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T A S M A N I A
LEGISLATIVE COUNCIL.

G O L D A T W A T E R H O U S E

MR. GOULD'S REPORT

----- GOVERNMENT GEOLOGIST

26th July, 1869.

Sir,

I have the honor to state that, according to instructions I have visited Waterhouse, and inspected the reef, and made a short examination of the country adjoining and for some distance around it.

I enclose a sketch, plan upon which the position and dimensions of the areas occupied by different formations are indicated with as much precision as the period of my stay permitted.

You will observe that the auriferous formation, consisting of Silurian sandstones and clay-slates, intersected by quartz veins occupies an area extending in a south-east direction from the coast between two granitic countries, which may be roughly estimated at about five miles in breadth measuring across the basin from N.E. to S.W., and twelve miles in depth in the transverse direction towards Mount Horror.

This area is overlaid, and the Silurian rocks are concealed throughout the greater part of its extent by tertiary deposits of sand and quartz-gravel. One extension of the same auriferous formation stretches northwards from Mount Horror between the Tomahawk and Boobyalla Rivers, with an exposed average breadth of between four and five miles, and another southwards to the termination of the Billycock Tier, in the neighbourhood of the Township of Maurice, the entire distance from north to south amounting to twenty-five miles.

The granite country on the north-east limit of the Waterhouse basin contains one important range, the White Rock Tier and several of less elevation in the neighbourhood of the Trigonometrical Station. That upon the south west does not rise into any very prominent eminence.

Within the basin there are several ridges a few hundred feet in height and upwards, disposed in directions parallel to its boundaries. The most important is a spur from the Mount Horror range, culminating in the Bulger Hill, and thence, after an interruption for a mile or two, recommencing, and running parallel with the River Forester almost to the coast line. Another skirts the Oxbury Plains along the course of the Sheepwash Creek, from the northern termination of which extend low east and west ridges in which the recent discoveries of reefs have been made.

The surface examination of this country is greatly limited by overlying drifts of tertiary sand and shingle, which almost entirely conceal the older formations for some miles back from the coast line, and envelop them to a great extent for many miles inland. To define these with precision would require a very detailed survey. I have only approximately expressed them upon the chart.

The ranges southward present an open timbered country, easy of exploration, free from dense scrub, moderately steep, and with numerous gullies converging to the tributaries of the Sheepwash Creek and branches of the Forester. Upon these, as well as upon the lower ridges nearer the coast, the surface is frequently bare of soil, and strewn with fragments of rock and the debris of quartz veins.

Between the principal ranges extend open, marshy, heathy plains, from which project low, island-like, flattened timbered ridges, forest banks, and sand hummocks, partially exposing the older rocks, and otherwise concealed beneath deposited or blown sand. The indication of the existence of quartz reefs are numerous; and if a fair proportion of them prove on trial to equal the tested reef in richness, profitable gold-mining in Tasmania will soon be established fact, and this become a great reefing district.

So little is known yet of the Pioneer reef, from the fact of its having been opened only at one point, that it is impossible to speak with certainty even as to its direction, which appears to differ materially from that of the majority of reefs opened in the Fingal district, the course being apparently 15° or 20° east of north and west of south. Other reefs in its vicinity appear to pursue a similar course; and should such prove eventually to be the case, the explanation may be afforded by the position of the granite masses enclosing the basin, and the supposition that lines of fracture have taken place transversely to the direction of their faces.

I have not yet been able to determine generally the strike, but believe it to be north-westerly.

The Pioneer reef has not yet been struck in either of the shafts north and south of the Prospectors claim. In the latter the reef has been cut at one point: the cap on the surface measures about twelve feet in breadth, the thickness of the reef at thirty feet along the underlay is three feet, the underlay is west; the quartz is rubbly on the surface and for some distance downwards but appears to be getting solid in depth. The gold is most abundant in ferruginous veins extending through the body of the reef and along the casing of the hanging walls, it is associated with galena, iron pyrites, and arsenical pyrites, and seems to be especially abundant in a black, chert-like, honey-comb stone, which has been followed with good gold in it to the lowest point reached in the underlay shaft. The sample lately crushed consisted, as I am informed by the prospectors, of nearly sixteen hundred weight of picked stone, and four hundredweight of stone taken by chance from the heap; the yield nearly thirty ounces, valued by the assayer of the Bank of Australasia at two pounds nineteen shillings and ninepence per ounce. The stone extracted, amounting to one hundred and twenty tons, appears to contain a fair proportion of gold, and is variously estimated to hold from three to five ounces of gold per ton; a small parcel of non-selected stone, amounting to $3\frac{1}{2}$ cwt. previously transmitted to Melbourne having yielded at the rate of $3\frac{1}{2}$ ozs. of gold per ton, valued at £3 2s per oz. in addition to 12 ozs of silver per ton?

Should the arrangements relative to the erection of machinery now pending be concluded, as I have every reason to believe will be the case, a most important impetus to gold-mining in this district will be given, and I think most satisfactory results eventuate.

I am glad to state that an auriferous vein has been discovered by Mr. Barlett in the position indicated upon the enclosed plan, for which I am indebted to the courtesy of the Commissioner, about half a mile south west from the Prospectors claim.

Alluvial gold has been washed out at a spot south west from the Prospectors claim, and it is probable that deposits of value will be struck when the ranges to the southward are explored.

I trust that I may be permitted to recommend a reconsideration upon the part of the Government of the conditions upon which claims are granted, as it is improbable that capitalists in this Colony or Victoria will embark in mining enterprises if the amalgamation of claims is limited too closely, since many of the reefs crop upon such low ground that expensive machinery for unwatering will be necessitated almost immediately after work has been commenced; and the discovery of reefs extending beneath the sandy plains indicated upon

the chart will only be made by the outlay of capital so considerable that it would be unjustifiable unless the combination of a larger number of claims is permitted than at present.

A further extension of time before the full number of men are required to be placed upon the amalgamated claims would also be desirable in a spot where it is impossible at present to procure skilled labour; the period permitted being scarcely sufficient for the necessary correspondence, selection of miners, equipment of party, and passage to the ground. This is the more necessitated by there being only a weekly post; but, as the number of individuals upon the field will probably soon be greatly increased, I venture to suggest for your consideration the desirability of establishing a second post per week.

I have communicated with Mr. Cunningham relative to the erection of a jetty for the disembarkation of machinery. I was myself in favour of one being erected for immediate and temporary purposes at the Tomahawk River, fearing that great difficulty would be experienced in transporting heavy machinery from Bridport to the gold-field at this season of the year. I learn however, from Mr. Cunningham that a route may be followed avoiding the chief obstacle, viz., Stephenson's Marsh; and his full report will state the comparative merits of the two shipping places, the balance being unmistakeably in favour of Bridport as the site of any permanent works.

I have the honor to be,
Sir,

Your very obedient Servant,

CHARLES GOULD.

The Hon. the Colonial Treasurer.