

Report on
Prospect No. 1
SOUTH IRON QUEEN SOUTH AREA
MIDDLEBACK RANGE NORTH DISTRICTS.

by
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<u>Plan Ref.</u>	<u>Title</u>	<u>Scale</u>
57/116 (not attached)	M'back Ranges North South Queen Sth. Geological Plan North Sheet	100' = 1"
S 1322	Sth Iron Queen Sth Prospect No.1	100' = 1"

MICROFILMED

Report on

Prospect No.1

SOUTH IRON QUEEN SOUTH AREA

MIDDLEBACK RANGE NORTH DISTRICTS

ABSTRACT

A small area of coarse hematite floaters was tested by scout boring to determine the origin of the hematite. The boring proved the material to be a scree deposit probably from an eroded ore body further up the slope to the north of Prospect No.2.

1. INTRODUCTION

The above prospect is one of a number submitted by the writer as a result of surface prospecting through the Middleback Ranges.

Approximately one mile south of the Broken Hill Proprietary Company's Iron Queen South Leases a concentration of blue hematite floaters was located. The floaters are on a low rise near the foot of a scree slope extending from the hematite quartzite ridge to the west (See Map S 1324 attached)

2. GEOLOGY

The concentration of floaters and the area immediately surrounding was mapped, (Map attached) The low rise is capped with loam and odd 2" - 3" floaters, no outcrop being evident in the zone of interest. The size of the hematite floaters in the shaded area on the map ranges up to 6" and occasionally 1 foot in size suggesting they have not travelled very far. The intense concentration in this one narrow area further suggests a concealed outcrop not far below the present surface.

A pit was sunk 2' approximately without striking solid hematite, although the concentration of hematite in the scree was in excess of 50%. As the presence of a travertine layer made the sinking of the pit too hard for hand tools, a small programme using the Scout Percussion Drill was laid out to ascertain the nature of the bedrock below the float material.

The only outcrop evident is a small area of basement

(Archaean) complex in the creek bed to the south of the prospect. This forms the northern most trace of the pink quartzitic schist found over a considerable area to the south. The surface is dipping to the east at about $8^{\circ} - 10^{\circ}$. This surface is overlain by about 3' - 5' of coarse cemented hematite scree, which in turn is overlain by a cemented hematite-quartzite scree.

The red clay schist outcropping? on the track may only be red schist recemented in travertine.

3. SCOUT PERCUSSION BORING

Initially 6 holes, each with a projected depth of 25 feet, were laid out. As the drilling progressed it became evident PSB No. 2 & 6 were not placed to the best advantage. These holes were replaced by PSB's 7 & 8, 25' either side of PSB1.

As can be seen from the attached plan (S/322) the holes were laid out in the form of a cross to test along the supposed strike of the underlying formations as well as across it.

The six holes totalling 205' of boring were put down in 4 weeks at a cost of £378. This cost is somewhat higher than expected. It was contributed to by

- (1) Change of drillers, after having trained one man he was replaced after 3 weeks on the job.
- (2) Repeated plant break downs (These have not been as frequent with the second driller or subsequent projects). Time lost through these break downs is equivalent to over 20% of drilling time.
- (3) General initial troubles encountered in a new project. Subsequent projects should be less costly.

Unfortunately it was not possible for a geologist to be continually supervising the project. Consequently the driller through no fault of his own stopped certain bores too soon. Subsequent information obtained in PSB5 made it unnecessary to deepen the holes concerned.

4. SUMMARY OF BORING RESULTS

The following tabulation shows the intersections in the Percussion Bores.

Hole No.	Total Depth	From	To	Remarks
PSB 1	25'	0	- 25	Hematite scree
PSB 2	Not drilled			
PSB 3	30'	0	- 26'	Hematite scree
		26'	- 30'	Flat lying clay rock
PSB 4	40'	0	- 40'	Hematitic alluvium
PSB 5	65'	0	- 26'	Hematite scree
		26'	- 35'	Soft red clay
		35'	- 65'	Pink clay rock
PSB 6	Not drilled			Basement?
PSB 7	25'	0	- 25'	Hematite scree
PSB 8	22'	0	- 6'	Hematite scree
		6'	- 21'	Soft red clay
				vide PSB5 (26'-35')

Note:- These bores were not sunk in numerical order causing blanks in the numbers. In later prospects this has been eliminated.

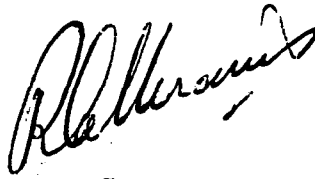
From the above logs it is evident that no appreciable ore reserve can exist on the prospect. PSB's 5 and 8 have penetrated an underlying soft red clay, flat lying, which in turn overlies the basement (penetrated in PSB5) The occurrence of the basement rock in PSB5 indicates the hematitic scree material must have been derived from a point to the west. This is further substantiated by the increasing depth of alluvial material in the more easterly holes. It is now indicated that the surface of the basement rock probably follows the general trend of slope to the east. The soft red clay and alluvium lay unconformably on this surface.

5. CONCLUSION

It is now evident the coarse hematite floaters concentrated on the low rise 1 mile (approx.) south of Iron Queen South Leases (BHP Co. Ltd.) come from a scree deposit. Its origin must have been from an ore body, now wholly or partially eroded, to the

immediate north of Prospect No.2.

Any further work in locating this ore body will be incorporated with the programme approved for evaluating Prospect No.2.

A handwritten signature in dark ink, appearing to read 'R. C. Mirams', written in a cursive style.

R. C. Mirams

RCM:JAH.
11.3.57.

GEOLOGIST

PERCUSSION BORE LOG

MIDDLEBACK RANGE NORTH DISTRICT D.M. 1701/55.
Sth Iron Queen Sth Area.

Bore No. PSB 1

Bore Serial No. 1098/56.

Hundred Ash County York

Plan Reference S7/116

Co-ordinates 5325 'N 7023 'E

R.L. of Collar 375' (Datum assumed)

Vertical Depth

Driller Kubicki

Date Drilling commenced 24/8/56.

Date Drilling completed 28/8/56.

OBJECT:- To ascertain the nature of the bedrock below
an area of hematite float material

RESULT:- Hole did not penetrate bedrock

LOG Comprises Geological Log
Remarks

GEOLOGICAL LOG

<u>From</u>	<u>To</u>	
0"	- 1' 6"	Pebbles of hematite coated with travertine, travertine and loam.
1' 6"	- 12'	Hematite scree, some red schist and red clay.
12'	- 25'	Red clay with up to 40% red schist grit pebbles of hematite and quartz. Not into bedrock.

REMARKS

Borehole stopped by driller as instructed

Radiometrically scanned negative

Borehole logged by L.S.D. & R.C.M.

Log complete

DEPARTMENT OF MINES, ADELAIDE

PERCUSSION BORE LOG

MIDDLEBACK RANGE SOUTH DISTRICT
Sth Iron Queen Sth Area.

D.M. 1701/55.

Bore No. PSB 3

Bore Serial No. PD 1169/56.

Hundred Ash County York

Plan Reference 57/116

Co-ordinates 5350'N 7063'E

R.L. of Collar 375' (datum assumed)

Vertical Depth 30'

Driller Kubicki

Date Drilling commenced 7/9/56.

Date Drilling completed 12/9/56.

OBJECT:- To ascertain the nature of the bedrock
below an area of hematite float material.

RESULT:- Hole did not penetrate bedrock.

LOG Comprises:- Geological Log
Remarks

GEOLOGICAL LOG

<u>From</u>	<u>To</u>	
0"	- 3'	Travertine, ironstone etc. pebbles in loam.
3'	- 14'	Red clay, 40% grit of hematite, quartz, and red schist.
14'	- 29'	as 3 - 14, 20 - 30% hematite grit.
29'	- 30'	<u>Core:-</u> Red clay and hematite pebbles.

Alluvium, possibly older series vide PSB 5 & 8.
Driller reports change at 26'
Hole not in bedrock.

REMARKS

Borehole stopped by driller as instructed
Radiometrically scanned - negative
Borehole logged by RCM
Log Complete

DEPARTMENT OF MINES, ADELAIDE

PERCUSSION BORE LOG

MIDDLEBACK RANGE NORTH DISTRICT
Sth. Iron Queen Sth Area.

D.M. 1701/55.

Bore No. PSB 4

Bore Serial No. PD 1135/56.

Hundred Ash County York

Plan Reference 57/116

Co-ordinates 5375 'N 7105 'E

R.L. of Collar 375' (datum assumed)

Vertical Depth 40'

Driller Kubicki

Date Drilling commenced 28/8/56.

Date Drilling completed 7/9/56.

OBJECT:- To ascertain the nature of the bedrock
below an area of hematite float material.

RESULT:- Hole did not penetrate bedrock.

LOG Comprises:- Geological Log
Remarks

GEOLOGICAL LOG

<u>From</u>		<u>To</u>	
0'	-	3'	Soil, travertine, and hematite pebbles.
3'	-	23'	Red clay 30 - 40% grit of hematite and red schist.
23'	-	24'	<u>Core:-</u> Red clay with hematite and minor quartz pebbles.
24'	-	39'	Sludge of core above and below
39'	-	40'	<u>Core:-</u> as 23 - 24, Alluvium

Not in bedrock

REMARKS

Borehole stopped by Driller as instructed

Radiometrically scanned - negative

Borehole logged by RCM.

Log Complete

PERCUSSION BORE LOG

MIDDLEBACK RANGE NORTH DISTRICT
South Iron Queen South Area

D.M. 1701/55.

Bore No. PSB 5

Bore Serial No. PD 1215/56.

Hundred Ash County York

Plan Reference 57/116

Co-ordinates 5410'N 6985'E

R.L. of Collar 374' (datum assumed)

Vertical Depth 66'

Driller Farrow

Date Drilling commenced 17/9/56.

Date Drilling completed 21/9/56.

OBJECT:- To ascertain the nature of the bedrock
below an area of hematite float material

RESULT:- Hole penetrated Hematite scree 0 - 26'
Flat lying
clays 26' - 36'?
Basement
complex? 36'? - 66'

LOG Comprises Geological Log
Remarks

GEOLOGICAL LOG

<u>From</u>	<u>To</u>	
0	- 25'	Hematite scree
25'	- 26'	<u>Core:-</u> Pebbles and fragments of blue hematite in red clay matrix.
26'	- 35'	Stiff red clay, 20% grit of hematite.
35'	- 36'	<u>Core:-</u> Mottled red and white friable clay some kernels of limonite in red patches, (older alluvium).
36'	- 45'	Stiff red clay, 15% hematite and limonite grit
45'	- 46'	<u>Core:-</u> White pink and red clays, ferruginous kernels in red patches, confused structure, probably highly weathered schist.
46'	- 55'	Sludge of core above and below
55'	- 56'	<u>Core:-</u> Pink, white, yellow soft clay rock, occasional ferruginous kernels. Structure confused but probably steeply dipping.
56'	- 65'	Pink sticky clay
65'	- 66'	<u>Core:-</u> Pinkish brown and white mottled powdery clay rock. Occasional yellow ochreous patches. Structure confused, Probably basement complex.

REMARKS

Borehole stopped by RCM
Radiometrically scanned - negative
Borehole logged by LSD & RCM
Log Complete

PERCUSSION BORE LOG

MIDDLEBACK RANGE NORTH DISTRICT
South Iron Queen South Area.

D.M. 1701/55.

Bore No. PSB 7

Bore Serial No. DD 1194/56.

Hundred Ash County York

Plan Reference 57/116

Co-ordinates 5335 'N 7042 'E

R.L. of Collar 375' (datum assumed)

Vertical Depth 25'

Driller Kubicki

Date Drilling commenced 12/9/56.

Date Drilling completed 13/9/56.

OBJECT:- To ascertain the nature of the bedrock
below an area of hematite float material

RESULT:- Hole did not penetrate bedrock.

LOG Comprises:- Geological Log
Remarks

GEOLOGICAL LOG

<u>From</u>	<u>To</u>	
0'	2'	Travertine, loam and hematite pebbles.
2'	24'	Hematite scree.
24'	25'	Core:- Red mottled clay with hematite pebbles. Alluvium.

REMARKS

Borehole stopped by driller as instructed

Radiometrically scanned - negative

Borehole logged by RCM

Log Complete

PERCUSSION BORE LOG

MIDDLEBACK RANGE NORTH DISTRICT
South Iron Queen South Area.

D.M. 1701/55.

Bore No. PSB 8

Bore Serial No. PD 1195/56.

Hundred Ash County York

Plan Reference 57/116

Co-ordinates 5310'N 7100'E

R.L. of Collar 374' (datum assumed)

Vertical Depth 22'

Driller Farrow

Date Drilling commenced 13/9/56.

Date Drilling completed 17/9/56.

OBJECT:- To ascertain the nature of the bedrock
below an area of hematite float material.

RESULT:- Penetrated 6 feet of hematite scree then
entered soft red clay which underlies
the hematite scree in PSB5

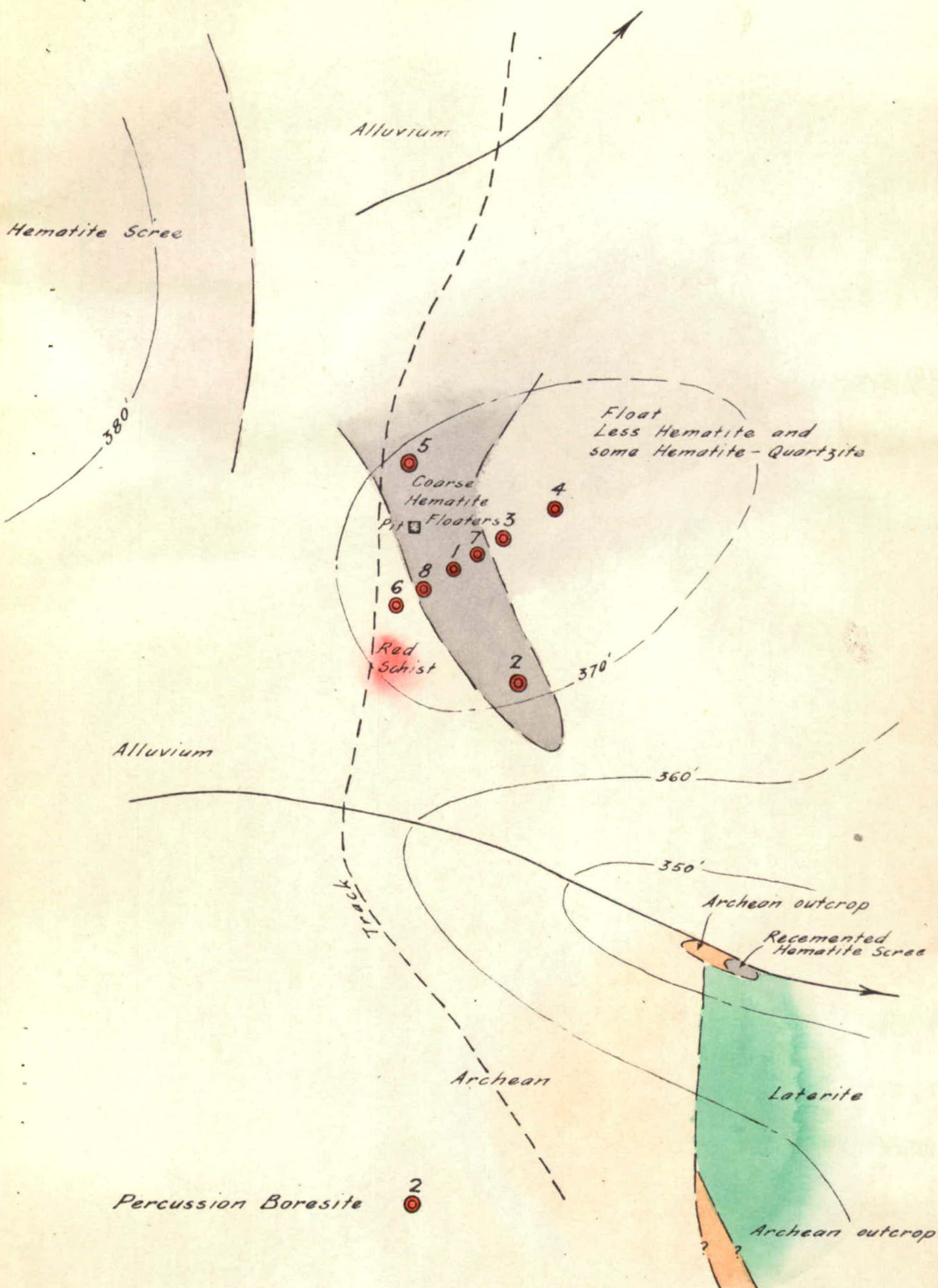
LOG Comprises:- Geological Log
Remarks

GEOLOGICAL LOG

<u>From</u>	<u>To</u>	
0'	6'	Hematite scree
6'	22'	Soft red clay flat lying as in PSB5

REMARKS

Borehole stopped by driller as instructed
Radiometrically scanned-negative
Borehole logged by LSD & RCM
Log Complete



S.A. DEPARTMENT OF MINES

Approved	Permit	Drill.	IRON ORE PROSPECT NO. 1 SOUTH IRON QUEEN SOUTH AREA PERCUSSION SCOUT HOLES	D.M. Reg.	Scale 100 feet to 1 in. S 1322 DE 22-8-56 Date 13-3-57
		Ted. R.R.			
		Ckd.			
Director		Exc.			

TO THE CHIEF GEOLOGIST:

Middleback Range North District
South Iron Queen South Prospect

- Prospect No. 1 -

Herewith Mr. Mirams Report on the above.

While testing has not discovered ore it has proved the value of a scout percussion plant in iron ore prospecting. Six shallow holes totalling 205' and costing £378 have proved the absence of ore under hematite floaters and thus saved deeper and more expensive drilling. It is considered that this type of preliminary prospecting should be continued as necessary in the Middleback Ranges and that a light percussion plant should be retained for the job.

In this instance the absence of ore under the floaters in Prospect No. 1 redirects attention to Prospect No. 2 which may be the source.

Graham Whitten
.....

Graham Whitten
SENIOR GEOLOGIST

ENGINEERING GEOLOGY & MINERAL RESOURCES
SECTION

GF7:AGK
15/3/57

TO THE SENIOR GEOLOGIST:

ENGINEERING GEOLOGY AND MINERAL RESOURCES SECTION

MIDDLEBACK RANGE NORTH DISTRICT

SOUTH IRON QUEEN SOUTH AREA

Prospect No.1

Enclosed is a report on the above prospect. This is the first project to be completed since approval was obtained to use the Scout Percussion Drill in the Middleback Range Area.

The plant has proved to be of inestimable value as an aid to geological reconnaissance. It is to be hoped that the availability of the above machine will continue in the future.

The machine has definite limitations, the samples obtained are a guide only as no casing can be used, and almost constant geological supervision is required. The lack of this supervision in the past has resulted in holes being stopped too soon and in some instances the machine returning to an unfinished hole.

The above are faults far outweighed by the valuable information obtained as to the nature of the sub-alluvial material, and in the penetration of the hard travertine crust that persists over most of the areas of interest.



R. C. Mirams

RCM:JAH.
11.3.57.

GEOLOGIST

