

REPORT ON NEW HENBURY TIN MINE AREA

BY

W. RUNTING ESQ.

JANUARY 1888

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"Alta - Mira"

Grandview Grove

Armadale

29th Janry 1888

W. Hunting Esq^{re}

Melbourne.

NEW HENBURY TIN MINE
AVOCA

Sir:-

Having in compliance with your instructions, examined the mining property which you desired me to inspect in Tasmania I beg herewith to send in my report thereon.-

On the right hand bank of the South Esk River, about 5 miles to the East of Avoca, at the confluence of Story's Creek (which takes its rise from the heights of Ben Lomond) with the above mentioned river, is the land on which the farm homestead of Mr Story is situated - part of which land I understand is under offer to you.-

On the North West side, the property is bounded by high ranges of Granite which from that point, slope gradually towards the river Esk, forming an extensive flat at its base; and it is on that slope that the ground leased from Mr. Story and that adjoining applied for on crown land has been marked off.-

The accompanying Sketch plan - on which I have plotted the lease obtained from Mr. Story according to the bearings as copied from his grant, and the parcel of land applied for on Crown land as a mining lease will show you distinctly the position of the ground which I have examined.-

Approximately the area covered by both sections

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is 7200 feet in length from my South west boundary line of the crown lease - not from the boundary line so marked on Mr. Wachemuth's tracing - to Story's Creek by a width on a average of 1500 feet; - the actual area, however, is: in Mr Story's lease 222 acres by survey and that of the Crown lease about 60 acres, making a total of say 282 acres.-

After examining the surface, the contour, and the general geological features of the country, and also the extent and appearance of the ground worked, I considered it advisable to sink several shafts, to sink several old shafts deeper &c.- By referring to the 1st sheet - the sketch map - you will find the places where they are situated and the second sheet will show you more readily than a long & tedious description could, the different layers of soil &c passed through from the surface to the Granite, which is, here, the bed-rock, or *locally termed, the* "bottom".

The Sketch Map and the Sections conjointly; illustrate the occurrence of the different ^{geological} formations within the area of the leases. - But before entering into the detailed description of those features I may mention -- first that the valley of the S. Esk about here seems for some distance to separate and to form the boundary between the slates of the Silurian formations, which follow the left side of the river, and the Granite ranges, which extend along the right hand bank.- These ranges forming higher and higher peaks towards Ben Lomond, contain veins of 'lode-tin', the disintegration of which simultaneously with the wearing down of the granite rock, has eventually formed the deposits of Stream-^{tin} which have accumulated in

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in the gullies, the creeks and in the lower land.-

The Granite is mostly of a coarse nature and composed of the usual minerals.- Some of the quartz however is of an unusually dark smoky colour.- In this kind of Granite I have not so far observed any concomitant minerals; but in the finer grained rock, Tourmaline is abundantly present; - yet, in neither have I detected any tin ore - *Cassiterite* -

As already stated a high granite range borders the North West limit of the leases, from which enormous weathered spheroidal shaped blocks, some of them in situ and some detached, have extended into them - the leases - forming three well marked ^{Granite} ridges, between which, and in the depression of which several narrow water courses, creeks, have carved their bed. - trending in a south easterly direction, from the higher towards the lower ground - the flat.-

The whole of the surface, excepting that of the granite ridges, as marked on the sketch plan, is covered to a greater or lesser depth with a dark loose loam mixed with a great percentage of the white and dark grains of quartz - derived from the disintegrated granites.- The loam varies in thickness, but it is rarely found to exceed 12" or 18".- It covers in places drifted granite sand, or granite drift, more or less friable, which, at times, attains a thickness of 3ft or 4ft and rests on a bed of plastic clay - Called "pug" - varying from a few inches to one foot in depth.- All the layers of this deposit contain tin ore - stream tin - (see samples I, II and III of shaft A.) and a reference to the Sections on

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the 2nd sheet will show, that wherever the surface soil has not been removed, either by the waters flowing in the creeks and gullies or by ground sluicing &c, that they form the "upper tin ore deposits," for instance, in shafts A & A₁, B, B₁, F, N, P, R, No.1 and No.2 - see sections on sheet II.- But along the course of the gullies and in the depressions of the ground &c this upper deposit has been cut through or washed away down to the granite bed-rock; and in one of the surface workings it has been artificially removed, thus disclosing clear sections of the "lower alluvial tin deposits" - ^{revealing} in the surface depressions - as in shafts ^(H, I, O¹ and in shafts n^o 3, 4, 5) and crown land - several feet in depth of granite drift and granite decomposed in situ, resting on the bed-rock; and in the bed of the creek on crown land, and in the most westerly ground worked in the lease, coarse alluvial gravels cemented together, which are especially in the latter workings the richest tin deposits to be seen on the ground, - see samples - and ~~represent~~ ^{alluvial} here, the lower or oldest tin formation.-

The "cement" in the bed of the Creek on crown land does not extend on either side of the banks of the gully, for both shafts O & P have been sunk to the granite bed-rock without finding any indications of the extension of the cemented alluvial gravel; ^{and as regards} ~~the~~ ^{rich} alluvial "Cement" in the workings above mentioned is all contained within an area of say ¹²⁰⁰ ~~1200~~ ft², in a depression of the bed-rock. These lower deposits have, no doubt, been partly brought down the ravines and creeks from the adjacent ranges, and partly from the distant higher granite mountains, to the North West, along the slope and course of Story's Creek, the Aberfoyle rivulet &c; and undoubtedly at one

time covered a wide extent of "country" from which they were subsequently worn away and removed by abrasion, leaving only in some places patches or remnants as marks of their previous ~~existence~~ ~~existence~~.

The complete section of the lower and upper deposits from actual measurements is sketched in the 2nd sheet.- How far the lower deposits may have covered the slopes of the lowland it is, now, not possible to conjecture, as all the south easterly boundary of the leases, before reaching the level of the flats along the S. Esk, is fringed with a deep alluvial formation extending along the "plateau" to the banks of Story's creek.-

In this alluvial formation which at intervals has been washed away by the present water courses, issuing from the ranges, giving it in places the appearance of isolated mounds; several shafts have been sunk; viz. shaft C to the depth of 8 feet, shaft N to 24 ft, and shaft L only to 4 feet.- The two latter without reaching the bed-rock, In the ~~deeper~~ ^{deeper} shaft after passing through the loam &c - the upper deposit - several layers of gravel beds, of a more or less coarse composition in which are imbedded large water worn ~~boulders~~ ^{boulders}, containing a little very fine tin ore, were sunk through, identical in appearance with the alluvial layers met with in shaft - C.- But in shaft L - outside the North boundary line - the top layer of conglomerate is similar to that in shaft K on the Crown land, but the lower beds are of the same character as those of the deeper shaft.

I am however not prepared to say, at present, having only been enabled to collect very few data, as no

(footnote)

* This shaft, I have been told ^(since writing this report) has been sunk to the depth of 48 ft, at which depth the level of the underground water was reached. -

shafts, it may be said, sunk in this formation - have reached the bed-rock, what is actually the relative position or connection, geologically, of this river "Wash" with ^{older or} regard to the conglomerate or "Cement" of the lower tin ore deposits.- Finally I must mention, ~~how~~ that at the lower end of the lease on the Crown land, close to the edge of the river, there, and also at the S.E. corner of Story's lease there are outcrops of basaltic rock, apparently overlapping the river "Wash". Other outcrops of the same rock are also to be seen lower down the -- Valley of the S. Esk, for instance, on the road to and at the railway station of the township of Avoca.

Such are after a careful examination of the area of the leases and adjacent country, the geological features of the ground, as they present themselves to my mind, and I have endeavored, briefly, to describe to you.

The exploring shafts, ^{trenches} &c - and the old workings of the tributors not only enabled me to form an opinion as to the formation of the tin ore deposits etc, but they served the purpose at the same time, of making it possible for me by sluicing average parcels of the "Dirt" to test the commercial value of the ground.- The appendix A shows the sites from where the samples were taken the approximate quantity of the stuff treated, ^{and} the results obtained from it by "washing" or "panning".

By examining the returns obtained you will perceive that the best general samples of tin ore were obtained from the alluvial "cement" in the gully in the crown land lease and in the tributor's workings nearest to the north west boundary line.- But in the first

instance it is evident that the conglomerate or cement does not extend far on either side of the gully, for neither in shafts O & I on the left hand bank, nor in shafts P No.1 on the right side of the gully, have any indications of its continuation been found.- And in the second instance the small conglomerate patch, covering only an area of 40ft by 30ft is surrounded on all sides by Granite.- I could discover no outlet, no extension of this alluvial wash in any direction.- Several places along the "bottom", left by the tributors, were tried, ~~and~~ ~~well~~ in these as also in the more easterly workings, but the deeper even shafts B and D failed to discover any other patch of similar alluvial "cement".-

You will also perceive by following the results obtained in different shafts that, apart from the barren granite ridges and shallow ground, that there are within the ~~lease~~ ^{lease} poor belts of surface drift, ^{- along F, H, I & -} and that the ground opened up ^{was} ~~was~~ originally the richest and I think, with the exception of its extension a little further up the "terrace" and downwards towards the bush road skirting the flat, the only "payable" portion of "the surface tin deposit"; at any rate in this part of the lease, for I cannot offer as plain an opinion with respect to the ground of the "plateau," ^{inasmuch} as after carefully examining the "surface deposit," although I should have liked to do so, I did not consider it absolutely necessary to sink trial shafts in it, and preferred using the labor at my command to test the depth and value of the river "wash".-

The two surface workings, cover an area of say: 10,000 square yards which at the average yields from the trials A, B, and R would suggest a smaller return than Mr.

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Story states was obtained from the ground, viz. about 7 tons of tin ore.- But it should be borne in mind that the output ~~would be~~ ^{was probably} supplemented by patches of ore, such as no doubt were obtained from the workings at B, from the "cement" at E, and of the cutting at T.- The quantity of ore obtained should have been greater, had the ground been properly worked, for tin ore has been left in sundry places in the decomposed granite "bottom" as proved for instance by the trial shafts B₁ & B₂ and the trial T.-

Thus I dare say that the weight of 7 tons of ore may be accepted as approximately correct, as the total output, so far, from the area worked in the lease.-

Referring now to the deep shaft N, which has been sunk at the lower end of the "plateau" for the express purpose of prospecting the river "Wash", it is at present 24ft in depth and is still in "Alluvial detritus"

To what depth it will have to be sunk before reaching the "bottom", I cannot venture to say as the Granite floor - the bed-rock) is very uneven. Possibly a deeper deposit of ore may be found, or it may be necessary to sink into the bed-rock and drive towards the flat for deeper ground. But without further instructions from you I did not feel, having completed the inspection of the "surface" that I was justified in attempting further to explore "under-ground" or even to await the result of the sinking of the deep trial shaft N,- the more as the ~~shaft~~ bottom of the shaft is about on a level with the "flat", so that in the event of discovering a remunerative bed or layer of tin ore, the ore would have to be raised by underground mining which would require the erection of a mining plant

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So far the alluvial detritus intersected in sinking the shaft contains only a trace of tin ore; even the surface deposit - the first 5ft - being poor.-

So far, my observations with regard to the lease on the private land.-

Relative to the lease on Crown land, the "country" is similar to that of Story's Lease, It is bounded on the N.W. side by bold Granite ranges, the rock of which extends from 4 to 6 chains into the claim, being there overlapped by the "upper drift tin deposit", forming a flat which with a gentle slope joins the river "wash" already alluded to in this report.-

The only creek coming from the ranges is the one previously mentioned in which - in the old shafts - K & T, fair prospects of tin ore were obtained by me in the "cement" along the bed of the Creek.- And as regards the river "wash" at the lower end of the claim, its value to some extent will be determined by the result obtained by exploring the deep ground at shaft N.- Thus the only portion of ground which I have to deal with now is the middle part of the claim - the flat - To explore this area, it seemed to me best to sink the trial shafts Nos. 1, 2, 3, 4, and 5 - see sketch map, and sections - at intervals of about 130 feet to 140 feet from each other.- The sections reveal that the "upper deposit" rests in the 3 first shafts on the lower granite drift and in the two last Nos. 4 and 5, a thin bed of "loam" only, rests on the Granite drift, lower which here seems of as poor a character, if not poorer than in Story's lease.- From appendix A you will perceive how poor not only the said lower granite drift is, but also even the "upper drift deposit".-

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Reviewing the above data it is evident that the remnants of rich lower alluvial "cement" at E, or the Creek conglomerate at K formations which have not been removed by abrasion, cover only a very limited area, in fact so limited that in a very short time the deposits would be exhausted, and so far, not withstanding ^{the ground} that has been explored in the most likely places, no indications of the existence of similar alluvial deposits have been as yet, discovered, so that the upper (drift) formation is on the surface the only source from which anything like a fair output of tin ore might have been expected to have been derived for some time to come, considering the large area covered by the leases, were it not that the siad area is very greatly reduced by the outcrop of the barren granite rocks; whilst those portions of it which are covered by the "drift" are ^{too} either shallow, or have proved on being systematically tested - with ^{the} exception of the small areas already worked and a few others of the same kind that may still be worked - too poor to be of any commercial value.- It is true that the property, as regards the surface "drift", has not been so exhaustively and so thoroughly explored as it would have been advisable to do had the numerous prospecting trial shafts given encouraging returns; ^{but} ~~and~~ this remark mainly, or only applies to that portion of the ground marked in the sketch map, "plateau"; although the greater part of the surface is covered by the river "wash".-

In the latter however, a shaft has been sunk to the depth of 24 feet without reaching the bed-rock. This shaft I would recommend should be sunk to "bottom" as it

would indicate whether (valuable ~~or~~ any) tin ore deposits were likely to be found in the deeper ground of the "plateau".- I am pleased therefore to learn that Mr. Wachs-
muths intends to continue the sinking of the shaft to the Granite &c.-

It is to be regretted that the tin deposits ~~on~~ the ground generally are so shallow and poor, for, the abundance of water, the facility in some places in disposing of the refuse "the tailings"; and the short distance to the Avoca railway, are all ^{three} ~~these~~ combined advantages which under other circumstances would have been invaluable.-

In conclusion, therefore, I beg to say that I consider that there is little scope for a mining venture or Company to establish stream tin works and plant; and hence I, cannot, recommend you to enter into any negotiations, either on the private property or on the crown land lease with the view of, or for mining purposes, - at any rate, pending the result to be obtained from the sinking of the comparatively deep shaft N.-

I remain

Sir

Yours very faithfully

H. D.

P.S. In a letter which I wrote to you from Story's homestead I gave you a résumé of my observations and opinion relative to Gillighon's land and Denshay's claim. As I have not altered the opinion I then expressed, I do not think it necessary unless you wish it, to enter into any further particulars on the subject.

