

REPORT ON C.E. CHESHIRE'S PROSPECT, FINGALLocation and Access

This prospect is situated about midway between the townships of Fingal and Mangana, being about 2 miles distant from both and within 300 yards of the road between them.

The only means of access is by good road from Fingal which is connected by both road and rail with the main road and railway respectively between Launceston and Hobart.

Licence Leases etc.

The prospect is situated on a 20 acre prospecting area held by Mr. C.E. Chesshire.

Two 20 acre leases have also been applied for Mr. Meadows to the north and south of the prospecting area.

Topography

The reefs outcrop on steep-sided hills rising above the level of the plains along the South Esk River and the Mangana Rivulet. Steep gullies occur in the hill sides. The outcrops are at least 150 feet above plain level, and the conditions are generally suitable for testing the reefs to shallow depths by adits.

Geology

The country is composed wholly of Cambro-Ordovician rocks. The most prominent types are weathered sandstones or quartzites while slates are quite subordinate in amount. As far as could be observed, the rocks have a strike of 330 degrees, but the dip is indeterminate owing to lack of exposures.

These rocks are those found on all the goldfields of north eastern Tasmania, and which contain the quartz reefs.

Prospecting and Mining

As a result of being shown a piece of quartz containing galena, Mr. Chesshire commenced prospecting the area in the vicinity of the present prospect. By systematic "loaming" he determined where the gold appeared to be most plentiful, and then started prospecting at that locality. At present the mining work consists of two shallow trenches and an underlay shaft sunk to a depth of 12 feet. A shallow shaft has also been sunk in the gully to the north west of the above shaft, in order to provide a water supply, which purpose, however, was not achieved.

Reefs

It would appear that at least three quartz reefs traverse the above prospecting area and leases. Only the most south-western one has been opened up by prospecting. From the above works and surface "sheds" of quartz, the reef appears to have a bearing of 315 degrees. The next one to the north-east appears to be parallel, but the one furthest to the north east has a bearing of 340 degrees. Going south, this latter reef should, if it continues, intersect the others.

In the prospecting shaft, a reef of quartz, at least 4 feet wide at the top, occurs on the south eastern end. The reef has good hanging-wall with a bearing of 270 degrees and a dip of 60 to 70 degrees to the north. The footwall has not been properly exposed at the top but it may be at the bottom. The above hanging wall is intersected by a wall bearing 315 degrees, and quartz veins make parallel and to the west of this wall in a band of slates one foot wide.

At the north west end of the shaft, the reef is several feet wide at the surface, but only about one foot at the bottom. It would appear, however, that it is wider beneath the bottom judging by the present exposure.

At the surface the quartz is the usual whitish reef quartz, containing vughs which suggest the removal by solution of sulphides such as pyrite. In the bottom of the shaft the quartz contains sulphides, which in order of relative abundance are pyrite, chalcopyrite, sphalerite, and galena. Free gold is also visible in some of this quartz, and good prospects can be obtained from this class of quartz. A series of six samples were taken to determine the value of the quartz, and the results of these will be communicated later.

The two trenches are 15 and 30 feet respectively to the north west of the shaft. These show the top of part or whole of the above reef, the exposed veins having bearings of 290 degrees and 300 degrees respectively. They are probably parts of reef exposed in the shaft, which would therefore have a general bearing of 300 degrees at this locality.

#### Economic Geology

The occurrence of abundant sulphides at such a shallow depth indicates a very shallow zone of oxidation. This is due to the youthful nature of the topography and the lack of time for the formation of a reef oxidised zone. Underground works should therefore at slightly greater depths (say 50 to 100 feet) expose the lode in its unaltered state. The change of gold values and the uncertainty of the future of the reef attendant on the change from oxidised to the primary zone should therefore not occur below the above mentioned depths.

The occurrence of the gold and associated sulphides indicates the mineralised nature of the reef at this particular point and indicates the possibility of the reef containing payable gold values.

The problem remaining to be solved is the extent of the quartz likely to contain such values. At present it would perhaps appear that the gold values are influenced by the NW wall crossing the hanging wall. It is more probable, however, that the gold values have been influenced by depth, the surface portions being poorer due to leaching.

#### Conclusions

The quartz reef described above has been located in the typical strata of the north eastern goldfields. The only shaft sunk on it has encountered mineralised and gold bearing stone of economic value at shallow depth. The reef appears to be fairly well defined along a length of many chains judging by the quartz shed on the surface.

These facts prove the reef to be one worthy of a small amount at least of further prospecting work. In particular the extent and mode of occurrence of the mineralised and gold bearing quartz should be determined by shaft sinking, driving and crosscutting in the vicinity of the present shaft. It must be remembered that such work is merely of a prospecting and exploratory nature. No reserves of payable ore at present exist, but such work would be the means of proving the presence of such if they actually occur.

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Fingal,  
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