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DEPARTMENT OF MINES

REPORT ON

INSPECTION OF GOLD LEASES 1991, 1997,

HUNDRED OF HARDY

PITCAIRN RANGE

by
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S3329	Locality Plan	1" = 10 mile

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DEPARTMENT OF MINES
SOUTH AUSTRALIA

REPORT ON
INSPECTION OF GOLD LEASES 1991, 1997
HUNDRED OF HARDY
PITCAIRN RANGE

1. ABSTRACT

A gold mining lease in the Pitcairn Range, approximately 25 miles east of Peterborough, has been worked by Messrs. Asaris, Zoloteve and Calvert under an agreement with a syndicate represented by Mr.Jones.

The gold occurs in narrow gently dipping veins and large quantities of barren rock are removed in mining the veins by mechanical methods. The veins have an average width of 6" but are mined and only the central 2" core contains gold. The grade of the central core is generally less than 1 ounce/ton and mining operations have been unprofitable.

Mapping of the adjoining Burra 4 mile sheet by Mr. R. Mirams has allowed a tentative correlation of the Pitcairn Mines with the Sturtian Series, Upper Glacial Sequence. The Mengelata mines to the south are also in the above sequence but not at the same stratigraphic or lithologic horizon.

2. INTRODUCTION

Gold Lease 1991 is held by Messrs. Asaris, Zoloteve and Calvert and is worked under an agreement with a syndicate represented by a Mr.Jones. The syndicate has provided the mining machinery and until recently has paid the miners. The operating agreement has been in effect for approximately 9 months. However, little gold has been won in relation to the amount of barren rock removed and a geological inspection of the lease was requested to consider whether mining should be continued.

The workings and environs were inspected on 24th January 1963 accompanied by Messrs. Asaris and Zolotove.

3. LOCATION

The mines are situated on the eastern side of the Pitcairn Range, a narrow steep sided range approximately 9 miles in length and trending north west - south east.

steep eastern side of the Pitcairn Range, immediately beneath the sandstone-till contact. They consist of a number of shallow westerly drives or adits and low wide stopes. The present lease-holders have been working two openings. The most southerly, or No. 1, has been driven westerly into the hill for about 100 feet. A westerly dipping vein was followed and stoped until it thinned and disappeared. Near the end of the drive the till sandstone contact can be seen. Some movement has taken place along the contact and kaolinisation of the till has resulted. The sandstone at the contact has weathered to a coarse yellow sand. The gently dipping lode veins do not continue into the sandstone.

The development drives are approximately 7 feet square to accommodate the air shovel being used. This has resulted in much barren till being removed in following the very narrow lode veins. The lode veins strike at 150° and dip at 15° to the north west. A complementary set of veins strike similarly but dip at 5° - 10° to the north-east. The veins average 6" in width but only the central 2" has gold values. Generally only one vein can be worked at a time due to the separation and discontinuous nature of the lode.

Several of the old workings to the north were inspected and they are all in the same stratigraphic position beneath the sandstone-till contact. The stopes are usually no more than 4 feet high and relatively wide because of the hand mining methods used.

7. STRUCTURE AND ORE CONTROL

Mirams has mapped an anticlinal structure to the south east on the adjoining sheet. Some faulting is suspected near Waite Hill but it appears that the mines are

The range is located approximately 25 miles east of Peterborough. Access is by road and graded track through Pitcairn homestead, and the mines are approximately 40 miles by road from Peterborough. The range is a dominant physiographic feature and rises steeply above the plains to the east. The highest point on the range is Waite Hill one half mile to the south of the mines.

The lease is on the border of Bk. 8 and B N.E. Hd. Hardy, Co. Kimberley.

4. PREVIOUS OPERATIONS

Leases in the Pitcairn Range, to the north of the present workings were taken out by Messrs. Cain and Bradke in 1932. The mines were named the Altitude and Altimeter mines and were worked by Cain and Bradke and later by Cain and Cain. The lease was surrendered in 1936 for non-payment of dues. The workings are spread for about half a mile along the hillside and except for one digging are to the north of the present workings.

5. GENERAL GEOLOGY

The Pitcairn Range is capped by a hard sandstone-quartzite containing frequent near vertical milky quartz veins. The sandstone strikes consistently at 35° and dips 45° north west over the length of the range, and is underlain by a grey-greenish grey finely laminated shale.

Mr. R. Mirams is mapping the Burra 4-mile sheet adjoining the mines. He has recognised a till near Waite Hill and correlated it with the Sturtian Series, Upper Glacial Sequence. Tentatively the greenish grey sandy shale, in which the lode veins occur, is correlated with the Upper Glacial Sequence.

6. MINE WORKINGS

The workings are situated about half way up the

the veins contains workable gold. The grade from mining operations to date is less than 1 ounce/ton over the 2" width. The spacing of the veins is such that generally only one can be worked at a time and this results in an ore to mullock ratio of 1 in 40.

The costs of mining by mechanical methods are very high and rich ore would be needed to cover operating costs. This is partly due to the large openings necessary to accommodate the air-powered shovel. The ore veins are very narrow and prior experience has shown that these can be worked economically by hand mining methods.

Therefore, it is suggested that if further work is to be done on the leases, the hillside below the sandstone-till contact country should be prospected for further flat dipping lode veins. If any veins are found they should be sampled and, provided that the grade is sufficiently high, mined by hand methods.

Prospecting and sampling over the length of the Pitcairn Range is warranted.

2. The occurrence of gold associated with the Upper Glacial till is of broader interest and worthy of further consideration. The occurrence of gold at Mongolata, although different stratigraphically and lithologically, is within the same glacial sequence. They may both be detrital deposits from a common source that was eroded during Sturtian times, and therefore, the possibility of other gold deposits within the Upper Glacials should not be overlooked.

It is recommended that the Upper Glacial sequence from Mongolata to the Pitcairn be examined in detail and sampled for gold.

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situated on the west limb of the anticline. The central portion has been eroded to expose the till on the eastern side of the Fitzairn Range.

The gold occurs in a series of parallel veins striking 130° and dipping at 10°- 15° to the north west. Typically the lode veins are seamed and about 6" in width. The outer 2" is quartz and then quartz hematite with a central 2" core of quartz and hematite with fine gold. The iron minerals are leached and porous. The complementary vein system, dipping at 5° - 10° to the north east is similar to the above but generally the gold values are more sporadic. Other joint and vein systems are present but are narrow and do not contain gold. The attitude of these joints and veins is as follows:-

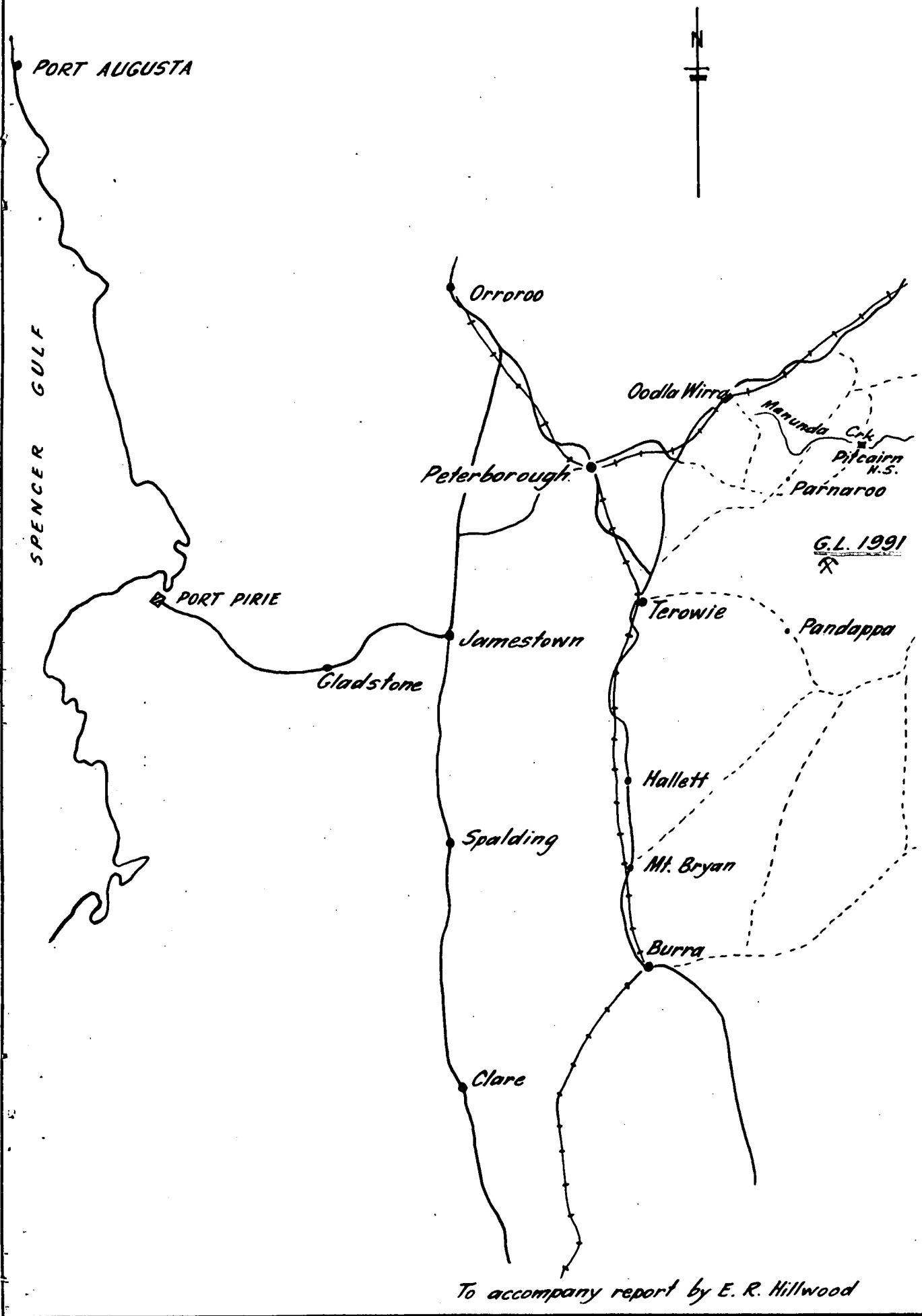
1. Strike 140° dip 80° south west.
2. 40° 55° north
3. 100° vertical.

The seming of the lode veins suggests that the quartz was introduced into open cracks or fissures, probably during folding, and then the quartz and iron minerals and lastly the finely disseminated gold. The discontinuous nature of the veins and their repetition in a parallel or perhaps echelon pattern is characteristic of the folding of incompetent beds and may explain why the vein system is different in the sandstone. No satisfactorily explanation can be offered at present for the source of the gold but its mobility may be associated with faulting contemporaneously with the orogenic movements.

8. CONCLUSIONS AND RECOMMENDATIONS

The first set of recommendations are given as a guide to the leaseholders, whereas the second are of a general nature for a broader investigation.

1. The gold is contained in narrow gently dipping veins and only the central 2" core of



To accompany report by E. R. Hillwood

S.A. DEPARTMENT OF MINES

Approved	Passed	Drn.	Location Plan GOLD LEASE 1991 PITCAIRN RANGE	D.M.	Scale 1" = 10 Miles
	NVE	Tcd.		Req.	S · 3329 G63
		Ckd.			
Director		Exd.			Date 31 · 1 · 63

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