

REPORT ON THE MOUNT VICTORIA
GOLDFIELD.

[Two Maps.]

*Government Geologist's Office,
Launceston, 7th October, 1904.*

SIR,

As directed, I visited the northern part of the goldfield of Mt. Victoria on the 4th ultimo, and remained there until the 23rd ultimo.

The field examined by me extends as far as McCaul's sections in the north and Everett's reef in the south; a north and south distance of nearly 4 miles. The reefs are in a belt of slates and sandstones, forming the west flank of Mt. Victoria, which rears its summit of columnar diabase 4000 feet above the level of the sea.

Within about 1500 feet from the serrated crest, horizontal beds of Permo-carboniferous grits and pebbly sandstones cling to the eruptive rock, as survivals of a once widely-spread sedimentary system; and repose in their turn upon the upturned edges of the Lower Silurian strata, which enclose the auriferous reefs.

These strata have not yielded any fossil remains which would indicate their geological age, but their physical and stratigraphical position makes it nearly certain that they belong to the Lower Silurian. On the other hand, the gold quartz reefs which traverse them began to form at or after the close of the Upper Silurian period, and continued to develop probably during the whole of the succeeding Devonian period. Slow deposition of silica may have lasted even longer; but the fissuring, which created the channels for the auriferous reefs, apparently came to an end with the consolidation of the granite; for we do not find these reefs in strata of a later age. Quartz veins, which are reported to occur in Permo-carboniferous beds occasionally, have no connection with the Devonian fissure system, and are barren of mineral (excepting in the altogether special case of the Port Cygnet field).

The strata composing the flank of Mt. Victoria do not form an isolated and independent field. They and their

contained reefs are part of one whole, a belt of country which includes both Mathinna and Mt. Victoria. The beds of sand and clay throughout these districts were originally laid down on the same continuous sea-floor; the quartz reefs subsequently developed in them were the result of one comprehensive process, and the gold contents were doubtless deposited under identical conditions. Whether, therefore, we consider Mathinna or South Mt. Victoria, or North Mt. Victoria, we may say that the conditions of a goldfield exist in a very marked degree in each; and whether one district is superior to the others can only be definitely settled by proving all three. This, I need scarcely say, has not been done.

In the South Mt. Victoria district all the workings are shallow, not exceeding a depth of 140 feet at most, and that in only one instance; while no trial of any reef has been made below creek-level.

The North Mt. Victoria field, with a solitary and insignificant exception (at the Bright Star, where a shaft has been sunk 50 feet), has not been tapped below ground water-level. Mr. Brown, General Manager of the Ringarooma Gold Mining Company, tells me that the bottom of the deep winze at that mine, their lowest working, is not down to the level of the Dorset by about 50 feet. The old Mt. Victoria Mine, which was the great mine of the field, has only been worked by adits. Accordingly, absolutely nothing is known of the reefs below ground water-level. The numerous scratchings and burrowings in the often short, but rich, makes of stone at and near the surface afford no serious or trustworthy criterion of the value of the quartz reef system in its solid and undisturbed lower part; though, at the same time, the measure of success attained in testing these superficial occurrences intermittently, and on a very small scale, may be taken as justifying, and to no small extent encouraging, further work at greater depth.

At the time of my visit only three working parties were raising and crushing stone—the Long Struggle, the New Mercury, and McCaul Brothers; small quantities of 20 to 30 tons being passed through at a time. This, be it remembered, is on a belt which, within the limits of North Mt. Victoria, may almost be described as crowded with quartz reefs for a linear distance of nearly 4 miles.

This belt of auriferous country extends to Mt. Victoria in an unbroken line from Mathinna to Fingal, a distance of 27 miles; its width is not exactly known, but the Silurian rocks extend for about 4 or 5 miles west of Mt.

Victoria, and 2 or 3 miles to the east of it, where, in each direction, they are cut off by granite. It is not contended that the whole of this breadth of country is a gold zone, though I do not know of any reason why it should not be, with the exception of the area occupied by the igneous trap rock of Mts. Victoria and Albert (diabase). As a matter of fact, the gold zone in the Alberton field is considered, locally, as more especially confined to the east side of the Dorset, for a width, in the central part, of about half a mile; and in the northern part, of about a mile. But there is really no reason for this opinion, beyond the fact that nearly all the work done has been on reefs situated to the east of the Dorset; and prospecting in the heavy scrub on the west side has, so far, disclosed only a few reefs. The river, however, has no geological value whatever as a boundary-line between reefing and non-reefing country; the same series of strata exist on each side of the stream. The intervening valley appears, strangely enough, to be below a former, but now denuded, anticline; for I found the beds on the east side of the Dorset generally underlying to the north-east; while, in two places which I examined on the west side, the underlay was to the south-west. The former arch of the strata, therefore, passed over the present line of the Dorset. As below Alberton the river flows more decidedly towards the west, the strike of the strata brings them to the east side of the river; and accordingly on the road side towards the Ringarooma turn-off the south-west underlay along this strike is seen. It is not the river which conditions the position of reefs, but rather the secular folding of the strata. The strong compressive force which acted in an east-west direction was responsible for the arching of the strata, and for the direction of the fissures and joint planes which now mark the lines of reefs. The master fissures were developed at right angles to the direction of compressive stress; hence, all through the field, we see principal reefs running north-west—south-east. A second set of fissures was induced at right angles to these, viz., south-west—north-east. They are not so numerous as the first, which dominate the field; but, as search proceeds, I have no doubt more of them will be discovered. It is next to a certainty that, at the intersections of members of these two series, gold shoots exist. The master fissures do not appear to have been produced where one might be disposed to expect them, *i.e.*, along the crests of anticlinals, but rather along directions parallel to the arches. They correspond in direction approximately with the strike of the

country-rock; but, for the most part, are unconformable in dip (underlay). If any of them prove to be conformable with the country, both in dip and strike, their corresponding members will also probably be found on the west side of the river.

This west side is still practically *terra incognita*. Prospectors have it is true gone over it, and a few reefs have been found; but hardly any work has been done, and the country is regarded, unreasonably, as being out of the proper gold zone. I have very little doubt but that in time more reefs will come to light on this side, and some of them may very well prove to be worth working. Up to the present, however, the east side of the valley is that which has been most thoroughly prospected, and on which the bulk of the reefs have been found.

The reef-lines are, in some instances, fairly long; in others, either short, or have not been traced for any distance. I may mention in passing, that a heavy overburden of hill-drift or debris, combined in many places with dense overgrowth, covers the surface, and often effectually conceals the reef outcrop. After a good bush fire, this undergrowth, if left alone for some years, as has been the case here, becomes almost impenetrable. This, and the superficial soil and detritus, impede the discovery of reefs, irrespective of the probability of many reefs not reaching the surface. A good fire has not passed through the timber for four years; in consequence of which the bush, in places, is now very thick, and prospecting difficult. Notwithstanding this, reefs in abundance are known; but the difficulty is to induce men with money to come forward and risk the cost of developing them. Lines of reef are sometimes fairly continuous, but are often arranged in splices, or *en échelon*, connected perhaps by an almost imperceptible track. The stone has a rather irregular habit, swelling and contracting at intervals, the frequent blanks making it difficult for working parties with limited resources to finance their shows. Companies with capital sufficient to keep several ends going at once, and to persevere in a fixed programme of work, are required for the satisfactory development of the field; and until these are formed, the district will remain the scene of the desultory and struggling sort of work which characterises it at present.

No lines of reef are continuous right through the district, but series of parallel reefs are frequent, the two members dipping (underlying) in opposite directions. These illustrate what American authors call "conjugate fractures,"

the result of horizontal compression giving rise to two sets of fissures with the same strike but opposite dips. An example of this is given by the parallel reefs of the Gum-sucker and Premier; the former dipping easterly, and the latter westerly.

The frequency of parallel reefs points to the advantage of a free use of crosscutting. An examination of the various underground works shows that there is abundant scope for this. The ease with which the drives get off the course of somewhat irregular reefs, makes it doubly necessary to assure one's self of one's position by frequent crosscutting; and such cross-cuts would probably now and then reveal parallel makes of stone. Some of the levels which have been driven have been advanced to positions very favourable to starting important exploratory cross-cuts. The slopes of this great mountain offer unusual facilities and encouragement for exploration work of this kind; and a crosscut tunnel driven east from the Dorset would extend for three quarters of a mile before it reached the igneous intrusion which presumably forms the core of Mt. Victoria. At the same time, the more permanent outlook for the district is in deep work, below the ground water-level.

The reefs are not wide as a rule, varying from 4 inches to 18 inches in the majority of cases, but attaining a width of 3 or 4 feet in not a few instances; and sometimes swelling to a still greater width for a short distance. As a rule, the narrower reefs carry the larger proportions of gold. Apart from the precious metal, the reefs carry iron and arsenical iron pyrites freely, and frequently galena and blende.

The two latter minerals are looked upon as certain indications of gold, and I noticed also colours of gold in visible association with lumps of arsenopyrite. The quartz of nearly all the reefs is impregnated with pyrites; and most of the reefs are gold-bearing to some extent. There are a few barren white quartz reefs, with no mineral at all in them, but the proportion of such is singularly small for such a large district. The gold in the reefs is partly free, scattered through the quartz, partly imprisoned in the pyrites. The quantity of the latter which may be concentrated by battery process naturally varies, according to the mineralisation of the stone; but ranges between 1 and 2 per cent. The general value of the reef-gold of the field is about £3 18s. per oz., according to mint returns. Three or 4-ounce stone is occasionally, 2-ounce stone more fre-

quently, met with, while 1-ounce and 1½-ounce is quite common for ordinary crushings. In many of the mines the earliest crushings have been the best; and this is so often the case elsewhere also, that there must be some cause which is general in its operation. The only supposition which possesses weight is that the superficial parts of reefs are enriched by the addition of re-precipitated gold, which has been dissolved out of the reef-capping now denuded. The surface-waters carry this dissolved gold, by imperceptible degrees, downwards through the capillary crevices of the stone, where it is precipitated on the walls of joints, or in the cavities of porous parts of the quartz. Prospectors looking for specimen gold always search for quartz of a loose and open texture, with vughs or coarse-grained bands, and not for stone which is tight and dense. Why is the galena a sign of gold? Probably because it is a precipitant of gold from solution. A point of interest is, whether the galena is primary or not. If its precipitation took place after the formation of the quartz, the gold which accompanies it may be secondary also. The crystals of quartz in the small vughs of the reefs are certainly secondary. Original mineral, *e.g.*, pyrites, perhaps filled these cavities very often, but has been dissolved out. They often, however, contain pyrites which must be secondary; and gold is sometimes seen fixed between the quartz crystals. Mr. W. F. Petterd has shown me a remarkable set of corroded crystals of quartz in his collection, from the Tasmania Mine, Beaconsfield, upon which coarse gold is clustered thickly. A difficult question to answer in connection with it is, what was the corroding agent? But certainly, the gold was the result of precipitation subsequent to the crystallisation of the quartz.

I often noticed, at Mt. Victoria, that gold had been deposited amidst crystallised quartz on the faces of joints in the reefs. An interesting feature is the increase of carbonaceous matter close to reefs, and even its inclusion as fragments in the quartz. The slate then is black and glossy, although, a foot away from the reef, the usual brown and yellow slate prevails; and I never saw in the unaltered country zones of this graphitic slate. We know carbonaceous matter is a precipitant of gold; but why the carbon should collect in this way, in close proximity to the reef, is not clear; though once it is there as a wall of the reef, it may very well influence the deposition of gold.

On the whole, there is, I think, every reason to believe that these reefs will be found to carry payable concentrations of gold, in more or less irregular shoots, all through

the belt, and down to any depth which is likely to be tried. Any injurious change at the local ground water-level, *i.e.*, the level of exit of subterranean water, need not be anticipated. The whole of the meteoric water does not escape at that level; the balance remaining will descend still further, taking down with it any enriching properties it may possess. Some of the numerous reefs will join in depth, and may be expected to form large bodies of stone.

In some parts of the field, and especially on the New River side, numerous minor displacements of reefs have occurred, but there are very few igneous intrusions. Of these, I have seen three, and they are of different ages. One is an elvan (quartz-porphry) dyke in the long tunnel of the Ringarooma Mine, 22 feet wide in the drive, and probably not differing much in age from the quartz reefs; another is a 2-foot basaltic dyke, crossing the tunnel of the Crown Prince Mine. Its age is difficult to determine. At first I was inclined to think it was one of the ancient lavas, but it is more likely to be of Tertiary age, and connected with the surrounding basalt eruptions. The third instance is the great diabase intrusion which shoots up its columnar spires at the summit of Mt. Victoria, and occurs again in the river, near the cemetery, at the north end of the mount. On the underground plan of the old Mt. Victoria Mine, a lava dyke is marked; but on being shown what purported to be this in the No. 3 level of the mine, I could find nothing but decomposed slate.

Although the region at the time of the diabolic intrusion, and again during the basaltic eruptions, must have sustained severe shaking, the faulting of reefs has not been on a large scale, and need deter no one from embarking in mining here, which really has no more than the usual risks. The field has been worked for the past twenty years, and upwards of £50,000 worth of gold has been taken from it; but the unremunerativeness of some of the early work has frightened investors from venturing much again. The Ringarooma Company, whose operations were brought to a standstill a few years ago by the destruction of its battery by fire, was imperfectly financed, and has suspended work.

Nevertheless, it cannot be gainsaid that Mt. Victoria, in the largest gold-bearing belt on this side of the island, remains an undeveloped field. Some there are evidently who believe in its future, for there is an active demand for land, which is only of a second-class quality, all round Alberton. Care should, however, be taken not to alienate

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too much land in this auriferous belt, upon which Tasmania's hopes as a future gold-producer may be legitimately fixed.

At the time of my visit, three mines near Alberton were at work, and producing gold; viz.:—The Long Struggle, the New Mercury, and McCaul's. The Reform and Mammoth were idle, pending the result of an attempt to secure capital for their development.

LONG STRUGGLE MINE.

Sections 1543-93G and 1288-93G, charted in the names of L. W. Lowe and C. Stingel.—The Long Struggle Mine is being worked by Messrs. Stingel, Cobbing, and Sowell, on Section 1543.

It is reached by proceeding along the road from Alberton, and turning off to the east across the Ringarooma race at about 30 chains south-west from the bridge at the New Mercury battery. At about 15 chains up this track is the Struggle battery, consisting of five heads of 900-lb. stamps, formerly in use at Warrentinna. The plant is incomplete, not even having blanket strakes; nor is it provided with concentrators. The tailings are run into a settling vat, and piled outside for future treatment. I was told that the last assay showed them to be worth 3 dwts. A good deal of the stone carries but little pyrites. While I was there, I had samples of the sand in the water coming from the battery taken hourly for a week. The Government Analyst's assay of this was 1 dwt. gold and 1 dwt. silver per ton. The motive power used in winter is from a water-wheel, 22 feet in diameter, and 22 inches breast; in dry summer a 5-h.p. vertical engine and boiler supply the power; or sometimes, both steam and water are used. It will be seen from this that the gold-saving appliances are very simple; and if the ore were highly pyritiferous, heavy losses would result. The fact that the undertaking is to a certain extent profitable, even under present conditions, is a testimony to the value of the stone raised. The quartz is bagged, and sent down the hill by sledges from the principal workings.

Although there are several gold-bearing reefs on the property, two only are being worked at present, owing to want of capital to develop the mine properly. For this reason, work is carried on alternately on one or other of the two main reefs. The proprietors are only a small working party, and do not possess the means requisite for carrying out a proper working programme. Notwithstanding, they have bought and erected the battery, cut a

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water-race half a mile, bought the engine, built water-wheel, driven a tunnel under the blacksmith's shop, sunk a winze 100 feet, besides carrying out the productive work in the mine; all of which had to be provided for out of the mine returns. Although there is not much net profit left for the owners, it is evident that we have here the makings of a nice little mine; and, if adequate capital were introduced, and a sound system of work adopted, its prospects would be more favourable than many mines which have received far more attention in other parts of the State. The two reefs being worked are:—1. The No. 1 reef; 2. The whip shaft reef No. 2. These are nearly at right angles to one another, the No. 1 having an average bearing of N. 50° west-S. 50° east, and the No. 2 N. 45° east S. 45° west.

The No. 1, or south-east reef, has been driven on 220 feet, the upper, or No. 1, level following its course at an average depth of 50 feet from the surface. All the ground above it, to within 20 feet of the end, has been stoped out to the surface, which is about 65 feet above the end. The latter is 100 feet from the south-east corner peg of the section, near which the reef-line passes into the adjoining Short Struggle section. The average width of the reef is 10 to 12 inches, and the yield of the stone has ranged, I am told, between 25 dwts. and 2 ozs. 13 dwts. A little work has been carried on from the sole of the level downwards at different points, showing on the whole a somewhat narrow reef. Thus, about half a chain in is a small underhand stope, with about 9 inches of solid stone; further in is another underhand stope, 10 feet below level, showing stone 5 to 6 inches; a little further in, the sole of the level has been taken up for 12 or 15 feet, leaving in the bottom stone about 3 inches wide, said to be of good quality, but thinning as it goes south. From here to the end, the reef has pinched, carrying an inch or two of stone in its track.

Notwithstanding this narrowing, the same reef, in the end of the Short Struggle drive, which has been brought nearly up to the boundary, has widened at one place to 2 feet 6 inches. This alternate widening and narrowing is a general feature of the reefs on the field. While it is responsible for the reefs frequently being abandoned by prospectors who, for financial reasons, are compelled to leave off as soon as stone is no longer payable, it points to the necessity for a definite working plan with adequate capital to carry it out.

The dip of this reef is about 45 degrees north-east, and its line of outcrop along the hill is marked by the broken

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ground on the course of the old stopes, and by various excavations which have been made with, a view of tracing it to the boundary. It was found only three years ago, at the root of a tree. At surface, some 20 feet ahead of the tunnel end, the outcrop ends abruptly, as if faulted, or suffering a deviation, and the Short Struggle outcrop appears a few yards to the east of it. The stone is heavily charged with arsenical pyrites, and carries visible gold pretty freely.

Just inside the entrance of the level, a winze has been sunk on the underlay 110 feet to the No. 2 level below. At 50 feet down, an intermediate level south was driven from the winze a distance of 38 feet, and the ground stoped up to the level above. The reef has narrowed here to 4 or 5 inches of quartz, and, in the end, has disappeared.

An attempt has been made to prove the reef 50 feet vertically below this intermediate level, by driving a tunnel from the blacksmith's shop. This tunnel has been put into the hill for 200 feet, in an easterly direction, across the slates of the country, and the level then driven 88 feet south-east on the lode line. It is pretty clear, however, that the crosscut tunnel ought to have been extended a few feet further, for the level in the first half of its distance has passed along clean-bedded slate, and only picked up the reef-quartz in approaching the end. Within 20 feet of the face, 4 inches of stone are seen on the hanging-wall side of the drive; it has thinned out in the end, however, and only slate is seen in the face. Here is another instance of how lack of capital impedes development. The intermediate and this level ought to be pushed ahead, to prove the reef below the upper stopes. The stone apparently pitches to the south; and, though narrowing in the No. 1 level, will certainly make again further down. Afterwards another sink can be made from the No. 2 level. It is, to say the least, highly probable that the rich stone above the upper level is connected with gold-bearing stone lower down; but, with the present hand-to-mouth way of working, necessary dead and progressive work cannot be attempted.

The second reef which is being worked is the Whip shaft one, running south-west from the mouth of the No. 2 tunnel. Two shafts have been sunk on this reef, 140 feet apart; and drives opened from each in both directions. The shaft near the blacksmith's shop is 50 feet in depth; at 40 feet, drives have been opened and extended on the reef in each direction for 40 feet. The ground above these drives has been stoped to surface. A trial crushing

returned 3 ozs. 7 dwts. per ton; the rest of the stone was mixed with that coming from other places. The workings in this shaft could not be seen.

The other shaft, the Whip shaft, on this reef has been sunk 90 feet, and drives put in from the bottom 47 feet south-west, and 29 feet north-east. At 50 feet down, an intermediate drive has been put in for about 50 feet north-east, on a reef 7 inches wide, but in the actual end only 3 or 4 inches. The reef in these workings has ranged from 4 and 6 inches to 1 foot and even 16 inches, averaging perhaps 6 or 7 inches. The stone from the drive returned 25 dwts.; from the intermediate stope, for the full length' 18 or 19 dwts. The last crushing was 2 ozs. 8 dwts. To the west of shaft, the ground stoped is 40 feet long by 40 feet in height; the bottom is now being taken up for under-hand stoping. The reef in the end is 4 inches wide, bent, and with a flattened underlay. It has been noticed that rich gold occurs at these bends in the reef, which are frequent.

An intermediate stope, 40 feet above this level, extends for 120 feet west; and, if continued 120 or 130 feet further, would come out on the slope of the hill overlooking the Dorset. The reef has suffered a pinch in the end.

The bottom drive north-east from the shaft shows a split reef carrying a horse of slate. Just west of the shaft is a short blank in the reef, which is shortening, however, in going down; the reef in the bottom at end of break is 9 inches wide.

The work now proceeding will bring the drive below the level of the blacksmith's shop shaft, when a connection will be made by a rise. The reef is not wide, but its gold contents are highly satisfactory.

A low crosscut tunnel is the proper thing for developing this property, and the configuration of the ground lends itself to this readily.

Crushings.—The Long Struggle production has been as follows:—

Quartz.	Gold.
tons.	ozs. dwts.
20	26 2
18	43 14
21	37 9
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TOTALS... 59	107 5
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Equal to 1 oz. 16 dwts. per ton.

Below the outcrop of the Struggle reef, and 90 feet south-west of its line, is a strong outcrop of quartz, 19 inches in width, bearing north-west, and standing vertical, or dipping slightly, if at all, to the south-west. The owners put a shot in it for me, which enabled me to obtain samples from the heart of the reef; but, though I brought away a representative bag of samples, no more than a trace of gold was obtained from them. The stone is a beautifully mottled quartz, very plentifully impregnated with iron and arsenical pyrites. It has been traced further north, but not by holes which can be considered deep enough for the purpose. If this reef has a westerly underlay, it would cross the blacksmith's shop tunnel a little way in; if vertical, it will cross the path east of the tunnel entrance. It is a reef which ought not to be neglected, being as promising looking a lode as anyone would wish to see, and some parts of it may very well be gold-bearing.

About 100 feet below this is Martin's cross reef, discovered just outside the north-west corner of Section 1243, but inside the Struggle boundary. It is 5 to 6 inches in width, and bears north-east, with a south-east underlay.

A new reef (eastern branch of the Caxton) has been found above the Short Struggle, but on the Long Struggle section, bearing N. 60° W., and underlaying south-west; from its direction, it will run into the Caxton reef. Fair gold has been got from it. A cut has been put into it, and it seems to be about 6 inches wide; the stone is rather open, porous quartz.

Caxton Reef.—This is on the eastern section of the Long Struggle Syndicate, and is a parallel reef to that of the Struggle, running north-east-south-west, and distant from it about 90 feet to the north-east. No work is being done on it at present; the owners discontinued work to put up their battery, and then, discovering their Whip shaft reef in cutting the approach to the lower Struggle tunnel, confined their attention to the two reefs, which they are working now. Three tunnels have been driven:—

1. An upper level on the course of the reef. The stope over this level gave crushings which returned from 10 to 17 dwts., and a small parcel up to 1 oz., gold per ton.
2. A level, 60 or 70 feet below the preceding, driven on the reef, and forming the outlet for the mine. Stone reported to have returned 10 to 16 dwts.

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was obtained from underfoot and from the ground stoped out over this level.

- 3. A tunnel, 90 feet below the previous one, started by the Caxton Company, to intersect the reef and come under the old workings.

I examined No. 3. The Struggle Company has driven 50 feet of this tunnel, and, at 6 feet behind the end, struck the reef at 134 feet from the mouth of the tunnel. A strong reef is seen in the end, 15 to 18 inches wide, merging into quartz-veined country all over the face, 5 feet wide altogether. The reef here is nearly vertical, but bends round in the face towards the roof, westwards. The quartz is a mottled, very hard stone, and invites further work. My samples from the face, assayed in the government laboratories, returned 5 dwts. gold and 15 dwts. silver per ton. The stone is a bluish-grey vitreous quartz, carrying iron and arsenical pyrites, galena, and blende. The old winze is only a couple of fathoms ahead (and above) of the present end of the face.

The stone in the reef-channel at surface is of varying width, opening out and pinching in the usual way; but we have stone of a fair size in the lower tunnel, about 200 feet from surface, and this should be followed. Inside the entrance is a small flat reef or make of stone, 3 inches thick, on the west wall, but has never been considered as worth much. About 30 feet in, a short crosscut was put out west, and if it had been extended a few feet further, it would have cut this vein.

New Reef.—Lower down the hill, towards the battery, is a reef bearing N. 20° E., dipping slightly south west, or nearly vertical. Where the reef is exposed, it is 3 inches wide, but further along it is 5 inches. The stone, a bluish-grey quartz, is nicely mineralised with finely disseminated arsenical pyrite and galena, and ought to carry gold. The reef should pass southerly below the Long Struggle tip, about 70 feet west of the Whip shaft reef.

E. Stingel's Reef.—Still lower down is a reef bearing N. 15° W., on which a tunnel has been driven for 66 feet, 150° E., a flat reef is seen on the east side of drive, dipping south-west; it crosses the drive and appears in the sole 7 or 8 inches wide; it is not seen at surface. The reef has a good footwall, and a ragged hanging-wall of sandstone country. In the face of the drive, the reef is 10 or 11 inches wide. The owners drove this tunnel three years ago, and obtained some fair prospects from the stone; the

intention is to extend it further some day. The quartz is of the usual bluish-grey tint, well charged with iron and arsenical pyrites. The samples taken from here assayed 1 dwt. gold and 6 dwts. silver per ton.

Ragged Youth.—This formerly belonged to the Ringarooma G.M. Company, but is now in the possession of the Long Struggle Syndicate. It is situate on the 10-acre section, 1288-93c, charted in the name of L. W. Lowe.

The reef outcrops about 100 feet above the Struggle Creek, and strikes north-east, with a south-east dip. It has been opened upon along its surface-line by two shafts in Lowe's section, and a trench further north in Martin's section, 414c. Two levels have been driven—one at 25 feet, and a bottom one at 75 feet—on the creek level. There is a connection, by means of the shaft, between the surface and the bottom level, 32 feet behind the end of the latter. Fair quality stone was stoped in sinking the shaft, but the reef narrowed, and was, moreover, highly irregular, the stone making in patches, with a good many blanks. Altogether, between 250 and 300 ozs. of gold have been won from the reef. The stone crushed at first returned 34 dwts. gold per ton; but it grew poorer going down, and the latest crushings were only worth between 17 and 18 dwts. per ton. The bottom tunnel has been driven at creek level, first 28 feet nearly north, then 90 feet north-east, when it cut the reef on the east wall. Here the tunnel is widened, and the reef driven back upon south-west for 10 feet. The reef fissure is about 8 inches wide, filled with quartz and country. Continuing north-east, the stone clings to the wall of the level, and has been stoped out a little overhead. From the shaft, the narrow drive follows a reef track with a little stone to the end (32 feet). My samples of quartz from underfoot in the drive assayed 6 dwts. per ton. Irregular stone came down in the shaft, and the stone in the sole of the drive is a nice-looking blue and mottled mineralised quartz, carrying galena; but there is very little of it, and in the end itself only the soft track of the reef is to be seen. The country-rock is sandstone. The latter part of the drive is a mere burrow. It ought to be straightened out and graded, short crosscuts driven behind the end to make sure of the position, and then continued into the hill; a little further in, an exploratory crosscut for parallel reefs would be good policy.

The irregularity of the makes of stone in this mine makes it very difficult to follow the reef; and this can be done safely only with the aid of repeated crosscuts while

driving. High backs can be got, and the nearness of the level mouth to the battery will enable a larger proportion of dead work to be done than if carting costs had to be added.

Reefs in Country adjacent to the Long Struggle.

Telegraph Mine.—This is on the adjoining 5-acre section, 1338-93c, further up the hill to the north-east, about a hundred yards from the Ragged Youth. A tunnel has been driven north and south on the course of a reef which traverses sandstone country, the sandstone dipping south-west, and the reef west. The reef runs on the footwall side of the drive, but at about 60 feet in a branch appears on the west wall, consisting of a few inches of nice-looking quartz, well mineralised. A clean wall is on the footwall side, but the opposite wall seems drummy, as if there is still something behind it. The reef track in the end is 4 inches wide, soft and mullocky. The tunnel has been driven 90 feet. I have no certain information as to the yield of the stone, but 3 to 8 dwts. per ton is mentioned in various quarters. The reef cannot be considered proved; there may be stone inside the west wall of drive. After putting in two short crosscuts, the drive should be extended on the reef, for stone in this district characteristically disappears and reappears. An exploratory crosscut should be driven after getting a little further into the hill. This slope of the hill abounds in reefs and veins, concealed beneath a heavy overburden of hill-drift and soil, overgrown with dense scrub. Underground crosscuts, driven in an easterly direction, if judiciously placed and persevered in, could scarcely fail to intersect reefs, and prove their value below their respective outcrops. The stone of this reef is bluish quartz, carrying moderate quantities of pyrite and arsenopyrite, the latter decomposing to scorodite.

Blende Reef.—A little way up the hill, north-west from the Telegraph, Mr. Cobbing discovered the capping of a reef bearing N. 25° E., 5 or 6 inches wide, as far as can be seen from the imperfect surface exposure, in a small cut which has been made into the hillside. It is well mineralised with galena, zinc blende, and arsenical pyrites. Any amount of backs exists, and it is well worth a trial. Samples which I took from this outcrop, when assayed by the Government Analyst, assayed 6 dwts. 12 grs. gold per ton.

Battery Reef.—Lower down the hill, 1½ chains below the Telegraph, and towards the battery, is a strong reef a foot wide, running N. 25° E. It carries patches of arsenical pyrites in coarse lumps. Gold is not visible in it yet, but from its mineralised character, it may be regarded as a reef of promise, and should be opened upon. The samples taken from the open cut on this reef assayed 1 oz. gold per ton.

New Wilson Reef.—North-east of the Telegraph, and west of the Wilson Creek, on Section 798-93G, Mr. Cobbing discovered a large reef bearing N. 55° E., and dipping south-east. Prospects have never been tried from this. It is 17 inches wide, solid, hard stone, mottled in appearance, and nicely mineralised with iron and arsenical pyrites. The samples which I took showed only a trace of gold.

Crown Reef.—Up the hill, and east of the Reform track, on Crown land, a 4-inch reef was found by Mr. Cobbing, who has put a small cut into it for about 10 feet. The width where it is exposed is, however, no criterion of actual width further in, for it is not well cleared from the surrounding soil, and loose stone of large size was found before uncovering the solid reef. The quartz is porous white stone, well oxidised in parts, and carries visible coarse gold. This reef, too, might well be tested. My samples assayed 1 oz. gold per ton.

Upper Crown.—About 20 feet higher than the Crown, the covering has just been removed from another small reef, the bearing and width of which cannot be stated. It would appear to be at least 4 inches wide, and consists of white open quartz, carrying but little mineral.

More reefs than the above exist all round the Caxton and Wilson Creeks, but I could not further impose on the good nature of my guide, who left his work to show me round; besides which, rough weather supervening put a stop to inspection in the dense scrub which prevails on the rugged sides of these ravines. To examine all the outcrops on this part of Mt. Victoria would take months, and I deemed it advisable on this occasion to confine my inspection to the reefs which I found within comparatively easy reach, leaving the work of extending our knowledge of the country, and of describing the more remote reefs, as well as some of those which, though near to Alberton, are not among the most important, till later visits. These visits should, I beg to recommend, be made from time to time, so as to render the information respecting this important district as complete as possible. I can only repeat that

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this belt of country is one of the highest importance to the State as a gold-producer. No expense should be grudged in its examination; and its examination, to be of any real service, should be minute and renewed.

THE POINT REEF.

This is north-west of the Long Struggle sections, 11 chains south-east of the New Mercury battery, being situated in the eastern part of Section 1305-93G. It bears N. 45° W., and dips north-east, maintaining an average width of 5 to 6 inches of stone; a small shaft has been sunk on it to 12 feet. The quartz is a mere thread at surface, but widens to 4 inches in going down, and in the bottom the stone is 6 inches wide; a little gold is visible in the quartz. T. Hickson had his camp on it years ago, and afterwards, about seven or eight years since, Messrs. Searle and Martin paid some attention to it. It can be traced for about a quarter of a mile. A few yards further south another shaft, 15 feet deep, has been sunk on it, but the reef does not show so well here; it seems to have been replaced at this point by numerous small veins. However, some nice-looking white and streaked quartz has been broken out of it. Some of it is said to have been rich in gold; my samples, assayed by the Government Analyst, returned 11 dwts. gold and 2 dwts. silver per ton. The hillside to the west is steep, and a couple of hundred feet of backs could be got by driving a crosscut for 300 feet.

REFORM SECTIONS.

Two 10-acre sections, 305 and 414G, in the name of L. D. Martin, east of and adjoining the Point.

Reform Reef No. 1 bears N. 40° E, dipping south-east, and has been traced about a chain from the shaft on Reform Reef No. 2. It has been exposed by a couple of cuts at surface, and shown to be a foot wide. The quartz is a white and mottled quartz, of a kindly look, solid and massive. It does not prospect well; gold has just been seen in it, and that is all that can be said about it at present; none was obtained from my samples. In one direction it will cross a depression in the ground, and then pass into the high range; in the other, it runs into the Reform shaft.

Reform Reef No. 2.—The northern shaft on this reef is 26 feet deep, about 400 feet above the Dorset. The reef bears N. 44° W., and dips north-east. In the shaft it is

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first 2 feet 2 inches wide, but contracts to a foot at the bottom, consisting of 6 inches of stone and 6 inches of mixed quartz and country. At the bottom, a succession of benches lead south-east for 20 feet in distance, descending to a depth of 40 feet from the surface. The width between walls is 2 feet 8 inches, which is carried in the drive, the filling being reef country and stone mixed, narrowing in the south end. A narrow lode track, descending from the shaft to the bottom working, probably represents the No. 2 reef. Mr. Martin says, that wherever this track was intersected, the gold contents improved. The vein at the greatest depth attained gives good dish prospects. The stone is much oxidised, and streaked with snow-white kaolin, but when fresh is of a bluish-grey tint; it is well mineralised with arsenical pyrites. A trial crushing of 17 tons at the Struggle battery gave 9 dwts. gold per ton; of this, 15 tons came from the shaft, and 2 tons from the bottom workings. Rich stone, assayed in Launceston, yielded at the rate of 5 ozs. 14 grs. per ton. The reef seems somewhat disturbed south of the shaft, possibly owing to its intersection by No. 1. It was discovered by Mr. W. McCaul, and first worked in 1903, but has been idle since January of this year. An endeavour is being made to introduce capital into these claims.

Another shaft has been sunk further south, on the same reef, to a depth of 15 feet, where it has a width of 7 to 8 inches. The country-rock is a slate.

Reform Reef No. 3.—This reef, in the south-west corner of Section 414G, strikes N. 47° E., and dips north-west; consequently, No. 2 Reef intersects it at nearly a right angle. Two shafts have been sunk on it—the eastern shaft 30 feet and the western one 25 feet—a chain lower down the hill. The junction with No. 2 Reef takes place at a chain north-east from the eastern shaft, and may be expected to produce some heave, though there are still signs of stone in a north-east direction beyond the intersection. This is the reef formerly called the Reform Extended. A drive from the east shaft has been put in 24 feet north-east, along the side of a reef which is exposed to a width of 19 inches. The full width requires proving by a cross-cut south-west. The stone at bottom of shaft gives good dish prospects, and coarse gold is visible in some of the stone from the reef. Eight tons were crushed from this shaft, with 2 tons from the west shaft (at the Struggle battery), and returned 12½ ozs. gold, equal to 25 dwts. per ton.

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I could not go down the western shaft. The lode narrows at first as it descends to only 4 inches, but is stated to widen out to 2 feet at the bottom. The stone is dark-bluish, different somewhat in appearance from that in the upper shaft. Specimens which I took from the tip assayed 9 dwts. gold per ton.

The No. 2 Reef could be worked from this one at a convenient depth, and tunnels on the course of the reef could be driven at successively increasing depths from the western slope right down to the Dorset.

Further down the hill, on the course of the lode, a cross lode strikes N. 50° degrees W., dipping south-west. It is 17 to 18 inches wide, and is dark in colour, pyritic in nature, and is a little mixed with slate; a shaft has been sunk on this in the Ragged Youth section.

A tunnel on the course of No. 3 Reef would intersect the other reefs in the hill, and would be a good piece of work. Although there are about 300 feet of backs obtainable at the shafts by driving a tunnel at the lowest level, I would recommend that the first level be driven at about 100 feet below the bottom of the lower shaft. It is, as a rule, better to follow the stone down by successively lower levels, than to try it at an extreme depth, where, moreover, it could not be worked easily without airways higher up.

The facilities for working this claim are undoubted. The attempts which have been made to exploit the reefs with little or no capital have been inadequate to determine their real value; but have sufficed to disclose gold contents which, though perhaps irregularly distributed, are encouraging enough to warrant work on a more extended scale.

NEW MERCURY MINE.

The reefs on which this mine is worked were described in my previous report of 19th January, 1900, so that I need not recapitulate.

A small syndicate has taken over the two 2-acre gold leases, 633 and 634, from the Ringarooma Company, and is crushing small quantities of gold-bearing stone, the results of which are not published. From information firsthand, however, I believe that the first crushings returned 2 and 3 ozs. gold per ton; but that at present about 1 oz. or a little under may be taken as the average. There are two parallel reefs, No. 1 outcropping on Section 634, No. 2 on Section 633, about 230 feet apart, and bearing N. 55° W., with a north-east underlay.

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Work is being carried on in the two upper levels. The lower tunnel intersects both reefs. A winze sunk on the No. 1, or western, reef has been cleaned out to 50 feet, and shows 2 feet of stone in the bottom, gold-bearing. Going north on the reef for about 15 feet, it consists of 8 inches of poorish stone. In the south end of winze the quartz widens, but is of poor quality. A level south has been driven from the tunnel, but it is blocked by a fall, and nothing is known about it. In the north level the ground below the sole yielded about 7 dwts. gold per ton. The lode along this drive is mullocky, and in the end (about 50 feet from the flat sheet) has thinned out to 1 inch quartz, the rest of the face being black slate and slaty sandstone. A little stoping has been done above the winze in this drive. The tunnel also intersects the eastern reef. Only a few feet have been driven south, but the lode breaks off apparently in that direction, and nothing is seen in the end. In the north drive, at about 30 feet from the flat sheet, a winze has been sunk 40 feet, but the water had filled up when I was there. I was informed that the stone taken from underfoot along this drive crushed for 3 ozs. per ton. The end of the level shows a vein of quartz about 2 inches wide on the west side; the remainder of the face is slate. I was informed that about 25 feet of stoping ground is opened up by the winze; stone from 1 to 3 feet in width. The stone now being treated at the battery came from the bottom of this winze.

The upper level intersects only the eastern lode, at about 100 feet in, and this has been driven upon both north and south. In the north drive the reef continues for about 20 feet, and then tails out into blank country for a couple of fathoms. In the end, again, there is a nice width of stone, 17 or 18 inches, with a band of mullock in the upper part of the face. In the south drive, underhand stoping is going on below the level. In the roof of the drive, 15 feet behind the end, there is about 19 to 20 inches of white stone carrying galena, which a bulge widens to 2½ feet, and then a mere track, with quartz 1 inch wide, goes through on the east side of the drive up to the face.

Work in this mine seems to be regulated by the immediate results, and this does not admit of a proper development scheme being pursued. It is certain that some very rich stone has been extracted, although the quality is variable; and it seems also that, on the whole, the yield has improved at the depth attained. The northern part of the mine requires developing, and the necessary outlay for testing the reef in that direction would be justifiable.

The mine is provided with a 10-head stamp battery, with electro-silvered copper plates and Wilfley table. A 38-foot water-wheel drives the stamps, and the water is available for nine or ten months in the year.

SHORT STRUGGLE.

This reef may be perhaps best referred to here. It is the southern extension of the Long Struggle lode, on Section 1423-93g, and has been worked by Mr. T. M. Brown, but is now idle. It has been sunk upon 150 feet, and stoped at that depth. Work has been done here, off and on, for a couple of years. In the bottom level, about 20 feet have been driven south; and at the 80-foot level, about 20 feet were driven each way—north and south—the end of the north drive being near to the boundary-line between this and the Long Struggle section. The lode varies much in width, from a few inches to one place, near the north end, where it widens to 2½ feet. Small crushings have returned upwards of 2 ozs. per ton; but the last crushing was not quite so good as the previous ones, and the water was a trouble.

RINGAROOMA GOLD MINING COMPANY.

This company suspended work on the destruction of their battery by fire not long after my previous report on the mine. I am told that when work was left off at the main winze, the reef was still going down, 18 to 20 inches wide, of clean stone, not counting a parallel lode of veined stone. About 40 feet had been driven north on fair stone, small in places, but up to 3 feet in width. Gold could be seen in the stone; but it was rather poor on the whole. The south end was driven through the Gumsucker reef about 80 feet, and a further 80 feet through blank ground, to cut the South Rosalind. There was a winze sunk from No. 1 level to that on the South Rosalind, but no driving done below. At the last place where the reef was seen, it carried very good stone. The reef was passed through in the south winze at about 30 feet down.

It is a pity that adequate capital has not been found to continue work on this company's properties. The results obtained in the past are sufficient to encourage the introduction of capital for vigorous development.

McCAUL BROTHERS' MINE.

This is on sections adjoining the Central Ringarooma Mine, on 1351 and 1533-93g. The first crushing, which was being prepared for at the time of my visit, was taken from

the shaft on Pennefather's lode, now down 92 feet. Fifteen feet of water was in it when I was there, but I was told that the reef was 7 inches. The reef bears N. 60° W., and dips south-west. A bit of stone was got in sinking, and the stope is 15 feet north. McCaul began about fifteen months ago. Before his time, the Central Ringarooma Company had sunk to about 80 feet. The surface stone in a 5 to 7-inch vein returned 21 dwts. gold per ton. McCaul's parcel of 30 tons, crushed since my visit, returned only 13 dwts. 12 grs. per ton. Gold is freely visible in the stone, often associated with graphite.

The shaft is on the crest of the hill, and deeper sinking is requisite to get backs. Another shaft has been sunk to catch this reef on the underlay, and a cut from it is said to have just touched the lode.

On the 1533 section is the reef called "A1," bearing north-east, and dipping north-west. At the surface it is only 6 inches wide, but at the bottom of a shaft which has been sunk, 23 feet on the underlay, it has widened to 20 inches, or 2 feet, in the south end, and 7 inches in the north end; a drive is just being started. The reef has a strong appearance in an excavation which has been made a few yards further north, down to about 10 feet. The channel here is 40 inches wide, 19 inches of which is stone. The quartz of this reef has a nice streaky appearance, is loosely crystallised, contains iron and arsenical pyrites, and visible gold. The aggregate yield of the samples which I took from the reef in the shaft and excavations was 17 dwts. 12 grs. per ton, as per the Government Analyst's report. The reef has been sunk upon and trenched at different places down the hill further north. It has been regarded as being possibly the continuation of the Almora reef; but, as far as I could see on this visit, that reef would be a little farther west, unless its course has deviated somewhat. A mine started here could be worked to advantage by drives on the course of the reef lower down the hill to the north. The New River battery would be the nearest one for crushing.

ALMORA REEF.

Some shafts have been sunk upon this in the north-east part of Section 1465-93c. The old main shaft is about 25 feet down, and said to have 15 inches of stone in the bottom, which is, however, now under water. A little further north is a little shaft, only 15 feet, sunk on 9-inch stone, judging from the loose blocks of bleached quartz lying round at surface. A small cross reef intersects the Almora

Reef here, with about 4 inches of quartz, bearing N. 10° W. The strike of the main reef is N. 40° E. Two chains further north is another pit, called Miller's Shaft. Six feet south of the old main shaft, there is another shaft, with a connection between the two; and 15 feet further down a small drive has been put in, showing 2 feet of stone. I am informed that a first crushing taken out here in the early days returned 15 dwts. gold per ton.

MALUNNAH REEF.

This is west of the Section 1545-93G. Following the outcrop up the hill from the south, a trench first occurs, cut into the reef, with walls 4 feet apart, filled with sandstone and impure quartz. The reef strikes N. 20° E., and is nearly vertical, dipping slightly north-west. To the north of this are two shafts sunk on this reef. The most northerly is Searle and Pickett's one, the original shaft sunk. It was sunk 50 feet, and I am told that 15 or 20 tons taken out of it went 25 dwts. per ton. Then Krushka and Turner sank the south shaft, about 10 feet from the other, and drove and stoped on the shoot south for some distance, but the crushings returned only a few pennyweights per ton.

Fifty-five feet below the shaft is a tunnel, driven from the creek, upon stone reaching 6 or 7 dwts. per ton; the widest stone met with was 7 to 8 inches. Mr. Martin, with McCloughlan and Dane, worked this five or six years ago; but no crushing was taken out, as, when they reached the shaft, they found the ground had been stoped away. The stone is good-looking, blue, streaky quartz, containing iron and arsenical pyrites. The tunnel is driven into the hill south-westerly on the course of the reef.

CRICKET GROUND REEF.

At the Alberton Township, on the east side of the Dorset, just opposite the Cricket Ground, about 30 feet above the river, there is the outcrop of a reef on the steep hillside, striking N. 25° E., and dipping south-east. It is 2 feet 8 inches to 3 feet wide, and has been exposed by a small cut. Fifty feet higher up it has been cut into and bared for 5 feet in width. Its full width is perhaps 9 feet. The samples which I took showed only a trace of gold.

On the rising ground west of the school in the township, a reef is to be seen bearing north-west, a few inches wide; prospects have been got from it.

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MOUNT VICTORIA MINE.

This was described in my previous report. It is a pity that the mine is idle; it has some nice-looking stone 9 inches wide in an underhand stope below the No. 3 level, increasing going north.

A good deal of work was done here in the old times, but the reef was found to be displaced eventually, and very little attempt has been made to pick it up. Deeper work is also required here, as all the workings are still above the level of the Dorset.

PACK-HORSE REEF.

On Section 1556, the section south of and adjoining No. 1555 of the old Mt. Victoria, a small reef was discovered by Mr. McCaul at the end of last year. It is some 700 feet south-east of the old battery site, 150 to 200 feet above the track. It strikes N. 40° E., and dips south-east. A hole has been sunk on it, and a ton of stone crushed; but, as the crushing was a mixed one, the value of the quartz did not appear. At surface, it is said to have been a foot wide, but at the bottom of the sink (a few feet) it seems to have narrowed to a few inches. Dish prospects showed a colour or two, and I was shown some stone with heavy specimen-gold, stated to have come from this reef. The stone is white and mottled, with oxidised parts. Unfortunately, there are no backs worth speaking of, and to develop it, sinking would be necessary. Samples assayed by the Government Analyst returned 8 dwts. gold and 3 dwts. silver per ton. Descending from this to the track to the west a reef of white quartz appears in the bank of the Long Struggle race. It is imperfectly exposed, and seems to be bearing south-east; its width, as showing in the bank, is about 15 inches. The quartz is clean and unmineralised, but is worth opening out on, as the reef may be larger than shown in the race, and the stone worth something. Gold is stated to have been seen in it.

MAMMOTH MINE.

This mine is a quarter of a mile further south, on the same side of the river, on a 20-acre section in the name of L. D. Martin, held under a prospecting licence in the central part of the charted Sections 1588, 1589, 1629, 1630. There are three reefs on which a little work has been done—Nos. 1, 2, and 3.

No. 1 strikes W. 22° N., dipping north-east, 65 to 70 degrees, and has been opened upon for a length of 78 feet.

Two shafts have been sunk on it to 15 feet. It dips north-east, and traverses sandstone strata, which bear N. 25° W., dipping south-west. In the northern part of the open cut, about 5 inches of stone is seen in the end, with 2 inches of dig on the north wall. The stone is a yellowish glassy quartz, carrying coarse gold and a little pyrite, associated with a bluish variety of quartz containing a great deal of arsenical pyrites. The samples which I took from this cut, when assayed by the Government Analyst, returned 2 ozs. 18 dwts. 16 grs. gold, and 2 ozs. 6 dwts. silver, per ton. Just beyond the southern shaft, the face of the footwall carries coarse gold; here there is a bulge of stone, as if some other reef were junctioning with this, but it may be one of the expansions of stone frequently met with in the reefs. About 3 chains ahead is a gully which interferes with the immediate backs; but once this is crossed, any amount of cover can be obtained. In any case, a crosscut from the gully would give 100 feet of reef to work out below the outcrop; and, as the reef dips towards the creek at 65 to 70 degrees, the crosscut would not be very long.

No. 2 reef, discovered by Mr. W. McCaul, is about 7 chains south of No. 1, and 100 feet to the east of it; it strikes north-east, consequently, will intersect No. 1. It has not been traced yet across the creek. A shallow shaft, 8 to 10 feet, has been sunk on the outcrop, but had water in from the late rains. The reef is said to be solid in the bottom; at the outcrop it is somewhat mixed with country. The samples I took did not yield gold. This reef is, perhaps, not so important intrinsically as No. 1, but it will probably produce an important effect at its junction with that reef. The point of intersection should be located and kept in view. The overburden, down the hill to the east, has been prospected, and gives good results—the best near the creek. This gives rise to the presumption that the No. 1 line of reef has shed the most gold.

No. 3 reef, or the pyrites lode, discovered by Messrs. Martin and McCaul, is at the south-east corner of the 20 acres, and strikes N. 35° W., dipping into the hill. It is about 3 chains south of No. 2. A small hole has been cut in this, now filled with water, however. It has been cut again a few yards further south, where, though solid, it is barely exposed below the surface-soil. The stone is bluish and white laminated quartz (oxidising yellow), containing small bunches and streaks of arsenical pyrites. It carries no visible gold, and only a few colours have been seen; my samples only returned traces. The gold presumed

to have been shed from it was obtained by loaming. A mixed test crushing of a ton from the three places gave 1 oz. of gold.

It is hoped to get capital into this show shortly, with a view of giving the reefs a trial, which they merit. They are in the reefing belt, the Esk reef being a quarter of a mile south of them, and the Bright Star reef a quarter of a mile to the west, with the Mt. Victoria and Montana reefs half a mile to the north.

THE ESK MINE.

Further south, just below where the road crosses the Esk Creek, a track leads to this mine, on Section 534-93G, the last name of which was the Duke-Ransome. These two prospectors, who were at work here at the time of my last visit, soon afterwards discontinued operations; as, though the old stope in the back of the tunnel was not bad ground for working, the stone did not prove payable. A previous trial had given 10 dwts. gold per ton; so that it may be assumed either that the latter returns were below that figure, or that that yield was not profitable. When I last saw the stope, the stone was not more than 4 inches wide, and too poor to pay. Higher up the hill, however, the reef in Krushka's shaft was wider and more solid, and the mine cannot be said to have had a fair trial until the tunnel is extended far enough to come under the shaft.

Above this, on the hillside, Mr. W. McCaul has picked up a small reef, with two or three inches of stone, striking east and west approximately. He raised 4 tons of quartz from it in 30 feet of sinking. This was crushed in a mixed lot, which gave 1 oz. to the ton, consequently, its value was not determined.

McCAUL'S LITTLE SHOW.

To the east of the old Una track, in the southern part of Section 48-83, and below Duke's track, Mr. McCaul has found a quartz vein 2 to 4 inches wide, bearing N. 30° W., which shows gold freely now and then, and is well mineralised with iron and arsenical pyrites. It may be unimportant, but it serves to show that there is no break in the Dorset and Dan gold belt.

SOUTH STAR.

Opposite the preceding, on Section 614-93G, west of the Dorset, is a reef found seven or eight years ago by Messrs. Lee, Martin, and Searle; it strikes north-west, and dips south-west. The country slates here have the same strike

and dip. The reef consists of solid stone 1 foot wide, white and bluish quartz with pyrites, and always giving a few colours. A cut has been opened on it up the side of the hill for half a chain. It is about 40 feet above the north bank of a small creek.

EVERETT'S REEFS.

These are at the extreme south of the field, the only reef further south between here and the Una group being Farrell's.

Everett's main shaft is on the north boundary of Section 1238-93G, 5-acre. The reef strikes N. 40° W., and is vertical, or dips slightly to the south-west. A cut has been made on its course south for about 8 feet, and then a shaft sunk on it to a depth of about 30 feet. The reef in the open cut is 4 feet wide, of bluish quartz, strongly mineralised with iron and arsenical pyrites; a fine-looking, massive body of stone.

On the west side of the reef, a little black slate is intimately associated with the quartz. At the south end of the shaft, the reef has bulged to a width of 10 feet, which may be due to a junction of two reefs, and there is stone for several feet outside of the wall. No crushing has been put through. Mr. Everett has informed me that he considers the stone raised as being worth 3 or 4 dwts., but local estimates are about double that value. Mr. William Brown tells me that he took samples, which returned no gold. Attempts have been made to secure a flotation of it in Launceston, but unsuccessfully. Sinking would have to be resorted to, and, though the shaft is dry now, the water difficulty would present itself after getting below creek-level, which is 40 feet below the outcrop.

At 25 feet south-east of this shaft is another one, which was the original shaft started on what is called the east reef, now fallen in.

In beginning an open drive, a vein of white quartz of rather open texture was cut, showing very coarse gold. In the surface excavations, nothing is seen now beyond a couple of veins, of no settled character, and not very promising in appearance. On the pile, however, there is some nice-looking 6 to 8-inch stone, which came either from the open cut or shaft.

If these reefs can be shown to be capable of profitable working, the property will be an important one, as the size of the west reef is so considerable.

BRIGHT STAR.

This reef, situate on Sections 448-93g and 1176-93g, west of the Dorset, has had no further work done on it since my last visit. No depth worth speaking of has been attained, the pump-shaft only being about 50 feet down. A return of 14 dwts. gold is substantiated; but another crushing at the Alberton battery is said to have yielded only 7 dwts. per ton. The shoot of gold was a short one, and the stone split up as it was driven upon. This mine is of interest, as being the only one with a shaft sunk below the level of the Dorset; and further, as being one of the few reefs found on the west side of the river. The country on that side is geologically the same as that on the east side, and there is absolutely no known reason why that side should not be equally prolific in gold-bearing reefs.

FARRELL'S REEF.

This is further south still, on Section 563-93g, on the Una Hill, above Everett's, and is reported as striking north-west; but it was too far for me to include it in my examinations. The stone is said to vary in width from a few inches up to 15 inches. It was found about a couple of years ago, and a little stone was broken and bagged ready for the Struggle battery to crush, but the track was too bad for transport.

STRUGGLE RACE REEF.

East of the track leading up to the Long Struggle is a reef, which is exposed in the side of the hill, a few feet above the race. A small cut, about 4 feet deep, has been made into it, and some loose stone broken out of it. The reef seems to be about 2 feet 6 inches wide, and consists of white vitreous quartz, poorly mineralised. My samples returned in the Government Laboratories only 1 dwt. gold per ton. Its strike is not clearly defined, but is probably east and west.

DORSET VALLEY ALLUVIAL.

At places where the river has expanded, alluvial flats occur, which have not been bottomed; so little or nothing is known of any accumulations of alluvial gold. Some trials have been made on ground near the Ringarooma Company's battery, but the drift is wet, and no satisfactory results were obtained.

At the Dorset River bridge, on the Ringarooma Side, not far from where the road is now being cut down, gold has

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been found in alluvial on ground formerly held by F. Rowbotham. A shaft has been sunk 25 feet without bottoming.

A gully coming down Mt. Victoria from the Pennefather workings, through Core's and Wood's land, contains alluvial gold. A couple of shafts were sunk on Wood's land, near the New River school, which, I am told, bottomed on gold.

NEW RIVER ALLUVIAL (F. W. KRUSHKA).

This well-known ground is 15 to 20 feet deep, and contains a fair quantity of coarse, shotty gold. The largest size nuggets which have been found have been from 4 to 5 dwts. Specimens of white quartz 4 to 5 inches cube occur in the deposit. There is reason to believe that this ground has been enriched from reefs not yet discovered.

Wood's party has been working here some time on fair gold, and with varying luck. At present they are on gold, near the New River Road, and I hear they are doing fairly well.

The small township of Alberton is a secluded one, shut up in the valley of the Dorset, and with a future dependent principally on the progress of the local mining industry. The steep hill slopes offer no first-class agricultural land, a basaltic covering being absent, and the somewhat heavy and stony hill-drift resting only upon quartz-veined clay, slates, and sandstones, well timbered.

Higher up the valley, fern-tree, sassafras, and myrtle glades make picturesque spots. In my last report I spoke in favour of cutting a track for tourists to the plains near the summit of Mt. Victoria, and I am glad to know that the Northern Tasmanian Tourists' Association is arranging for one to be made. To make a complete job, a two-room shelter hut ought to be built near the spring at the foot of the rock columns which form the apex of the mountain, so that tourists may make the last climb in the morning to see sunrise from the summit.

Alberton is reached by coach from Scottsdale, 22½ miles along a good road, and can very easily be made an excellent resort for tourists. It is, however, as the centre of a mineral area that it will be principally known in years to come, for, though at present its reefs are found to be rather irregular, and often short, and very variable in quality, this is no criterion of what they will be lower down in more uniform country. No work has been carried down on them sufficiently far to warrant any unfavourable opinion. If the Mathinna field had been abandoned at

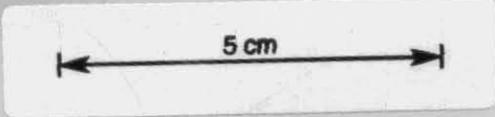
the Mt. Victoria mining depths, it would have been in the same condition as Mt. Victoria to-day. It is because there is no geological difference between the two fields, and because they are physically connected without interruption, and because the Mt. Victoria district abounds with reefs, many of which at some part or other of their course are richly gold-bearing, that a future may be predicted for this part of the gold belt.

I beg to tender my thanks to Messrs. Martin, Cobbing, Sowell, Fenner, Brown, and others at Alberton for information and help kindly given.

I have the honour to be,
Sir,
Your obedient Servant,

W. H. TWELVETREES,
Government Geologist.

W. A. PRETYMAN, *Esq.*,
Acting Secretary for Mines, Hobart:

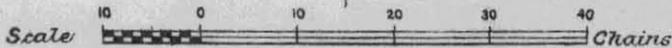


PLAN

OF

REEFS AT M^r VICTORIA

PLATE N^o 1



J. H. Conder *pur.*

W. H. Tindal
Government Geologist
7th October 1904

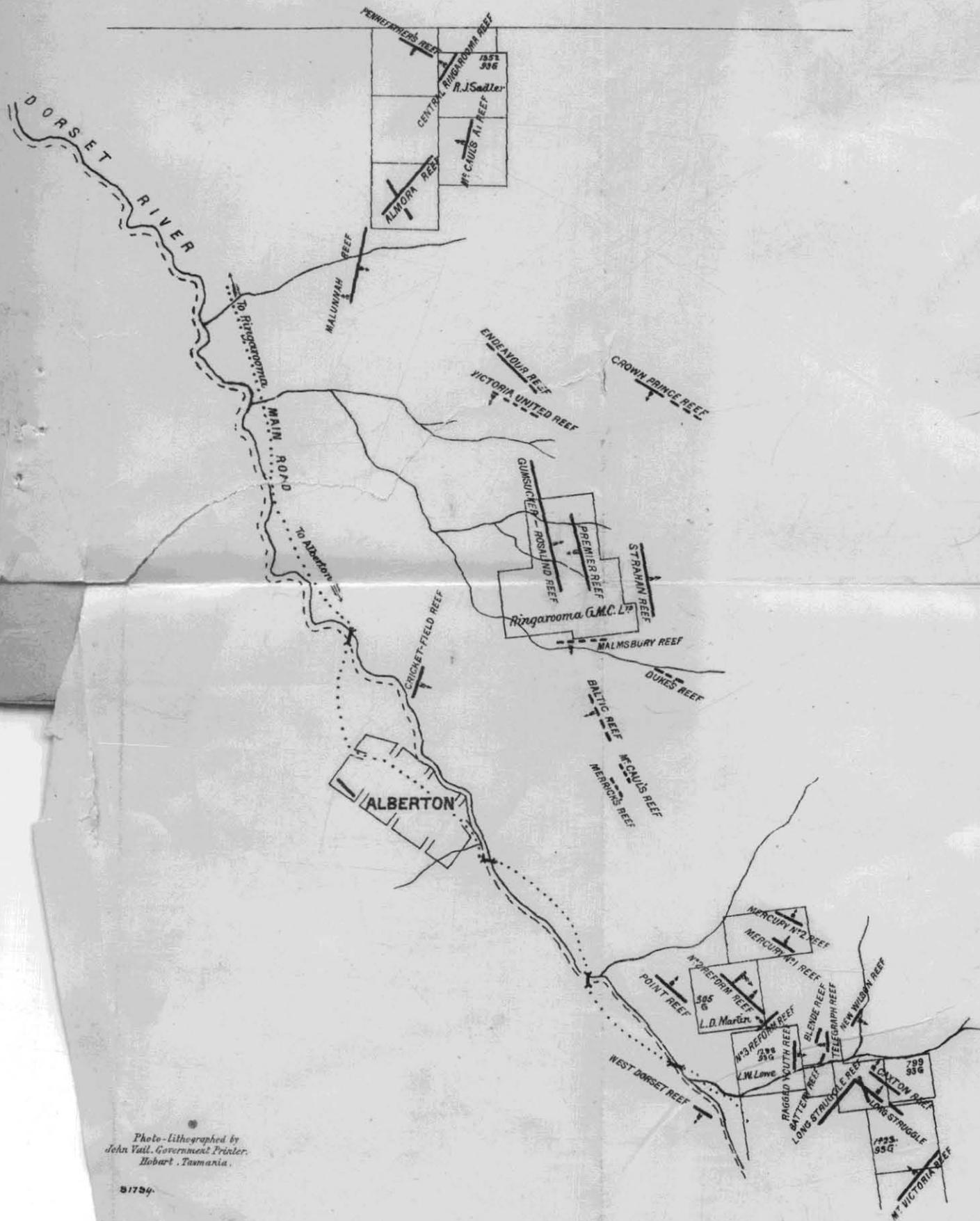


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PLATE N^o 2

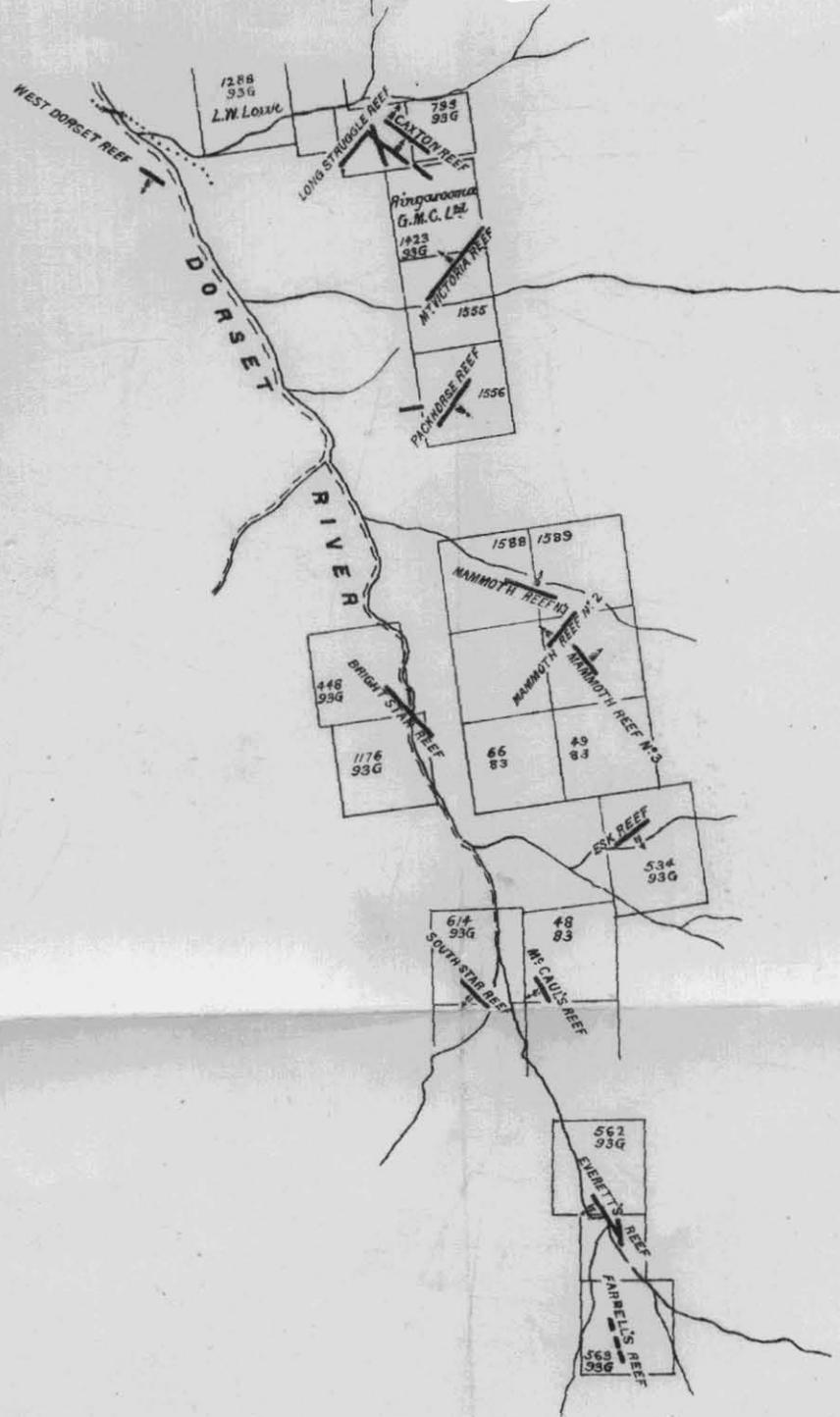
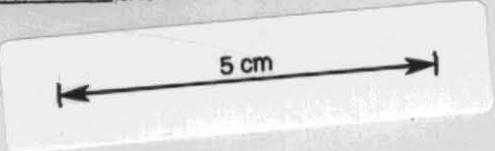
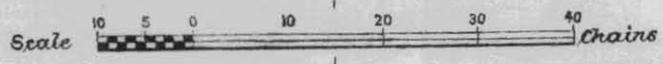


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