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DEPARTMENT OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

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REPORT OF INSPECTION OF RADIOMETRIC ANOMALIES IN
MOUNT ISA MINERAL FIELD, DETECTED BY B.M.R.
AIRBORNE SURVEY, 1958.

by

E. K. Carter

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Summary. Nine areas of anomaly were inspected during May and June 1959. Six are in Precambrian rocks and three in Middle Cambrian sediments. In each case anomalies were detected on the ground but in none were uranium minerals recognised or lode structures found. All are too low grade to warrant further work. The highest reading obtained was six to seven times background, over a few square feet.

Anomalies Nos. 1-4 (Nos. 6-9 on published map of anomalies)

(Note: Numbers of anomalies here given are those taken from the Geophysical Section airphotographs. It has been observed that a different system of numbering is used on the proof copy of the radiometric anomaly map, for publication.)

Locality. Urandangi/Run 15/Photo B5352. 6 miles west-south-west of Rufus Bore, on Rufus Creek.

Inspected. 27th May 1959.

These four anomalies occur in rough terrain, with a well-exposed migmatitic suite of rocks mapped as Eastern Creek Volcanics. The rocks consist of interlayered quartzo-feldspathic rocks, some with granitic texture, and dark basic rocks. Numerous lit-par-lit granitic and pegmatitic veinlets, and irregular quartz veins, occur.

The general radiometric background reading of the quartzo-feldspathic rocks is about twice that of the basic rocks, and local higher readings were obtained. In no case of local anomaly was a lode or controlling structure recognised. As a maximum count of 6 to 7 X background was obtained in one place it is thought that some uranium - or thorium-bearing mineral may be present but none could be identified.

Anomaly No. 1 is thought to be due to a mass effect from the quartzo-feldspathic rocks as no reading exceeded 4 X background and only a few spot sources exceeded 2 X background.

Anomalies No. 2 and 3. Similar to Anomaly No. 1. Highest readings, in granitic rocks, were about 3 X background.

Anomaly No. 4 is centred on a sharp pinnacle which rises very abruptly at least 100 ft. above the surrounding country. On top of the peak the highest reading obtained (about 3 X background) was in a very weakly ferruginous minor shear or joint. On a spur at the south of the peak a granitic rock, and an adjoining glassy quartz vein, gave a reading of 6 or 7 X background, over a few square feet. (Specimen 3746). These "hot spots" would account for the anomaly, which may have been accentuated by the height of the pinnacle.

Anomalies Nos. 5-7 (Nos. 3-5 on published map of anomalies)

Locality. Urandangi/Run 11A/Photo M5008. 8-10 miles south-east of Ardmore homestead.

Inspected: 16 & 17th June 1959.

These three anomalies all occur on hillsides with outcrops or rubble of Middle Cambrian, almost flat-lying, sediments. Each anomaly was found to be traceable to a grey, weathered, feldspathic, and possibly limey, sandstone which overlies a black-and-white banded chert. The bed generally gives readings of 2 to 3 X background but points were found where instruments read up to 5 X background. The bed is probably not more than 2-3 ft. thick. No radioactive mineral was detected. Although rather porous, and leached, transported fragments of the bed retain radioactivity.

Anomaly No. 5³ occurs on a gentle east-facing slope with practically no outcrop. Highest readings obtained were about 3 X background in areas of abundant grey feldspathic sandstone rubble. Lesser anomalous readings were obtained from "shed"

↓
Anomaly No. 6 occurs on the north-west slope, or flank, of a flat-topped hill of nearly horizontal Middle Cambrian strata. The radioactive bed crops out in many places and the line of outcrop coincided fairly closely with the "uphill" side of the anomaly. Best readings obtained were 4 to 5 X background.

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Anomaly No. 7 is due to the same bed cropping out on the eastern flank of the siliceous-billy-capped hill referred to under Anomaly No. 6. Highest reading obtained on the feldspathic sandstone bed was 4 to 5 X background.

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Anomalies Nos. 8 & 9 (Nos. 1 and 2 on published map of anomalies)

Locality: Duchess/Run 8/Photo 5171, $\frac{3}{4}$ to 1 mile north of Butru railway siding.

Inspected: 26th May 1959.

The two anomalies occur in quartz-mica schist which crops out in an extensively soil-covered plain and forms a ridge which rises about 100 ft above the plain. The schist gives readings of 1 to $2\frac{1}{2}$ counts per second, compared with less than 1 c/sec. in the soil. There are numerous, non-radioactive, quartz stringers and veins in the schist.

It is difficult to account for the anomalies as no "hot spots" were found. Anomaly 8 lies athwart a ridge 60-80 feet high, but the ridge rises higher to the north of the anomaly. Anomaly 9 is in fair outcrop, only about 20 feet above the level of the adjoining soil-covered plain.