UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

A RADIOMETRIC TRAVERSE AT THE APEX CLAIMS (BATES CREEK) GILPIN COUNTY, COLORADO

by

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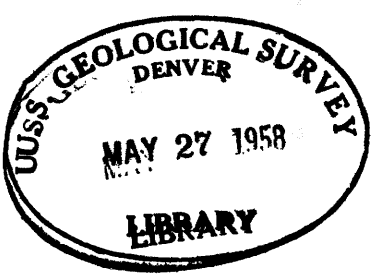

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Abstract

A radiometric traverse was made of rocks exposed along Bates Creek and on the Apex claims, Gilpin County, Colo., in May 1949, as a result of a report of high radioactivity at the claims.

Pre-Cambrian gneiss, schist, and pegmatite have been examined. None of them showed radioactivity significantly higher than background.

In the course of the traverse radioactivity increased as altitude increased, and appeared to vary because of the topographic location of radiometric stations.

Introduction

The Apex claims, sec. 25, T. 3 S., R. 72 W., Gilpin County, Colo., (fig. 1) consist of four unpatented claims owned by Mr. R. W. Carroll and Mr. Ivar Jordin of Denver, Colo. The claims may be reached by a quarter of a mile of trail from Colorado Highway 119.

The property was brought to the attention of the Geological Survey by Messrs. Carroll and Jordin and by Mr. J. P. Wood, a prospective purchaser of the claims; the owners reported that abnormal radioactivity was noted during a radiometric traverse of the property.

Accordingly in May 1949, R. U. King of the Geological Survey, Mr. Carroll, Mr. Jordin, and Mr. Wood made an examination of two of the four claims, the Apex No. 1, and the Apex No. 1-A claims. The examination consisted of a radiometric traverse up the Bates Creek draw from Colorado Highway 119, north across Apex No. 1 claim and west across Apex No. 1-A claim (fig. 1).

Geology

The rocks exposed in the Apex No. 1 and Apex No. 1-A claims are chiefly pre-Cambrian granite gneiss and biotite schist, and subordinately hornblendite, granitic pegmatite, quartz pegmatite, aplite, and sillimanite schist in small scattered bodies.

Banding in the granite gneiss and cleavage in the biotite schist are essentially parallel, strike roughly east, and dip 40°-50° N. The pegmatite bodies are generally parallel to the schistosity and banding. The largest pegmatite is approximately 50 feet wide and 300 feet long.

All of the rocks exposed are unweathered with the exception of the biotite schist which locally is moderately weathered.

Radioactivity

The radioactivity of the rocks along Bates Creek and on the Apex No. 1-A claim was measured at 10 stations (table 1). Two survey meters were used, an El-Tronics and a Beckman.

Three one-minute gamma-ray counts with the probe five inches from the ground were made at each of the ten stations, and the

average value of the counts was calculated for each station. The radioactivity at station 1 was assumed to be normal for the rocks of the area crossed by the traverse.

Total radioactivity increases irregularly along the traverse from station 1 to station 7, and does not change appreciably from station 7 to station 10 (table 1).

Station 1, at an altitude of approximately 7,000 feet above mean sea level, is on flat ground. Stations 2 through 6 are at the bottom of a V-shaped draw, and stations 7 through 10, at an altitude of approximately 8,000 feet, are on a bare, rounded spur.

Conclusions

None of the rocks crossed by the radiometric traverse are sufficiently radioactive to be of further interest. The increase in radioactivity recorded from station 1 to station 7 is believed to be accounted for by the 1,000-foot increase in altitude from station 1 to station 7, and by the difference in geometry at the stations.

Table 1.--Log of radiometric traverse in vicinity of the Apex claims, sec. 25, T. 3 S., R. 72 W., Gilpin County, Colo.

Station	Average c/m (gamma)* Beckman	El-Tronics	Location	Geology
1	51	69	Jct. Bates Cr. and north fork Clear Cr. at Colo. Highway 119.	Gneiss and schist.
2	51	61	S. sideline Apex No.1 claim, Bates Cr.	Iron-stained sheeted zone in schist.
3	55	70	200 ft. N. of Sta. 2, along Bates Creek.	Fine-grained schist and gneiss.
4	68	73	Approx. center of Apex No. 1 claim on Bates Creek.	Bed rock covered. Large boulders of granite and granite pegmatites.
5	53	65	At portal of 20 ft. prospect tunnel. Apex No. 1 claim.	Quartz vein in iron-stained sheeted zone in iron-stained schist.
6	78	84	Northeast part of Apex No. 1-A claim in Bates Creek.	Granite pegmatite at north contact.
7	78	90	Prospect pit on hill. North-central part of Apex No. 1-A claim.	Quartz vein in fine-grained schist. Elevation 8,000 ft.
8	64	75	Apex No. 1-A claim. 200 feet south of Sta. No. 7.	Sillimanite schist. Elevation 8,000 ft.
9	61	62	Northwest corner of Apex No. 1-A claim.	Do.
10	73	72	50 feet west of Apex No. 1-A claim.	Aplitic and porphyritic granite. Elevation 8,000 ft.
11	50	60	Jct. Bates Cr. and north fork Clear Cr. Check at end of traverse.	Elevation 7,000 ft.

* Average counts per minute of 3 consecutive one-minute counts; gamma-ray only, and probe 5 inches from ground.

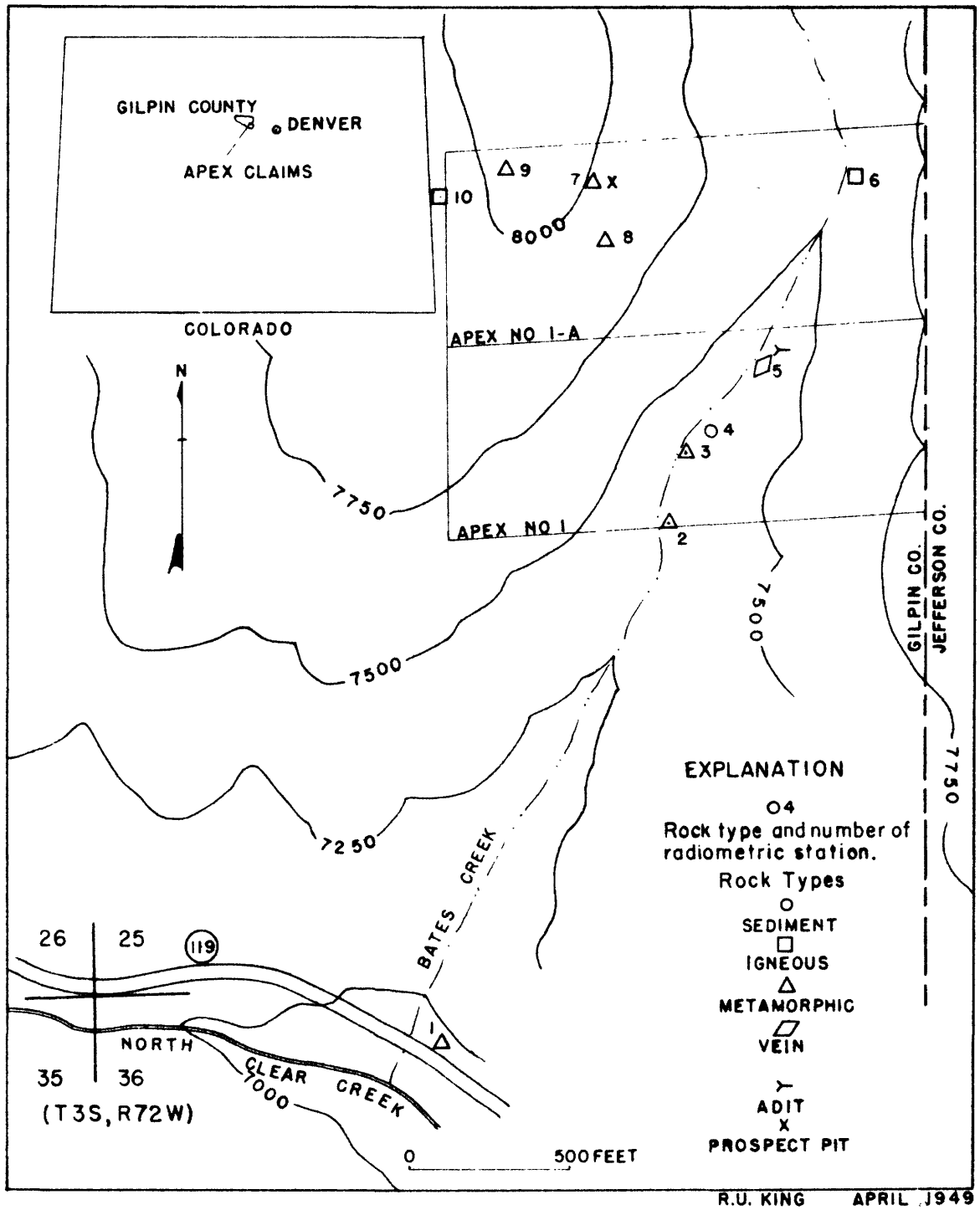

FIGURE 1.— MAP SHOWING THE LOCATION OF THE APEX CLAIMS, GILPIN COUNTY, COLORADO, AND STATIONS ON THE RADIOMETRIC TRAVERSE.