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THE CITY OF MELBOURNE MINE, MATHINNA

INTRODUCTION:

The City of Melbourne mine is situated in the hills between the South Esk River and Dan's Rivulet, and about 2.5 miles north-west of the township of Mathinna.

A road from Mathinna crosses the South Esk River and also Dan's Rivulet (near the junction with the South Esk) and runs along the western edge of the alluvial flat of Dan's Rivulet as far as Mr. H.A. Rayner's house. The old road probably continued on from this point, but a length of road would have to be constructed to connect the existing road with the old road nearer the mine.

The mine has not been worked for many years and the ground is, at present, held as a prospecting claim by E.A. Lowe. The workings are situated on forfeited lease 350 G. of 10 acres.

PREVIOUS REPORTS AND HISTORY:

The City of Melbourne claim (No. 85) was taken up in 1872 but there is no record of the workings or of any production. The mine was subsequently abandoned but was later leased almost continously by four separate leasees from 1887 to 1904. The New City of Melbourne Gold Mining Company No Liability, was formed in 1894 and the ground was leased in the interests of that Company from 1894 to 1902. Practically all the underground work had been carried out from two inclined shafts by 1896, bit a vertical shaft was sunk after that date. A battery was erected by the company near Dan's Rivulet and was still crushing small parcels of quartz in March 1899. The leases were abandoned in 1902, and though the ground was again leased in 1903-1904, no subsequent work appears to have been done. The battery was sold to the Golden Horse shoe Company in 1907 or 1908. At the present time, only a portion of the workings can be entered.

There are no departmental reports describing the mine.

GENERAL GEOLOGY:

The mine is situated in the wide belt of slates which extends north-westerly from the Mathinna field. Near the mine, the rocks strike north-westerly and have a vertical dip.

Towards Dan's Rivulet, water-worn pebbles occur on the surface and pepresent remnants of high level gravels formed by that rivulet.

ECONOMIC GEOLOGY:

The only mineral deposit under review is the gold-bearing quartz reef in the mine. It consists of ordinary reef quartz. At the surface, the possible south-western extension of the reef has oxides of iron associated with it, and these oxides suggest the presence in the reef of a small content of iron-bearing sulphides, e.g. pyrite, arsenopyrite. Some pieces of quartz on the dump contain a small amount of black manganese oxide. Where the reef is widest, the quartz is white and appears to be of the barren type. Where the reef is narrow, the quartz is not so white and possibly has a small sulphide content.

In the workings, the reef has a general east-west striking and a dip to the south of 65° to 70°. Towards the west, the strike of the reef becomes south-west, but the dip is still to the south (or south-east) except at one place. In the last 20 feet of the inclined drive, south-westwards from the No. 2 shaft, the dip is to the north-west, at about 70° to 80°.

The slates have a general north-westerly strike and the reef channel is, therefore, a transgressive fracture.

THE REEF AND WORKINGS:

The main workings include three shafts and drives at two levels. For the purpose of convenience of description, the shafts will be referred to as the Main and No. 1 and No. 2 shafts and the levels as the No. 1 (or 50-feet) and the No. 2 (or 90-feet) levels. The Main shaft is a vertical one and is stated to be 100 feet deep but it is filled with water to within about 80 feet of the surface. The Nos. 1 and 2 shaft are inclined shafts sunk on the reef. The No. 1 shaft was sunk to an inclined depth of 144 feet from the surface or 128 feet from the trench approach. The No. 2 shaft was sunk to an inclined depth of 90 feet. The levels are shown in the plans and sections on the attached plate.

The Main shaft is not shown on any of the available plans and it is not known whether, and how, it is connected to the No. 2 level from No. 1 shaft.

At present, the only underground workings that can be entered and examined are the Nos. 1 and 2 shafts and part of the No. 1 level.

The surface workings consist of trenches along the reef. They show the reef as consisting of 8 to 12 inches of white quartz. The characteristic change in strike (or branching) of the reef is shown in the trench between Nos. 1 and 2 shafts. To the south-west, two long transverse trenches have been dug to locate any south-western extension of the reef, but did not expose any reef. A possible south-western extension is however, shown in the short trench near the southern end of the easternmost of the two long trenches.

No attempts have been made to trace and test any western extension of the branch vein exposed in the trench between Nos. 1 and 2 shafts.

Examination of the ends of No. 1 shaft is difficult but a vein immediately under the hanging wall appears to persist down the shaft. At the top the vein appears to be 6 to 8 inches wide and at the bottom (No. 1 level) 6 inches wide. The vein may retain similar widths throughout the shaft, but at some places it seems to be narrower.

Going eastwards along the south drive at the No. 1 level at 6 feet, a 2-inch vein is present on the footwall; at 12 feet a small amount of rubbly quartz between walls 36 inches apart; at 21 feet there are two veins, each 3 to 5 inches wide, one being on the footwall; at 36 feet a lens of white quartz commences and continues to the face. The last quartz referred to has a maximum width of 30 inches and at the face consists of a vein, 2 to 6 inches wide, with veinlets throughout a 24-inch formation. A small amount of stoping has been done above the back of the original drive and the mine section shows a stope 10 to 30 feet long extending downwards to the No. 2 level (owing to filling in the old drive the latter stope cannot be detected.

The west drive at the No. 1 level can be examined for 33 feet only. An unfilled stope rises above the level and connects with No. 2 shaft. There is a vein, 4 to 9 inches wide, under the hanging wall. From 33 feet westwards the level and part of the stope are filled with waste rock which has rilled from No. 2 shaft. A sample across 6 inches taken from the back 3 feet west from the No. 1 shaft assayed 2.1 dwt. of gold per ton.

The reef has been stoped from the western end of the No. 2 Shaft. A vein up to 6 or 8 inches wide appears down the eastern end, but examination and sampling were almost impossible. A sample taken at a depth of about 25 feet assayed 38 dwt. per ton, but this figure cannot be taken to indicate the average grade of the quartz.

According to the mine sections, the lower 20 to 25 feet of the No. 2 shaft must be filled with waste rock. The east and west drives cannot, therefore, be entered. At present, a western drive extends for 20 feet (probably on top of filling and 20 to 25 feet above the No. 1 level), and then turns to the south-west and is inclined downwards for a length of 20 feet. This suggests that from the surface to this level, the change of strike of the reef pitches to the west. The latter portion of the drive is in solid ground and, at the face, reveales a white quartz reef 20 inches wide. This portion of the reef dips to the north-west at 80°.

The downward extension of the No. 1 shaft and the No. 2 level cannot be entered but are shown (from old mine plans) on the attached plate. It will be noted that the only stoping is that already referred to above from the east drive of the No. 1 level.

The latest date on the mine plans is 14/4/96 and it is not known, of course, if there were any stoping subsequent to that date.

No information is known as to the workings from the Main Shaft but the latter was probably connected with the No. 2 level. One portion of the dump contains white quartz similar to that in the southern end of the No. 1 level. Mr. E.A. Lowe states that the last half-ton of quartz from the shaft was tipped into a launder and was latter (after mine workings were stopped) crushed and gave a good result.

This statement may represent what actually occurred, but of course it cannot be verified or otherwise. In any case, the driving at the No. 2 level indicates that the reef channel has been well tested at the approximate depth of the bottom of the Main shaft.

The conditions in the mine were not satisfactory for sampling and many stagings would have to be erected to permit systematic sampling.

CONCLUSIONS:

The City of Melbourne reef was exposed at the surface over a length of 80 to 100 feet. At the No. 1 level it was driven on for 169 feet and was apparently explored for 207 feet at the No. 2 level. In conjunction the two levels represent an explored length of 270 feet. The No. 1 shaft exposed it to an inclined depth of 144 feet (vertical 130 feet) below the surface.

As far as can be seen , the reef ranged in width up to 12 inches. Where it was wider, e.g. in the western end of the existing drive from the No. 2 shaft, the eastern end of the No. 1 level and possibly in some of the workings from the Main shaft, the quartz is white and of the type which usually carried little or no gold.

There are no records of production and the grade of the quartz treated is not known. The longitudinal section of the mine shows the small amount of stoping conducted and present day observation generally confirms the stoping above the No. 1 level. It would appear that only two small shoots of ore occurred. One of these - the western- occurred around the No. 2 shaft above the No. 1 level. The other - the eastern - occurred between the east drives at the Nos. 1 and 2 levels. The western shoot was 40 to 50 feet wide and had a steep pitch to the east. It appears to be arranged more or less centrally about the pitching line representing the change in strike of the reef, but the shoot has a nearly vertical pitch. The eastern shoot was 10 to 30 feet wide and was vertical but tapered with depth.

It appears, therefore, that the reef has been, in general, adequately tested and that re-opening of the mine from the Main shaft is not justified. It is of course possible that small profitable patches may exist in the unstoped portions of the reef, but, in general, the cost of finding same by development would be too great to warrant the search. One such small patch might exist in the upper portion of the eastern end of the No. 2 shaft. It could be tested and perhaps stoped either by:-

(1) Rigging a staging in the No. 2 shaft at an appropriate depth. Sampling could be conducted from this staging. If the quartz proved to be of suitable grade, it would have to be raised to the surface by windlass.

(2) Covering the mouth of No. 1 shaft and continuing the deep trench westwards as an adit. About 40 feet of driving would be necessary and the adit would give a maximum of 25 feet of "backs".

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17th September, 1941.