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URANIUM DEPOSITS AT ROSSARDEN

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Camberwell, E.6.

Victoria.

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H O B A R T.

Dear Sir,

The following is my report on the Uranium deposit at Rossarden, Tasmania, which in lack of a pronounceable name I have called the "Find".

I was accompanied to the area by Mr.T.D. Hughes, Government Geologist, who afforded great assistance. In addition I have consulted all governmental reports and the airborne scintillograph survey of the district made by the Bureau of Mineral Resources.

#### LOCATION.

The "Find" is situated about 2 miles South of Rossarden and 15 miles from the railway at Avoca; by airline; it is not more than 6 miles from Avoca.

The Mines Department has cut a truck track from Rossarden which is rough but negotiable in all weathers.

#### TOPOGRAPHY

The country rock consists of coarse grained potash bearing granite through which Storeys Creek has cut a gorge-like valley some hundreds of feet deep. The area is open forest land but the granite has been covered to a considerable elevation by a heavy blanket of compacted scree and boulders which may exceed 10 ft in thickness. In consequence ordinary "geiger" surveying is completely unreliable; and, until fairly accurate orientation of the orebody has been effected systematic costeaning will not be advisable.

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The granite block contouring the Western bank of the Creek is shown by the scintillograph survey to be an enormous first class anomaly about 4 miles wide and extending from the railway in the South to the Cambrian rocks at Storey's Creek township. It has been caused by extensive segregation of potash with probably some concentration of radio-active metals - such concentrations may be connected with vein filling but, at present, this anomaly appears to have no special significance apart from specific warning against exuberance with the geiger counter.

#### OREBODY.

Structure. The orebody has been located at one point only on the eastern margin of Storey's Creek and consists of black lode filling in a shear zone which will probably vary considerably in strike, dip and thickness.

A prospecting cut has uncovered 5 ft long by 6 ft of a lode 6 inches thick and dipping into the hillside at about 10 degrees. On this inadequate base a tentative estimate of strike (see plan) is accurate enough to show that extension of the outcrop will be masked by the scree blanket. On the other hand the possible error of over 10 degrees would stultify accurate location of the outcrop at any distance from the cut.

Ore. At the outcrop the valuable minerals consisted chiefly of Uranium ochre with considerable torbernite and autunite and lesser amounts of other Uranium minerals - primary minerals appear to have been absent.

Within a few feet the orebody became a defined black lode with "free" walls; and consisted of a quartz-sericite ground mass with quartz, biotite and a high percentage of Sulphides of various base metals. The uranium minerals has been identified as pitchblende but a very small proportion of secondary minerals are still visible. Thorium appears to be absent.

Physically the ore is chiefly cellular and earthy appear-

ance indicating considerable leaching. About one third of the orebody however is massive and crystalline, and appears to be unleached material which will constitute the whole orebody in depth.

### SAMPLING

The following are the results of chemical assays of samples taken from the deposit:-

Sample No.	Date 1956	Taken by	Assay %		REMARKS.
			U <sub>3</sub> O <sub>8</sub>	Tn O <sub>2</sub>	
1.	Feb.	Syndicate	2.2	-	1 cwt sample-first sample from Block Ore.
2.		"	3.4	-	14 lb-for metallurgical test Launceston.
3.		"	3.9	-	120 lb. Leaching test - Adelaide. Note the progressive increase from outcrop.
4.	Sept.	Coldham	2.7	Nil	Trenched along side of vein-all cellular.
5.		"	2.7	Nil	Cellular Ore-similar to 4. (see below).
6.		"	8.8	Nil	Massive Ore. (see below).
7.	March	Assayer	13.6	Nil	" " " "
8.	Sept.	Coldham	0.03	-	9" Pink granite above vein.
9.		"	0.01	-	36" Grey granite above No.8.
10.		"	0.04	-	Red granite below vein.

No. 6 & 7 samples represent the massive portion of a bulk parcel forwarded by the syndicate to the Mines Department, Launceston, for a metallurgical test which was not carried out. The Launceston assayer probably picked the most massive part of the parcel, leaving the somewhat more leached material to me. No. 5. was a sample of the earthy portion of the parcel and therefore corresponds to No. 4. sample.

The inference from these samples is that, when development reaches the zone of minimum leaching, values may be so high that a very small output would be profitable. On the other hand optimism should be moderated until the extent of the orebody has

been determined.

The last 3 samples indicate impregnation of the granite outward from the vein. As the "value-in-ore" of Nos. 8 and 10. are 25/- and 32/- per ton respectively they would increase the value of the run-of-mine product if, as seems probable, the orebody can be mined selectively.

The absence of Thorium is considered to be a favourable indication.

#### RECOMMENDATION

The orebody has some features of location and mineralization which have enjoined caution in making a recommendation.

On the other hand, although the vein is narrow, this single exposure is no criterion whatever of its average thickness, and, even so, its economic value is largely dependent upon other factors.

As secondary enrichment is almost certainly absent, the inference from sampling is that a very high grade orebody is to be expected below the zone of leaching. Furthermore the physical nature of both wallrock and orebody should enable fairly close selective mining with run-of-mine values profitable even if the extent of the orebody did not warrant the cost of a treatment plant. Therefore it is recommended that testing of the orebody should be undertaken in several stages which are discussed hereunder.

#### TESTING

Stage.1. In view of the present lack of knowledge of the deposit the first stage of testing must be developed from the only known outcrop outwards not only to show continuity of the lode but, what is equally important, to gather sufficient data to determine its orientation in order to enable a project for the second stage.

It is recommended that, on the East side of the Creek, 3 bore-holes should be sunk from the roadway as this would avoid the cost of site preparation. The first borehole (as shown on the plan), is at minimum

distance from the cut and the others would be spaced at (say) 100 ft intervals. The average depth would be about 60 ft and the distance from the cut about 60 ft.

On the West side of the Creek a long costean should be cut in the Line Borehole No.1. - cut and placed aside the projection of dip as shown in the cut (see plan).

If this costean is successful one or two shorter costeans would be advisable.

If this stage does not give satisfactory results the option should be terminated.

This stage should be completed within 6 weeks from commencement and cost less than £1000.

Stage.2. If further testing is warranted the area should be accurately surveyed and contour plans prepared to orient the orebody and determine stage 2. as follows:-

Eastern bank. Continuation of first bore line for say 500 ft and boring of a second further up the hillside. This line might have 4 boreholes covering the full length of the first line.

Costeaning would be necessary at this stage to determine the outcrop over say 800 ft of length. On the Western side contour costeaning should be extended progressively and several short tunnels should be driven on the orebody until primary conditions are obtained.

One tunnel is essential in order to establish the degree to which selective mining is practicable.

Immediate diamond drilling on this side of the Creek, on account of the high cost of site preparation, is not recommended, but it may be found necessary later.

Extension of this stage may be required but the work should not exceed £10000. Some of the preliminary stage would have to be completed before an exact estimate of this stage is possible.

Stage.3. This would consist of mine development which is  
outside the scope of this report.

(Sgd.) J.C.Coldham

J.C. Coldham. B.E. MAIMM.

26th September. 1956.

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Having scanned the impressive project plan supplied to me and absorbed the wisdom of various members of the Syndicate some notes on Costeaning may be seasonable.

Costeaning may be defined as trenching through overburden to bedrock to locate and examine the outcrop of an orebody and determine its general characteristics. Costeans must be cut roughly at right angles to the general strike, which for efficiency requires some indication of strike. Incidentally the project plan shows all costeans parallel to the strike, they could not be expected to be of any use.

True strike is the "trace" of an outcrop on a horizontal plane. Visible strike is what will be seen at surface and this may diverge widely and variably from true strike in steep and rugged country. If the orebody consists of a vertical shear the visible strike will be essentially straight in any type of country, and any outcrop will be part of a definite line which can be used to minimise the length, and cost, of successive costeans.

In the present case the disclosed outcrop shows as a flat plate which inclines very flatly downward from Westerly to Easterly. No direct evidence of strike is available and the tentative line shown on the plan (report) has been estimated by judging the maximum dip over this inadequate area and taking a line at right angles to it. The fact that several people are more or less agreed on this line is no criterion whatever even of its approximate accuracy.

Furthermore it is almost certain that, in addition to the dip, there will be a Northerly - Southerly tilt (pitch) but in which direction and to what degree it is, at present, impossible to determine, although, some indirect evidence from Ostles water survey vaguely suggests that the tilt is upward towards the North.

Again with a very flat orebody, even if it consists of a true plane, the visible outcrop, of the East side of the creek especially, might be almost anywhere. Therefore in costeaning blindly as an essential part of Stage.1. a wasteful length would be required and even where outcrops are discovered considerable

work would still be necessary in removing the oxidized portion of the orebody.

The cost of this work as part of Stage.1. cannot be estimated; but, if the scree blanket is deep and "speckled" with boulders, it would probably cost more than drilling and certainly afford less valuable data.

One location at which immediate costeaning would be valuable is on the Western hillside immediately opposite the Cut.

