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RB 38/18

DEPARTMENT OF MINES.

SOUTH AUSTRALIA.

REPORT NO. M.I. 19/54 - - D.M. 873/54.

T.P. 109.

REPORT ON RADIOACTIVE OCCURRENCES - - -
MIDDLEBACK RANGES.

by

B. P. WEBB

Geologist

Accompanying Plan No. U.S. 377.

DEPARTMENT OF MINES.

SOUTH AUSTRALIA.

REPORT ON RADIOACTIVE OCCURRENCES, MIDDLEBACK RANGES.

I. INTRODUCTION

Following the discovery of radioactivity by the Broken Hill Proprietary Coy. Ltd. at three locations on their leases at the Iron Prince, an inspection of the area was made with Dr. K.R. Miles and Company geologists on July 29. Radiometric assays of several samples of the material indicate that radioactivity is due mainly to presence of Thorium.

II. LOCATION

The occurrences are located on Mineral Leases Nos. 2388, 2389, 2391, at the Iron Prince in the Middleback Ranges, as shown on the accompanying plan U.S. 377 as No. 1, No. 2, and No. 3 Prospects.

III. GEOLOGY

The occurrences are all in Pre-Cambrian rocks belonging to the Gneissic Complex below the Middleback Group. The particular rocks concerned are mainly quartzites and phyllites. At the No. 1 Prospect radioactivity appears to be confined mainly to a grit horizon. At the No. 3 prospect radioactivity occurs in residual soil, as well as in the underlying bedrock.

Samples of radioactive material from the three prospects have been submitted to the petrologist for examination and identification of the radioactive mineral.

IV. RADIOACTIVITY.

In each case the area of surface radioactivity is very

limited, and significantly high counts occur at only a few points. Details of radioactive assays of samples submitted by the Broken Hill Proprietary Coy. Ltd. are listed below:-

	Sample No.	Estimated content % U_3O_8	Estimated content % ThO_2
No. 1 Prospect	G114/54	less than 0.01	0.36
	G115/54	0.02	0.26
No. 2 Prospect	G116/54	less than 0.01	0.08
	G117/54	" " 0.01	0.17
	G118/54	" " 0.01	0.25
	G119/54	0.01	0.28
	G120/54	0.01	0.20
No. 3 Prospect	G121/54	less than 0.01	0.16
	G122/54	" " 0.01	0.28
	G 123/54	" " 0.01	0.1
	G124/54	" " 0.01	0.31
	G125/54	" " 0.01	0.48
	G126/54	0.02	0.42
	G127/54	less than 0.01	0.98

These results indicate that radioactivity is due to presence of a thorium mineral.

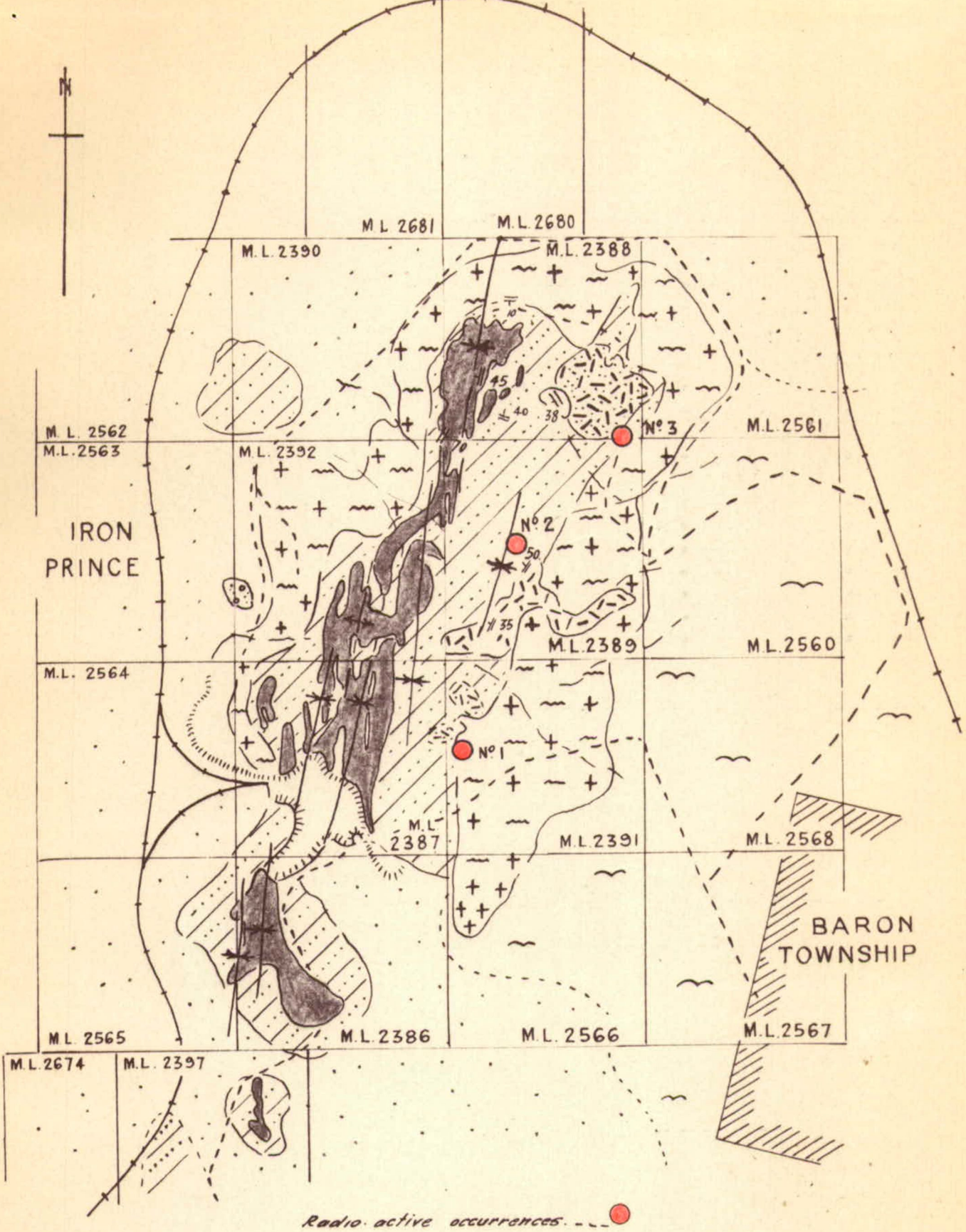
V. CONCLUSION

Radioactivity in each of the occurrences is due to presence of thorium present in amounts up to about 1%.

Bruce P. Webb.

(BRUCE P. WEBB)
GEOLOGIST

BPW:AGK
4/8/54.



CAINOZOIC
TERTIARY - RECENT

Dune sand ____ Sand & alluvium ___ Lateritic gravel ___

MIDDLE PRE-CAMBRIAN (ARCHAEAN)

Lower Middleback Quartzite: banded hematite & magnetite quartzite & interbedded schists. _____

Gneissic complex; sedimentary schists, quartzite, phyllite, migmatite, lit-par-lit gneiss, granitic gneiss & gneissic granite.

IGNEOUS ROCKS

Dolerite - amphibolite ____ Hematite ore _____

Geology by K. R. Miles.

To accompany report by B. Webb, Geologist.

S.A. DEPARTMENT OF MINES					
Approved	Passed	Drn.	RADIO-ACTIVE OCCURRENCES IRON PRINCE	D.M.	Scale 14 Chns to 1 in.
		Tcd.		Req.	US - 377
Director	C.D.	Ckd.			Date 3-8-54 2.
		Exd.			