

" Seventy feet east of No. 2 Reef, a north and south " reef can be traced by a line of surface stopes. At " the southern end a shaft, now filled with water, was " sunk to 20 feet. This is the Ironstone Reef and " Twelvetrees states that it is 10-12" in width, and " 20 tons of quartz was treated from it for a recovery " of 23 oz. of gold. This reef does not apparently " persist to the north, otherwise it would have been " intersected in No. 2 Adit. "

" A third Adit has been driven, about 600 feet south- " west of No. 2 and 100 feet higher. At 50 feet this " intersected a fourth reef, striking at 100° and " dipping to the north at 78°. The adit itself has " been filled in and is only accessible for 40 feet " but the reef itself may be traced by surface stoping " and examined in a shallow underlay shaft, accessible " to 21 feet. The reef itself consists of dense " white, vitreous quartz showing some iron staining " and varies in width from 13" to 36". "

" All these workings described above are essentially " superficial and the only work done to a reasonable " depth is the sinking of the Main Shaft. Unfortun- " ately, the Main Shaft now contains water and none of " these workings can be examined. According to the " Mine plans, the shaft was sunk to 160 feet and a " level opened out at 145 feet. A crosscut was " driven east for 41 feet, as shown in the mine plans, " but for 200 feet according to local report. At any " rate, there is no evidence of any reef intersection " in this crosscut. A north-western crosscut was " also driven for 107 feet, sufficiently far to cut " any downward extension of No. 1 Reef. Whether this " was intersected and, if so, whether it was payable, " is a matter of argument. The mine plans show no " drives from this crosscut and the Annual Report of " the Secretary for Mines of 1911 contains the follow- " ing statement. "A good deal of sinking and driving " was done by this Company, at O'Briens section, 8 or " 9 miles to the north of Mathinna; but the lode did " not prove to be payable below the old adit level." " However, local opinion seems to be that the lode was " intersected and the Company mislead by those actually " working in the mine, as to its real value. It does " seem strange that, if the lode was struck, and it " seems likely that it should be, no driving was done " on it, even if it proved unpayable at one particular " point. "

From this brief description it can be seen that reports of the now inaccessible workings are vague and conflicting and verbal information gleaned since from persons having recollections of the old workings has been at variance with that found in the old mine plans. The most interesting reef is the Number 1 because some attempt had been made to test it at depth and in spite of the fact that no driving is shown for the 145 foot level, the presence of lode material on the dump of the main shaft is tantalising.

Consequently, the syndicate now holding the lease decided to test this reef at depth by boring; and advice was sought from the Department on the siting of holes.

In the absence of any record of driving from the crosscut on the 145 ft. level, indeed in the absence of any real evidence that a quartz reef had been cut at

that level, it was decided to site the first hole to intersect the reef (if present) at 15 to 20 feet from the crosscut and at that level. At 182 feet, the bore entered a stope cavity and although wasted as a hole, it did show that some driving and stoping had been done at the 145 ft. level.

No. 2 Bore was sited to intersect the reef at 50 feet below this level and 50 feet from the crosscut. No main reef was encountered in this hole although mineralised quartz stringers were intersected at 230' and 255' feet. Long delays were experienced in drilling time in these two holes, mainly because of labour shortage, although the drilling rate was very slow due to extremely broken ground. Towards the end of October the plant was required for other work but it was decided to put down one short hole at an acute angle to the reef to determine if, as local report had it, it plunged to the west. This hole was sited to intersect the reef within 150 feet down the bore and from 128 feet to 157 feet good mineralised quartz, with some country rock was passed through.

Details of the bores are as follows:-

No. 1

Position: 66 ft. from N.W. Corner of Main Shaft in a bearing of 196°.

Direction of bore: 343°

Inclination: 50°.

0'-71'	Oxidised fairly hard sandstone.
71'-103'	Mathinna Slates. Fault at 88'
103'-133'	Mathinna Slates and grey slate
133'-164'	Oxidised Mathinna Slate
164'-182'	Mathinna and blue slate
182'-187'	Stope Cavity (some wood, rubble).

No. 2

Position: 100 feet from N.W. Corner of Main Shaft on bearing of 208°.

Direction: 343°

Inclination: 55°.

0'-96'	Mathinna Slates. 94' fault.
96'-155'	Mathinna Slates with some bands of blue slate from 121'.
155'-254'	Mathinna Slates with small quartzite bands.
254'-274'	Quartzites with small blue slate bands.
From 200'	the country blue, settled - some pyrite showing.
230'-232' ³ / ₄ '	Mineralised quartz seam at acute angles.
255'-256'	do.

No. 3

Position: 124 feet from N.W. Corner of Main Shaft on bearing of 255°.

Direction: 360°

Inclination: 70°

0'- 60'	Soft Mathinna slates
60'-128'	Mathinna slates
128'-131'	Mineralised quartz
131'-143'	Slates with numerous quartz stringers
143'-157'	Mineralised Quartz
157'-162'	Soft Slate

Structure

The regional structure of this area shows that the beds intersected in these bores form part of the eastern leg of a northwest coursing anticline. However, due to the difference in competency between the quartzites and slates and the various intermediate forms that make up the Mathinna series, local folding and buckling often shows in the slates. It would be expected that the more defined channel ways for the quartz and mineral solutions would have been developed in the more massive quartzites but this boring has indicated that the dark blue slate seems to be the best host rock.

The country passed through in the first two bores was extremely broken and actual fault zones occurred at 88 ft. in number 1 and 94 ft. in number 2. It was first considered that this fault was the same one responsible for the termination of the reef to the east in the adit workings. But this is apparently not so, otherwise the fault would show in number 3 bore and this went down in quite settled country. Presumably then this fault is a steep-dipping one, coursing generally east and west and passing to the south of number 3 bore.

The Quartz Reef.

In number 3 bore a wide quartz reef was passed through between 128'4" and 157'6". This reef was in two portions separated by a horse of country rock comprising siliceous argillites, freely traversed by veins and bunches of quartz. The bore was designed to intersect the reef at an angle of about 30°. This is admittedly a very acute angle but because of the haste and the small footage it was considered warranted. Thus recorded widths in the bore should be divided by two to give true widths. In bores at such acute angles to formations, there is always a danger that they will turn and follow the formation. An examination of the core shows that this does not seem to have happened here and the foreman is confident that the bore has gone straight.

The core was divided into four samples namely the first quartz reef, the siliceous country rock and two samples from the second quartz reef.

Details of these sections of the bore are as follows:-

Sample 1. 128'4" - 131'1".

Width in bore - 2'9"

Actual width - 1'5"

Description: Mainly hard white, but some bluish quartz with little slate inclusions. Pyrite, fairly coarse and arsenopyrite finer plentiful. Green mineral (sphere?) sparse. Little or no carbonates.

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<u>Assay Result.</u>	Gold	1 oz. 10 dwt. 16 grns.
	Silver	11 dwt. 8 grns.
	As.	0.8%
	Sulphur	1.0%

This is equivalent to 1.75% arsenopyrite and 1.25% pyrite but the original sulphides were higher than this as there is much oxidation.

Sample 2. 131'1" - 143'6"

<u>Width in bore</u>	12'5"
<u>Actual width</u>	6'3"

Description: Some quartz stringers and bunches in greeny grey shale, sometimes bluish slate showing much silicification.

Assay. Gold and Silver Trace

Sample 3. 143'6" - 150'

<u>Width in bore</u>	6'6"
<u>Actual width</u>	3'3"

Description: Hanging wall quartz rather brownish, some oxidation, little sulphide, poor core. Centre shows good core, hard white and blue quartz; some arsenopyrite then green mineral (sphere? coating quartz crystals) and black mineral (iron oxide) in cracks and vughs. Footwall side again broken, poor core.

<u>Assay</u>	Gold	12 dwt 1 grn.
	Silver	8 dwt 8 grns.
	Arsenopyrite	1.75%
	Pyrite	0.7
	Galena	0.12
	Sphalerite	0.15

but some sulphides oxidised.

Sample 4. 150' - 157'6"

<u>Width in bore</u>	7'6"
<u>Actual width</u>	3'9"

Description: As in 3 but more oxidised and less sulphides. Very hard quartz giving good core right to footwall.

<u>Assay</u>	Gold	3 dwt 8 grns.
	Silver	2 dwt 7 grns.
	Arsenopyrite	about 1%

Gold Values From this bore indicate that at this point there exists a formation between fourteen and fifteen feet in width carrying gold of the order of 7 dwt. per ton. If the horse of country rock is excluded then a width of over eight feet (in two portions) carries approximately 12 dwt of gold per ton. The silver values are rather less.

Conclusion:

It is a well known saying that one bore does not make a gold mine and with quartz reefs of the nature of those occurring in the Dan Rivulet Goldfield, boring will only give a preliminary idea of the value of them. However, the result of this bore has been sufficiently encouraging to warrant further drilling and it is

unfortunate that the drill had to be taken away at this stage. It has shown us that at 140 feet below the surface there exists a payable gold reef. The thing to be determined now is the extent and plunge of the reef.

The next bore should be put down to intersect the formation at 200 feet from the surface and about 200 feet farther up the hill. If this is successful then the bracket should be halved and another bore put in between them.

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