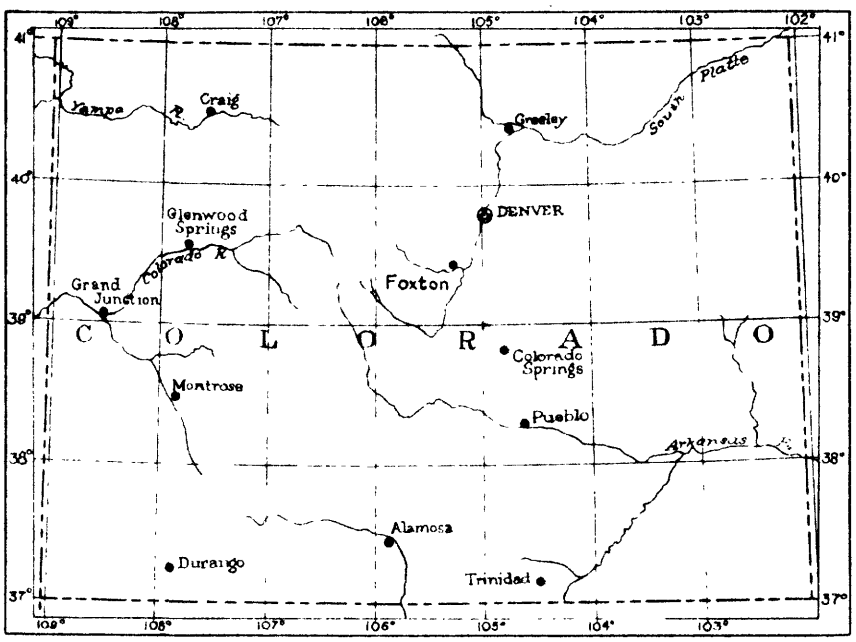

FIGURE 1.--INDEX MAP SHOWING THE LOCATION OF FOXTON, JEFFERSON COUNTY, COLORADO

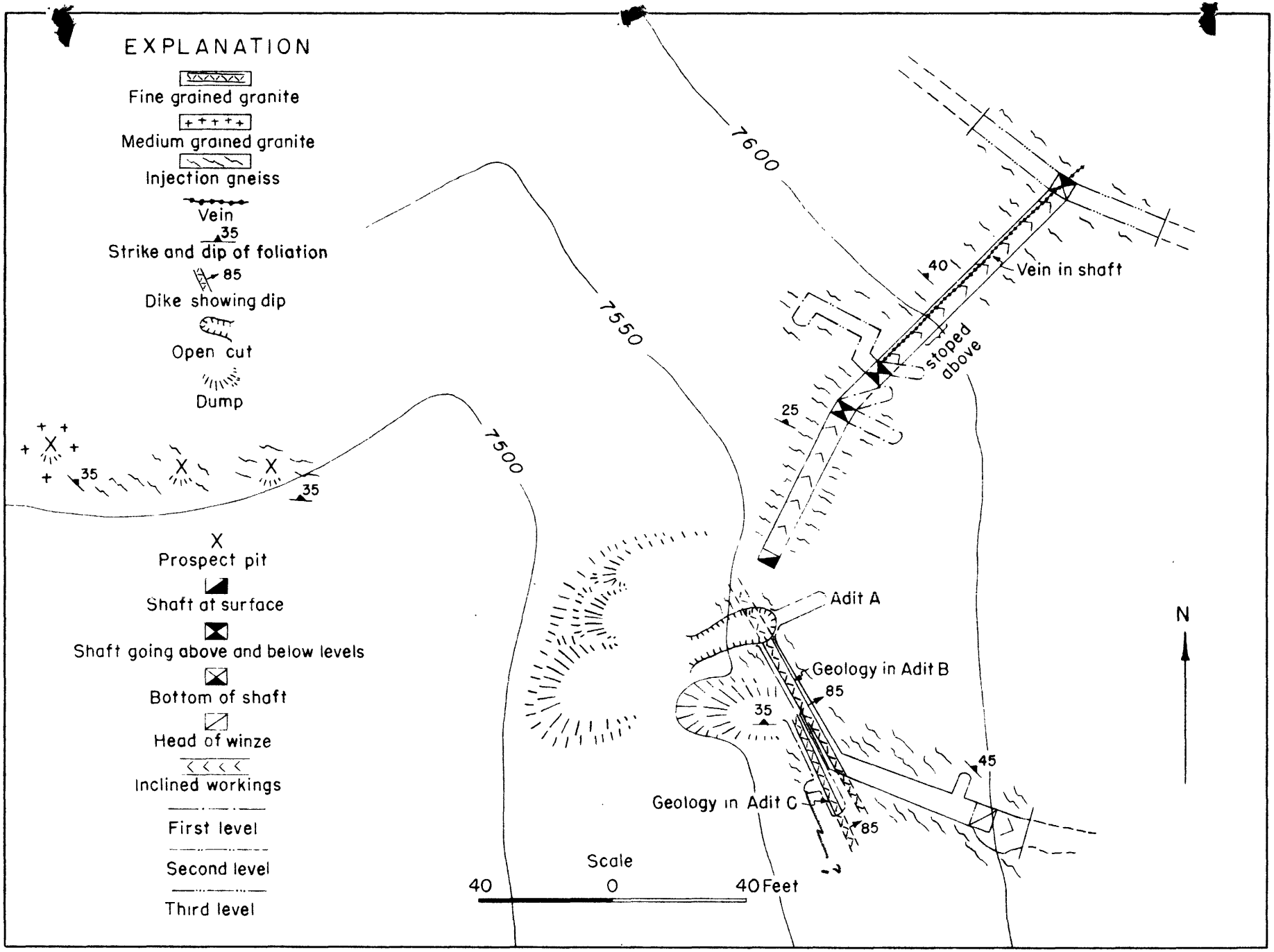

FIGURE 2.--SKETCH MAP OF MINE WORKINGS, COOK PROPERTY, JEFFERSON COUNTY, COLORADO