

O'BRIENS MINE

DAN'S RIVULET

1 INTRODUCTION

O'Briens mine is situated on the western side of Dan's Rivulet and some 6.25 miles north-west from Mathinna. Access is gained by road from Mathinna, which traverses the valley of Dan's Rivulet. The road is 7.5 miles long and is metalled for about 6 miles.

A reef was discovered by Kerrigan (or Kerrigan and Hickson) about 1884, the first three leases (74/83G, 75/83G and 76/83G) being taken up in 1884. The ground was leased almost continuously by numerous lessees until 1911. At present, it is held under lease as 11442/M of 10 acres (H.A. Rayner) and 11532/M of 20 acres (S. Chapman and H.A. Rayner).

11 PREVIOUS LITERATURE & HISTORY

Descriptions of the mine appear in the following publications :-

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| Thureau, G. | Mount Victoria, Dan Rivulet, Black Boy, and Mangana Gold Fields, 1885, pp. 8 - 9. |
| Twelvetrees, W.H. | Report on the South Mount Victoria Mining Field, 1904. |

Mining activity was confined mainly to two periods. During 1888-1890, the O'Brien's Prospecting Association N.L. conducted much underground work including adits on the reefs, and crushed some 900 to 1,200 tons of quartz. The second period was in 1910-11, when the New Golden Gate Company sank a main shaft to 160 feet and conducted a small amount of crosscutting at the 145-foot level. At present, no work is being done and the adits have largely collapsed and the shaft workings are partly filled with water.

111 THE REEFS

While quartz has been obtained from four or five reefs or veins, most of it was obtained from two reefs - the Nos. 1 and 2 reefs. The underground workings on these two reefs and the surface workings on another reef are shown on the general plan on the attached plate.

(1) The No. 1 reef

is situated in the northern part of lease 11442/M. The workings indicate that the general strike was about 70°. The stopes appear to be almost vertical, but the reef is reported to have a south-easterly dip. The width is reported to have ranged up to 24 inches and to have been generally between 18 and 24 inches. Twelvetrees reported that the reef was stoped above the adit for a length of 160 feet (the section on the underground plans

only 60 feet, but the plan and section may be incomplete). Twelvetrees also reported that 70 tons of 1 oz. quartz and 30 tons of quartz were obtained from two prospecting shafts and that O'Brien's Company obtained 600 to 800 tons of ore from the stopes (this would represent approximately the amount obtained from a shoot 160 feet long, 18 inches wide and 40 feet deep). The total production was, therefore, 700 to 900 tons of quartz and, as the quartz was supposed to have an average grade of 1 oz. per ton, the yield would be approximately 700 to 900 oz.

The eastern end of the reef was apparently reached in the adit as there is only one surface trench in that direction and no reef is exposed in it. Twelvetrees reported that the shoot had pinched or ended in the face (which apparently means the western face in the adit). On the surface, several trenches have been sunk recently, but it is stated that they did not expose any reef.

Below the adit, the O'Brien Company sank two winzes one to a depth of 16 feet. Later, it is reported (H.A. Rayner) that the New Golden Gate Company sank one of them to a total depth of 60 feet. The latter company also sank the main shaft and drove the crosscuts at the 145 feet level.

(2) No. 2 Reef

This reef is approximately 400 feet south-west of No. 1 reef. No. 2 adit was driven to intersect it and then along it to the west. The strike is approximately 70° and the dip vertical or at a high angle to the south. The width was similar to that of No. 1 viz., up to 24 inches, and the reef was stoped to the surface along a length of 80 feet. Twelvetrees reported that 300 to 400 tons of quartz had been taken. Such quantity would be equivalent to that from a block 80 feet long, 18 inches wide and 40 feet deep. The grade was reported by him to be 18 to 20 dwt. per ton, so that the yield would be 270 to 400 oz.

Trenches exist to the west of the surface stoping, but it is stated (H.A. Rayner) that no reef was found in them. At the eastern end the reef may have continued as far as the Ironstone reef (see below) and it has not been sought farther east. As far as can be ascertained, no winzes were sunk below the adit.

(3) Other Reefs

At the eastern end of the No. 2 reef there is a line of surface trenching and stoping 90 feet long. It indicates a reef striking at 184° . This is probably the Ironstone reef described by Twelvetrees. A length of at least 30 feet in the centre has been stoped, and, at the southern end, a shaft sunk to about 30 feet. The stopes are 24 to 36 inches wide but Twelvetrees reported the reef to be 10 to 12 inches wide and that 20 tons yielded 23 oz. of gold.

To the north of the western end of the workings on No. 2 reef, there are some small surface workings. These are probably those described by Twelvetrees.

"About 100 feet to the north is another strike of stone about 8 inches in width, which has been sunk upon 15 feet, and has yielded a few tons of 2-oz. quartz, according

to Mr. T. Hickson. "It may have been this reef which was sought by the New Golden Gate Company in the eastern cross-cut at the 145 feet level from the Main Shaft. It will be referred to as the No.3 reef.

About 600 feet south-south-west from No. 2 adit, the O'Brien Company drove a No. 3 adit. This was a short adit and was not visited and will not, therefore, be discussed.

IV THE PRESENT POSITION

The lessees are, at present, interested only in the No. 1 reef and desire financial assistance to repair and unwater the Main shaft and the 145-foot level. Their interest depends on :-

- (i) The results of the workings down to adit level and the grade of the quartz (reported to be 20 dwt. per ton)
- (ii) Two small heaps of quartz outside No. 1 adit and supposed to be from the sinking of the winze by the New Golden Gate Company from 12 to 60 feet. The quartz is generally reported to contain about 20 dwt. of gold per ton. The results of chip samples taken during the visit from over the dumps were :-

Northern heap	9.0 dwt. of gold per ton.
Southern heap	15.2 " " " " "

- (iii) The small amount of quartz around the toe of the dump from the Main shaft. The quartz is supposed to have come from the No. 1 reef where cut at the 145-foot level. The quartz is generally reported to contain at least, 20 dwt. of gold per ton.

The result of the chip sample from the pieces was 18.1 dwt. of gold per ton.

- (iv) Private versions of the reasons that operations of the New Golden Gate Company ceased at this mine.

While it is probable that the quartz on the dump of the No. 1 adit is from the winze in that adit, it cannot be definitely proved. Similarly, it does not necessarily follow that the quartz on the dump of the Main shaft came from these workings. Even if the quartz came from the main shaft, it is not certain that it came from the No. 1 reef, i.e., from the north-western drive at the 145-foot level.

As the winze and the shaft contain water, examination of the workings is impossible and reliance has to be placed on documentary and other evidence to determine what encountered in the Main shaft workings. The various lines of evidence will be discussed separately below.

(1) The Work of the New Golden Gate Company and the Underground Plans

The New Golden Gate Company sank a shaft to 160 feet and opened out a level at 145 feet. The departmental underground plans submitted by the Company to the Mines Department and dated 11/2/1911 show that the plat at the 145-foot level extends to the north for 15 feet; that a crosscut was driven to the north-west for 107 feet; and that a crosscut was driven to the east for 41 feet.

Mr. Rayner states that a crosscut was first driven 200 feet to the east to pick up a cross-reef and that later another was driven to cut the No. 1 reef. If the cross-reef sought was the Ironstone reef, a 200-foot crosscut was about 200 feet short of any northerly continuation, of that reef. If the cross-reef sought was the No. 3 reef, a 200-foot crosscut should have cut any northerly continuation. The underground plans show the easterly crosscut extending to 41 feet only and the only explanations which will explain the difference between the 41 and 200 feet are :-

- (i) The easterly crosscut was not driven past 41 feet.
- (ii) The easterly crosscut was not driven past 41 feet at the time of the survey.
- (iii) The crosscut was not completely surveyed.

The north-western crosscut was driven sufficiently far to have cut any downward extension of the No. 1 reef. The plans do not, however, show any drive along a reef.

- (2) The best evidence would have been the weekly or fortnightly reports of the mine manager. Unfortunately, inquiries made at the office of the former legal manager revealed that all the records of the New Golden Gate Company had been destroyed. Inquiry, at the present mine office at Mathinna, revealed that copies of such reports were not in that office.
- (3) Useful evidence might have been supplied by the half-yearly or yearly reports of the New Golden Gate Company. Inquiries, at the office of the former legal managers and other stock and share brokers in Hobart, the present mine offices at Mathinna and from private individuals, revealed that copies were not available. The Mines Department does not possess a copy.
- (4) It was the practice for companies like the New Golden Gate to forward to the Secretary for Mines brief annual reports on their mines for use in preparing the Annual Report of the Secretary. The departmental files for 1910 and 1911 have been destroyed and, therefore, any such reports are not available. However, the following statement appears in the Annual report of the Secretary for Mines for 1911 and could only have been based on statements from the Company:-

"A good deal of sinking and driving was done by this company at O'Brien's section, 8 or 9 miles to the north of Mathinna; but the lode did not prove to be payable below the old adit-level."

V CONCLUSIONS

It would appear from the above that the No. 1 reef was cut by the New Golden Gate Company at the 145-foot level. No information is available as to the width of the reef and the grade of the quartz, but the company reported that "the lode did not prove to be payable below the old adit-level." If the underground plans are complete the reef was cut at only one place and no driving was done on it.

It is suggested by the interested people that the work was stopped not because the reef was unpayable but for other reasons by those actually conducting the work (the Company was led to believe either that the reef was unpayable or that further work was impossible).

There is of course no possibility of ascertaining the real reason for the stoppage of the work. Further there is, in the absence of the documentary evidence referred to above, no possibility of determining whether the reef was unpayable, because the width and grade are not known. The existence of a small amount of quartz on the dump of the Main Shaft does not necessarily prove that such quartz came from the No. 1 reef at the 145-foot level. If an assumption is made that the quartz came from the reef at that level, it does not provide any evidence as to the width of the reef beyond indicating that it would be, at least, 7 or 8 inches wide. Further, although chip samples from the pieces of quartz give assay results of approximately 1 Oz. of gold per ton, such samples do not necessarily represent the true average value of the reef and the only reliable method would have been to have taken all the quartz and to have done so before any samples were removed from the dump. If the quartz came from the reef, the reef must have been cut and it is difficult to imagine that the mine management did not obtain a sample of some kind. The only alternative explanation would be that the management accepted the work of the mines that the lode was unpayable.

It would appear, therefore, that there is no documentary evidence which would in any way support the account given by Mr. Rayner. It is realised, of course, that some parts of the account would not appear in published reports, but at the same time, there is no documentary evidence as to the width and grade of the quartz. There is, however, the very definite statement in the Secretary for Mines Report for 1911 that the work proved that the lode was unpayable.

Under the circumstances, the Department would not be justified in granting assistance to unwater the workings. If, however, the interested people conducted such work so that the reef could be measured and sampled, and the results were favourable, then the question of assistance for driving on the reef could be considered.

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11th November, 1941.