

Tasmania

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GEOLOGICAL SURVEY BULLETIN

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THE MATHINNA GOLDFIELD

PART III.

BY

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THE MATHINNA GOLDFIELD.

PART III.

[Two Plates.]

I.—INTRODUCTION.

THIS part of the Mathinna Report deals with a comparatively small and outlying portion of the field, situate round the Scott and Pickett Mine in the upper part of a narrow valley which joins further north with that of the Sling Pot Creek, forming then one broad flat between the Volunteer and the Volunteer Consolidated spurs.

The slate and sandstone strata in which the Scott and Pickett valley has been carved out belong to the Ordovician auriferous series prevailing at Mathinna and Mangana. In respect of position in this series, they occupy a line of country apparently between the Golden Gate and Consols line on the north-east, and the Mangana line of country on the south-west. This line would embrace the strata on the mineral sections north of the Tower Hill farms.

II.—PHYSIOGRAPHY.

About $\frac{1}{4}$ mile north of Densley's land, the Sling Pot or Bull Bottom valley contracts, and the Sling Pot Creek forks off in a slightly west of south direction, leaving the Bull Bottom or Scott and Pickett valley heading a little south of east. The latter valley is now not more than 500 feet wide, but up at the mine narrows to a mere "V" shaped ravine. The valley and the hillsides are clothed with fine timber, comprising stringy-bark, iron-bark, peppermint, swamp, or white-gum, some of the trees from 10 to 20 feet in girth. A few small farming selections have been taken up along the valley, but the soil is none too fertile, and there is a deplorable dearth of water. After the spring snow-waters have descended from the mountain the creek subsides into its normal trickle from pool to pool, percolating through the sandy soil, and of little use either for farming or mining. The elevation of these farms is about 1100 feet above sea-level.

Above the Scott and Pickett battery the sides of the valley draw closer to one another; the slopes are steeper.

The sky-line on the tableland above is visible at a height of 500 and 600 feet. This is the high plateau connecting Mathinna with Tower Hill, which is between 3 and 4 miles south-west. The drainage of this part of the country is northwards into the South Esk River.

III.—GEOLOGY.

The strata of this part of the field are similar to those of the Mathinna field proper, and are of the same geological age. Alternations of soft, glossy clay slate, decolourised in the superficial zone, with sandstone and sandy slate occur everywhere. The sandstone is generally tough and crystalline, and constitutes locally the "hard" country of the miner.

The general direction of the cleavage planes of the slate and the laminations of the sandstone is from N. 20° to 30° W., and the dip or underlay to the south-west. A singular variation of dip is seen in the battery building of the Scott and Pickett Company, where the slate dips to the north-east at an angle of 45° . I have not seen this dip anywhere else on the strike of these strata, and the normal westerly underlay prevails to the immediate east, and also to the west, across the valley. It must, therefore, be a purely local disturbance.

The dominant dip of the strata to the north-west in this area, continuing also north-east to the Gladstone and Eldorado Hills, seems to show that the whole of this belt forms the west side of the anticlinal arch of the New Golden Gate and Tasmanian Consols line, to which I have referred in my previous reports.

About 500 feet above the Scott and Pickett, or 1700 feet above sea-level, stones of grit and conglomerate begin to appear on the hillside. These can be traced up to the plateau, where this formation covers the older slate. It belongs to the Permo-Carboniferous, and has been described in my recent report on the Mangana Goldfield. Its occurrence shows as plainly as anything could do, that the slate and sandstone strata of this field could not have suffered any very great loss by denudations before they were covered up and protected by the layer of conglomerate, which at one time must have spread in a wide belt all over this part of the country.

The nearest igneous rocks are the occurrences of diabase (of Mesozoic age) east of Fonhill and on Tower Hill, but they have no sort of connection with the auriferous quartz reefs at Mathinna.

IV.—ECONOMIC GEOLOGY.

Not many reefs have been opened upon in this part of the field, but the few which have been discovered belong to groups of the pyritic and arsenical gold quartz reefs. They are small, varying mostly between 15 and 21 inches in width, but, as a rule, are persistent, as far as their channels are concerned, for considerable distances, though the development of stone may be irregular. When shoots of gold occur, the value of the stone ranges from 1 dwt. per ton to, perhaps, a little under an ounce.

The associated minerals in the different reefs are pyrite, arsenopyrite, copper pyrite, galena, and zinc blende. Stone has been found with all these minerals, yet without free gold, nevertheless it is safe to say that they are reliable indicators of the presence of the precious metal in the reef. The quartz of these reefs varies in nature from a brittle, milk-white variety, which, though often barren, sometimes shows galena and free gold to a bluish-grey arseno-pyritic variety, forming one of the best-looking kinds of stone on the Mathinna field.

All the reefs which I have seen are fissure reefs, transgressing the strike of the country strata. One set has a strike about N. 20° E., while the direction of another is N. 75° W., crossing the first at nearly a right-angle.

V.—MINING.

The reefs which have been discovered are few in number, but I doubt not that others remain to be found, for the overburden in the form of hill debris is so constant that the bare rock is seldom seen on the slope of the hills, and the only chance of unearthing a reef is by closely observing the small ravines which score the hillsides. There has been no very extensive prospecting, which is hardly to be wondered at, for to prospect effectively here means the expenditure of considerable time and money in opening-out long and deep cuttings, almost at haphazard. The cuttings must be deep, so as to avoid passing over the caps of lodes, which do not always come right to surface.

The reefs dealt with in this Report are:—

- (a) The Scott and Pickett reef.
- (b) The Commercial reef.
- (c) The Pride of the Hills reef.
- (d) O'Brien's reef.

(a) *Scott and Pickett Gold Mining Company, No Liability.*

Sections 525-g, 10 acres; 526-g, 10 acres; and 534-g, 5 acres.

This property is situate nearly $2\frac{1}{2}$ miles south-south-west of Mathinna as the crow flies, or about 3 miles by road. It is on the east bank of the valley, which debouches further north into the marshy flat known as Bull Bottom. The battery is about 200 feet above Mathinna. The small creek which feeds it with an intermittent and inadequate supply of water flows past it down the valley through the farm lands to the north. A road has been cut recently right up to the property, though, as it is a little rough near the mine, carters look askance at it.

Mr. Pickett, prospector, was the discoverer of the reef, and the company bears his name, and that of his companion, Mr. Scott. The reef is an arsenical gold quartz one with a strike of N. 27° E., and dipping, on the whole, steeply to the north-west. This dip prevails at surface and down to the bottom level where the reef becomes nearly vertical, or shows a tendency to dip slightly to the east. This bending of the reef is probably a purely local feature.

Adit No. 1, South.—South of the shaft an adit crosscut has been driven 57 feet to the reef, which has been followed in a drive south-west for 110 feet. The reef-channel is a fracture line in the slate and sandstone strata, which course north-west at a right-angle to the reef.

Four trenches have been cut across the line of reef higher up the hill, north of the end of this adit level, mostly without exposing anything else than yellow, soft clay slate. The highest trench shows hard laminated sandstone, seamed a little with quartz.

On the opposite side of the small gully are several openings on the line of reef going south. One of these is a shaft where the reef has been stoped to surface. Further south, quartz is shown in a trench which has been cut on its course for about 10 feet. Trenches still further south do not show the reef, being probably too shallow.

No. 2 Adit Crosscut.—This was driven into the stope on this side of the hill, and has now fallen in. It was put in by the prospectors before the claim was floated into a company.

Main Shaft.—To prove the reef at a depth \pm 12-foot by 4-foot shaft, at 80 feet above the battery, has been sunk 62 feet plus $2\frac{1}{2}$ feet well, and a crosscut driven from the bottom for 82 feet in a south-easterly direction. The reef was cut through at that point, and levels driven on it

north-east and south-west. The channel here is 2 feet wide, with a 4-inch vein of clean quartz, the remainder being scattered quartz, pug, and slate.

North Drive.—Going north, the quartz increases to a width of 14 inches, but after 20 feet the stone dies out, and its line is replaced by a track of pug. Further on, the present manager has picked up a little quartz, 6 inches wide. A little gold has been carried from here to the face, and for about a foot it was shown to be payable. Beyond this is stone 10 inches to 12 inches wide, but with only a trace of gold, which continues in the roof. The reef in the face is 32 inches wide, with 3 or 4-inch bands of quartz interlaminated with slate. A pug seam occurs on the west wall, and on the east side is a lot of twisted greasy slate, favourable for reef formation. The slate foliae have twisted round to a course of N. 55° E., dipping south-east.

This is the most favourable-looking end in the mine. It is 50 feet behind the entrance of No. 1 north adit level, and something may occur between this and that. The upper level, also, is too near the surface to give satisfactory results in the first 100 feet. The owners will no doubt continue driving this end.

South Drive.—At about 10 feet south of the cross-cut gold began to make in the stone, which is from 10 to 20 inches wide, and has been followed up to the surface. Occasional bulges of stone, 3 feet in width, occur. The quality of the stone is said to improve as it goes up, but its length is diminishing. The length of stoping-ground at the drive level was about 30 feet, and there is said to be good stone going down. Beyond the south end of the stopes the track of the reef is marked by a line of pug, with a little barren quartz here and there. The face in the end of drive has a little water issuing from it. It consists of sandstone seamed and intersected by quartz veinlets, and has a line of pug on the west wall. There has been some twisting of the country here, as the strike of the strata coincides with that of the reef.

Where the reef was cut in the adit it was puggy for a width of 8 inches, and slightly mineralised. Here it was not gold-bearing, and it gives place along the level to quartz 4 or 5 inches wide, but still without gold. At 20 feet from the flat sheet payable gold came in, and the reef has been stoped up to surface about 50 feet above the level. South of this shoot of stone there is only the puggy track of the reef visible, with a little quartz here

and there. I am informed that a little gold can be got from prospects along the floor of the drive; but this part of the level is evidently south of the shoot of stone which has been worked. As this pitches north, of course, higher up it has existed further south. In the south end of the level is a little pug, otherwise the face is in country sandstone, with slate on the west wall. I am told that all the crushings prior to the time of the present manager came from this block of stone.

Adit Level No. 1, North.—One hundred and seventy feet north of the south adit the reef has been driven upon from surface in a north-easterly direction for 100 feet without disclosing anything of particular value. At about 25 feet in a short shoot of 3-inch to 4-inch stone occurs on the west wall of the drive, and further in is a 1-inch vein of quartz associated with a bit of pug. Just behind the face a cuddy has been driven west for 6 feet. In the end of the level the face shows an inch or two of pug, and the rest is slate. This adit being in the slate belt and not far from surface is in soft country all through.

The official figures furnished by the company give the crushings taken from the mine as 92 tons for 38 ozs. 4 dwts., but a little uncertainty exists in respect of the tonnage. Further 80 tons are now being crushed at the mine, and the yield is estimated as likely to be somewhere in the neighbourhood of 15 or 16 dwts. per ton. When this crushing is finished, all available stone will practically be worked out, and the company will have to consider its programme.

A short shoot of stone like that in this mine can only be followed down by a shaft, and a further sink would show whether the reef widens as it descends. With its present width and value it could hardly be worked profitably at a depth, but, of course, if it increased in width the outlook would be more hopeful. The present shaft has been sunk in rather hard country, but the bottom crosscut is in the slate country to the east, which underlies west, so that softer rock may be expected in further sinking. It may be said broadly that at Mathinna, wherever gold is met with it is always worth while to follow it and take the chance of improvements occurring. It is very improbable that this is the only shoot of gold in the reef. As the gold pitches north, obviously a fresh shoot would be soonest met with by driving south, but at a greater depth. By sinking deeper, also, it may be found that the present shoot of gold-bearing stone lengthens.

The continuation of the bottom drive north would be of an exploratory character. At about 20 chains north-east of the shaft an intersection by the Commercial reef takes place, according to the observed bearing of the latter; and in driving there is always a chance of meeting with intersections by reefs now unknown.

The quartz of the Scott and Pickett reef is for the most part a bluish grey quartz, carrying a great deal of arsenopyrite, with a little iron pyrites, zinc blende, galena, and copper pyrites. Large specks of free gold are not uncommon, especially in the whiter variety of quartz.

The 10-head battery attached to the mine would have to be improved if regular work were carried on; and a scheme for conserving water would also have to be devised. The present arrangements for crushing, conveying stone from mine, and conserving water are all impossible.

(b) The Commercial Reef.

This is on Sections 1292-93G, 10 acres; and 1293-93G, 10 acres; lying N. 80° E. from the Scott and Pickett, and on the brow of the hill, 500 feet higher up. The little gully in which the shaft is situate forks in two branches higher up the hill, and the Commercial sections are on the spur between the branches, where there is a broad and flat stretch of country, with stones and boulders of Permo-Carboniferous conglomerate scattered at intervals over the slate strata. A small quartz reef strikes S. 75° E., with hardly any underlay. What dip there is is to the north. A shaft has been sunk, and a little stoping has been done from the bottom. A long trench has been cut from this shaft westwards, and the reef taken out at surface. More trenches occur further west. The country at the shaft is soft slate; at the west end of the trench, seriticised sandstone. As mentioned before, this reef and the Scott and Pickett will intersect, and it might be as well to try and locate the junction on surface. In addition to the shaft on the reef, another seems to have been sunk in the country near by. Some returns have been reported as 1 dw. per ton; others, as 6 dwts.

(c) The Pride of the Hills Reef.

Sections 170-G, 10 acres.

This reef is about a mile from the Scott and Pickett, in a north-north-east direction, and between 400 and 500 feet above that mine. It strikes N. 17° E., and is vertical. Some 9 or 10 years ago a shaft was sunk 70 feet on the

reef, and lower down the hill to the west an adit-level was driven on it for 51 feet. The reef in the face of the latter is 16 inches wide. The quartz is solid, white, and not well mineralised. Eighty or 90 tons of stone were broken out, and 15 tons crushed, for 15 dwts. of gold. The reef has been traced right over the hill. It would be interesting to trace the line of this reef towards the Scott and Pickett. The latter would lie as a parallel reef to the east of it.

A second reef exists near this one, and has also been sunk upon.

(d) O'Brien's Reef.

This is on Crown land, 9 chains south-west of the Scott and Pickett battery. It has been recently uncovered in the bank of the creek up the hill, opposite the battery. A small cut exposes it as a solid reef about 21 inches in width, lying between thinly foliated slate, but turning off south and cutting into the country as a flat reef. Its bearing is 15 degrees south of east, and dip southerly. The stone is hard and white, and unkindly in appearance. No gold has been recovered from it.

CONCLUSION.

The locality described in this Report is a little remote from Mathinna, but its reefs are in the same general auriferous belt. They are, in fact, at rather an extreme distance from the Mathinna axial line of folding, but it cannot positively be affirmed whether this fact operates prejudicially or not until the survey of the whole field is completed. Meantime there is no reason for ceasing to prospect, for the locality is demonstrated to have been within the range of the agencies which were concerned in the deposition of gold.

W. H. TWELVETREES,

Government Geologist.

Launceston, 13th December, 1907.

5 cm

PLATE 1

LOCALITY PLAN OF REEFS

Scale
of Chains

10 5 0 10 20 30

W. H. Twelvrees
Government Geologist
December 1907.

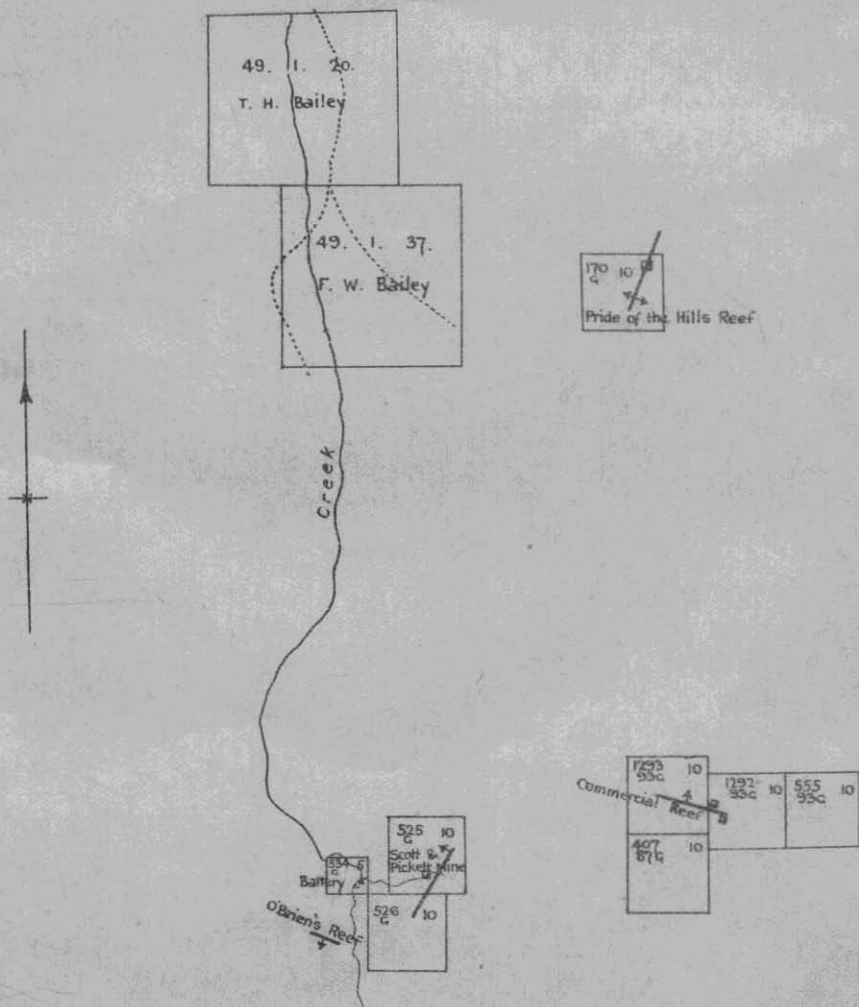


Photo-ographed by John Hall Government Printer Hobart Tasmania
B 18 549

5 cm

PLATE 2.

PLAN OF LEVELS OF THE SCOTT & PICKETT GOLD MINE

Scale of Feet

W. H. Twilvetrees
Government Geologist
December 1907.



Scott and Pickett G. M. Co. N. L.

S.W. corner of Section 525 10ac

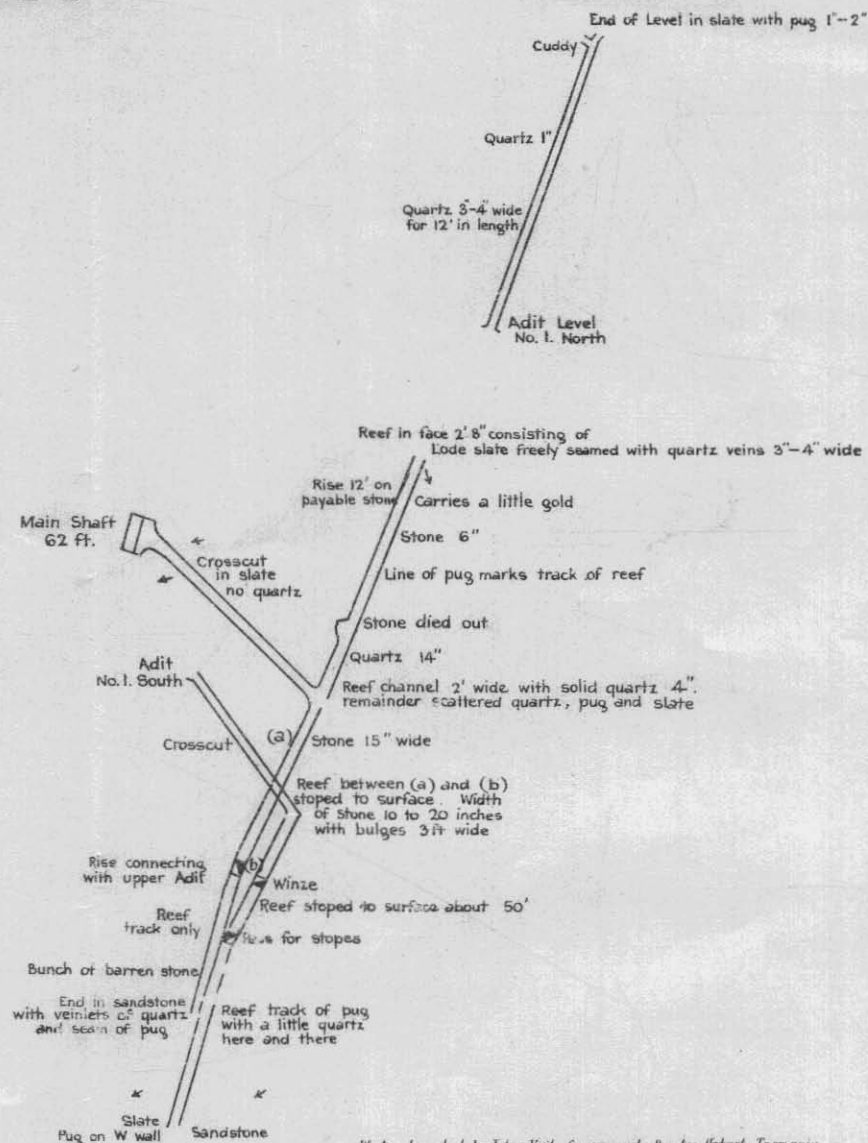


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