

WEST COAST.

MR. SPRENT'S REPORT ON ITS MINERAL RESOURCES

GOVERNMENT GEOLOGIST

Hobart Town,
13th July, 1878.

Sir,

I have the honor to furnish you with the following Report upon my last season's work in the vicinity of the West Coast.

The first work I undertook was to make an examination of the country between the Surrey Hills and Mount Murchison, with the view of ascertaining whether or not valuable minerals could be found in that locality.

I left Table Cape on the 5th November and proceeded to Mount Bischoff, where I procured provisions and made arrangements to pack them out. My party consisted of myself, C.W. Lord, and John Burke but, unfortunately, Mr. Lord was early in the expedition disabled by a wound in the leg, and was obliged to be conveyed back to Bischoff thus leaving me with only one assistant.

On the 16th November I established my depot on the south side of Hatfield Plain, close to the south boundary of the Van Diemen's Land Company. All the provisions were brought up to this point on pack-horses.

Netherby and Hatfield Plains are both large extents of open grass land; but as I could not determine the position of the V.D.L. Co's boundary, I am unable to say how much of them belongs to the Crown.

The work I proposed to undertake was to cut my way from Hatfield Plain to the point where Gould left off his examination in the vicinity of Granite Tor.

Leaving Hatfield and taking a S.E. course my route was down a gully of trap rock across a branch of the Hutchison River and then up a succession of steep spurs until we came on a button grass plain about three and a half miles from the depot. This plain is very wet and boggy quite unfit for cultivation. The trap rock here gave place to serpentine and schists, with small patches of conglomerates. Passing over about a mile of this button grass plain we again plunged into the forest of myrtle and horizontal and again found trap rock until we came to the top of an immense gorge quite one thousand feet deep. Descending this gorge we came on a hard green slate containing much iron pyrites a very likely looking rock, but I could find no traces of valuable minerals. Lower down the gorge where I came upon the drift, I found large boulders of quartz exhibiting stains of carbonate of copper and a few large masses of feldspathic granite. I could not form any idea of the situation from which these boulders were derived, and the copper was not sufficiently promising to warrant me in wasting any time in tracing it out. I therefore continued my way down the gorge, and after passing micaceous shales mudstones, conglomerates, and quartz drift, crossing a large creek and came down upon the Mackintosh River.

As soon as we had cut a track to the Mackintosh we carried out a quantity of provisions and shifted out camp across the river. The Mackintosh is a fine large stream, not very rapid, about sixty yards wide, and very awkward to get across. It is subjected to sudden floods, especially during the time the snow is melting.

I carefully examined the rocks in the river, and was rather surprised to observe immense masses of granite, evidently derived from a locality not far distant: some of these masses would measure ten tons. All the large masses were of one description, composed of white feldspar, black mica, and quartz; but smaller round stones are found of quite a different kind of granite, green mica and red feldspar. I could not obtain any traces of tin, merely quantities of titaniferous and chromic iron. It is evident that some where in this vicinity there is a granite formation, and I very much regret that I could not spare time to find it out.

After leaving the Mackintosh we cut our way up the south side of the valley through horizontal scrub bauera, and richias. On the high ground we found a great number of large pine trees of the King William species (*Artrotaxis*). These valuable beds of timber will some day be opened up, especially if minerals are worked in the vicinity. The pine appears to be very abundant, but at present it is almost inaccessible.

Passing over rough slate hills, covered with very thick horizontal scrub, we came on another valley and then cut our way into the open country. I was now close to Granite Tor where Gould left off his examination; and as all the country between me and Lake St. Clair had been reported upon by that gentleman, I made up my mind to return, my ^{services} being required at Mount Heemskirk.

Accordingly, I made ~~up~~ my way back along the cut track and arrived at Mount Bischoff on the 13th of December.

During the ^{trip} whole ~~trip~~ I did not find any trace of gold or tin, nor did I see any very promising indications; however, the fact of granite occurring in the Mackintosh holds out the hope that tin will reward the more systematic search of private prospectors. At present, however, the inaccessible nature of the country round the vicinity of Granite Tor deters prospectors from making any efforts to discover minerals; and if the present low price of tin continues I do not think tin mining in such a rough locality would prove a remunerative undertaking.

It would be interesting to find out the extent of granite in the locality especially whether it extends westward the junction of the Huskisson and Mackintosh; and if there should prove to be any connection with the granite of Mount Ramsay it is probably that valuable minerals will be found in the country between Mount Ramsay and Mount Murchison. I anticipate that important results will follow the efforts now being made to open up the mine at Mount Ramsay. The fact of being able to get provisions from this outpost will induce prospectors to thoroughly examine all the country between the Huskisson and Murchison; therefore, I think that the Government may safely leave to private enterprise all further examination of this place.

After spending a few days at home I made preparations for a surveying trip to the Pieman and Mount Heemskirk, and on the 14th January we left Mount Bischoff to make our way down overland. Besides myself there were in the party Messrs Lord, Gibling, Jones and Burke - a very strong party, and as the first three gentlemen are good surveyors I could have finished an immense quantity of work if occasion had required it. As it was, the work came in slowly and the party was never kept fully employed.

It is not necessary for me to give a detailed account of the season's work; the particulars have been made public in the newspapers, and I informed you as opportunity offered of the progress of the mining ventures in the locality. I also furnished you with an account of tracks cut by private enterprise and with maps of the surveys effected. I will therefore confine myself to giving information that will be of use to the Department.

Now that the presence of tin on the West Coast is an established fact, it becomes necessary to form some idea of its

probable extent and richness; and if we assume that the tin will be confined to the granites, and to the slates near the granite, we can make a good estimates of the locality in which it will be found.

A line adjoining Mount Bischoff and Mount Heemskirk would give very nearly the direction of the main body of granite about which tin has been discovered up to the present time.

Commencing at Mount Bischoff where the granite penetrates the slates for the first time, we find the immense tin deposits there in connection with euritic porphyry, slate, chlorite, and quartz. Very little tourmaline is found.

Passing over the valley of Tin Creek where we find slate rocks bearing mineral veins we come to the granite again upon Woombat Hill but of quite a different nature. The close grained euritic porphyry has given place to a coarse feldspathic granite and to quantities of quartz and tourmaline. Tin has been found in small quantities, but no systematic search has been made. Molybdenum has also been found in small quantities. From Woombat Hill to Mount Heemskirk the granites are remarkable for the immense quantities of tourmaline found in connection. After leaving Woombat we find the granite occupying almost the whole of the Meredith Range, and from the reports of Messrs Timbs and Donnelly it would appear that rich deposits of tin ore are to be found there.

Mount Ramsay is an outlier of this immense granite range, and although attention has been mainly directed to the bismuth and the minerals occurring with it, yet tin has been found under very promising conditions, and I have little doubt but that it will turn up in large quantities. At the Parson's Hood we come to the end of the granite, for as soon as the fall begins we come on to slate and quartz; but standing on the summit, it is evident that Mount Heemskirk is but a continuation of the Meredith Range; the immense depression intervening mainly composed of low barren hills, exhibiting no traces of minerals. The geological features of Mount Heemskirk are identical with those at intervals through the whole formation.

The granite does not extend to the westward beyond the Whyte River and Sprent's Track of 1877 whilst to the eastward the boundary is the Wilson River and Mount Ramsay. Round the edges of the granite we find a great variety of rocks. On the south-east of the Parson's Hood and on the north-west of the Meredith we get serpentines and a number of magnesian rocks, slates, and traces of gold, platinum, copper and immense quantities of iron. On the west side we get sandstones and slates in which no valuable minerals have been found up to the present time, whilst to the east the metalliferous land is cut off by dense metamorphic schists. I shall expect to hear of many valuable minerals being found round the edge of granite and slate of this range; and, as several companies are formed to give the locality a thorough over haul, we may expect to see good results during the coming summer.

In the vicinity of Mount Heemskirk we find the most favourable geological conditions, and I have but little fear of the future wealth of the locality. Here again the granites and porphyry are accompanied by immense quantities of tourmaline and quartz. One peculiarity is that the country contains large beds of iron ores most of them of very good quality - hematites, and magnetites, and clay ores. In several places I notice beds of iron conglomerate some thing resembling the famous "brown face" of Mount Bischoff. The tin occurs both in the slate and porphyry and generally in the vicinity of iron beds frequently in combination with tourmaline, chlorite, and tin bedded in quartz: - - - - -

these seams can be traced for some distance, and frequently furnish large masses of solid tin ore. It yet remains to be seen whether these seams will prove remunerative to work. I have much more faith in lodes in slate or in porphyry close to slate. On the east and north side of Mount Heemskirk there are very promising slates in which I have frequently found much iron gossan, leading me to believe that mineral veins will be found. As yet no mineral veins, except tin, have been found on Mount Heemskirk, and no trace of antimony, lead, zinc or carbonate of iron, minerals frequently found at Mount Bischoff. I have seen many specimens of copper, and one of bismuth so that we may reasonably hope to find workable minerals besides the tin.

The granite does not extend more than a mile and a half south of Mount Agnew; it is then succeeded by slates, greenstone, and then slates again. All the east side of the mountain is slate, and I do not think the granite occurs anywhere on that side as far as prospectors have gone. On the Pieman where some alterations of slate are found. North of the mouth of the Pieman the granite extends over a large area, but the strip is very narrow; the actual extent has not yet been determined. Over all this granite country ruby tin occurs in small quantities, and it is likely that in many places it will be found in remunerative quantities. So very little prospecting has been done that one cannot yet form an idea of the extent of payable ground.

As to the means of access so much has been written and so many opinions offered that it is difficult to form any opinion of the best course to be taken. After some thought I have devised a plan which I think will suit all parties.

If further discoveries are made in the Meredith Range the Pieman River will become the chief port. If, however, the tin is confined to Mount Heemskirk and its vicinity, ultimately the outlet will be from Macquarie Harbour. Taking the Emu Bay Company's sections as a central position then the distance to the mouth of the Pieman would be sixteen miles, to Macquarie Harbour about twenty-two. Government are now cutting a road from these claims to the mouth of the Pieman, and if this road were made fit for drays and a jetty made at the river no further work would be required for some time to come. But as the Pieman will always be dangerous to enter, and as many claims are nearer to Macquarie Harbour it will be necessary to make a road in that direction. There is already a very fair pack-horse track, but could be very much improved and a sum of about £100 would make it good as far as the beach? For some time to come I expect the beach will be used as a road, although it is very heavy work over the loose sands. The only difficulties are the Little River and the Henty, both of these sand up at the bar, and the water rises converting the mouths into large lagoons. When the current is running out there is not much difficulty in getting across. If two ferry punts were provided there would be no difficulty at all. Ultimately, however, something better will be required, as the loose sands are too heavy for drays. In my opinion the best and most economical way to reach Macquarie Harbour will be by a tramroad from Mount Heemskirk crossing the Little River and Henty three or four miles inland, and terminating at some inlet of the harbour where the water is deep enough to allow vessels to come close in. Some few miles up the Henty River there is a large extent of good land and some valuable beds of blackwood timber and if a road or tramroad passed near it would be opened up and utilised. If tin mining becomes a permanent industry upon the West Coast, there are many patches of good land fit for agricultural purposes sure to be utilised and plenty of valuable timber. Indeed a permanent settlement near Macquarie Harbour will be a material assistance to the welfare of the Colony. Although there is a difficulty at present in getting out timber yet, when roads are made to the various mining localities various industries will spring up.

Valuable timber abounds in the ranges, building stone of good quality occurs in many places, and, if I am not much mistaken coal will be found in several localities. In my opinion, all the requirements of the place would be met by a plan something of the following nature:-

- First. To make a dray road from Mount Heemskirk to the mouth of the Pieman, a distance of sixteen miles.
- Secondly. To improve the present track from Mount Heemskirk to the beach near the little river, providing ferry punts at the two rivers, and cutting a road from the beach to the landing place to be selected at Macquarie.
- Thirdly. To cut a pack-horse track from Mount Heemskirk to Mount Bischoff passing over the Meredith Range close to the discoveries at Pine Creek, thence over Wombat Hill to the Township of Waratah.
- Fourthly. To cut a track fit for stock from the mouth of the Pieman to the Montague Settlement.

Of these works the first two are most pressing. Government have already taken the first in hand, and are constructing a pack-horse track; but it would be better to open out a dray road.

The second work would not cost much: about £100 would make a good pack-horse track. When prospectors warrant the expenditure Government can then open up a road or tramway.

The ^{is} this work is very much ^{needed} to enable miners to communicate with the nearest settlement; and if a good pack-horse track were made the journey to Bischoff could be made in a day. The route I have pointed out would be the best one. It would not be desirable to make the one track do for Mount Ramsay and Mount Heemskirk. The main track should go over the dividing range, and the track from Mount Ramsay will be more to the westward.

The fourth ~~work~~ work is required to enable the miners to get meat driven down from Circular Head. My assistant Mr. C. W. Lord is now engaged in examining this route.

To open up the country and give access to the midland districts the tracks under by Messrs Counsel and Frodsham should be completed; they will suit the convenience of many parties travelling to the mines from the midland and southern districts.

It will be necessary to reserve three townships - one at Macquarie Harbour and at the Pieman, and one at Mount Heemskirk. I have not yet examined the localities sufficiently to enable me to indicate the exact situations.

During the coming summer a great number of prospectors will be out, and we may expect important results; and now that the preliminary difficulties have been overcome prospectors need have no fear of starvation and exposure. But much as I admire the pluck and perseverance of our pioneer prospectors, it has always been a matter of surprise to me that so few of them are able to distinguish minerals even those of the most common kind; and this want of knowledge, is the more blameable since both in Hobart Town and Launceston there are skilled assayers ready to instruct those who desire to learn. I have over and over again seen prospectors completely puzzled, unable to distinguish tin from iron. I have not the least doubt that many valuable minerals are passed over simply because the finders do not recognise their nature. It is a reproach to us as a Colony to know that if we had ~~we~~ possessed a few intelligent prospectors acquainted with mineralogy all the vast wealth of tin we are now robbing would have been brought to light years ago when the ore was more than double its present value. If Government could see it way clear to establish

in Hobart Town and Launceston classes for instruction in mineralogy I am persuaded that it would lead to very important discoveries being made. A small subsidy is all that is quired, and in time these classes would form a basis for the establishment of a School of Mines

Another^{er} important assistance Government might give, and that is to collect together all the reports of surveyors and geologists, and hand them over to some competent person to epitomise and then have them published for general information in the shape of a Miner's Guide. If to such a book an addition were made giving the characteristics, distinguishing features, and mode of occurrence of the principal minerals, the work would be eagerly sought after.

Now that public attention is directed to the West Coast it will be desirable for the Government to assist in opening up new localities. All the country north of Macquarie Harbour will be thoroughly examined before the end of the next season; and, as prospectors are well acquainted with the leading features of that part of the country, no further Government explorations are required. But south of the Gordon and Macquarie is a large extent of almost barren and unknown land, no prospectors have even been there, and none are likely to go unless they get a lead.

I would suggest that Government undertake the examination of this region with a view of ascertaining whether it is likely to afford valuable minerals. If it is found that granite is developed there as extensively as it is north of Macquarie, then I am almost certain that tin will be found too. I do not advocate cutting good tracks until it is ascertained where the most likely indications occur. I would suggest that the party be instructed to make a rough examination, cutting foot tracks and blazing lines, paying particular attention to the geological features of the country. The proposed exploration could be conducted from the Huon making use of the Craycroft road; and depots of provisions could be established at Port Davey and Macquarie. An expenditure of about £500 would do all that is required. I am persuaded that a careful examination of the Western Country will reveal other minerals besides tin. Serpentine and magnesian rocks are abundant in certain localities, chromic iron generally occurring with them; and I shall not be surprised if nickel is discovered in connection with these indications. The surroundings answer very much to the description of the nickel districts of New Caledonia.

Copper seems to be widely distributed but as yet no large deposits have been found: several very promising veins have been discovered during the past season.

Bismuth and galena have been discovered in small quantities in the slates near Mount Heemskirk.

Gold has been discovered widely distributed but I have not yet seen any deposits likely to pay for working. A small quantity will be obtained as a by-product from the tin washings, but I am afraid that the hopeful anticipations of some companies of obtaining large results from the gold will not be realised. In my opinion, all the gold I have yet seen is derived from iron pyrites, some I had examined in Melbourne gave one ounce to the ton. I have never seen a true reef although I believe several have been discovered that I have not yet seen. All the quartz that I have seen occurs in crystalline schists, and is an essential constituent. However, in many parts of the world the crystalline metamorphic schists are highly auriferous; and it may happen that further prospecting will disclose payable deposits upon the West Coast. Meanwhile I would advise prospectors to examine carefully the pyrites in the vicinity of gold, and to pay particular attention to the greenstone dykes serpentines, and magnesian schists.

In conclusion I may be permitted to express my gratification at the success attained by prospectors on the West Coast, the

more so since I can fairly claim to have initiated the movement myself. Government has every reason to be satisfied with the success resulting from their efforts to open up this hitherto useless region and they may now expect to recover the many thousands of pounds expended in many previous vain attempts.

Thanking the Government for the encouragement I have received in my toilsome work, and wishing the enterprising public success in their ventures.

I have the honor to be,
Sir,

Your very obedient Servant,

CHAS. P. SPRENT,

District Surveyor.

The Hon. the Minister for Lands and Works.