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PROPOSALS ON DRILLING THE PERIPATETIC TIN PROSPECT, HEEMSKIRK, TASMANIA E.L.7/68.

by

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INTRODUCTION

The Peripatetic Tin Mine is situated 12 miles West-North-West of Zeehan and access is reasonable via either Trial Harbour or Granville Harbour along newly constructed unsealed roads.

The deposit is located within granite country and alluvium and colluvium over granite. Little geological data can be gained from the surface geology and old workings are generally inaccessible. However, G. Waller, in the old reports, (Appendix I), gives a description of workings that were available to him and summarises old local mining and government geological knowledge.

This report and the map (Figure I) of Waller enclosed herein are self explanatory. The most interesting points arising from the report are:

1) the excellent Sn grades indicated,
2) the excellent widths indicated,
3) the coarseness of some cassiterite,
4) the strike of one lode is known and the dip direction is indicated.

Other features which make this prospect an excellent target and make for relatively cheap exploration are:

5) accessibility for drilling,
6) accessibility for marketing,
7) shallow testing,
8) water supply for drilling and mining,
9) occurrence of sulphides which, in other West Tasmanian localities, have been shown recently to carry the tin bearing sulphide Stannite in tin lodes wherein it was previously unrecognised and disregarded.

10) if the lode extends the sulphide content of lodes may provide an excellent indicator for SP, EM or IP methods of the lode detection beyond the known workings in otherwise relatively featureless terrain,

11) considerable progress has been made recently in extracting fine tin and tin from sulphides in West Tasmania,

12) a second lode exists and lodes other than those known may also be present.

PROGRAM

It is proposed firstly to site a diamond drill at three positions 100 feet apart on a grid with base line parallel to the Main Lode (Figure I). It is proposed to drill two shallow holes beneath the old workings from each site at different angles of depression (see Table I).

COMMENTS

1. The dip of the lode is uncertain so that the sites, and depressions of holes, may be varied after DDH1 gives information on the lode position and dip.

2. Lode tin deposits (with vein deposits of W and Mo) are notoriously variable in width and grade. In consequence diamond drilling results have to be assessed with this in view.

In Cornwall and elsewhere DDH results are merely used as a guide to the location and existence of tin deposits. Intersections of meagre width are driven on in full expectation that veins will make to ore.

Proposed drill holes and intersections are close spaced to assist in appraisal with this expected width and grade variability in view.

3. This deposit is one of the better lode tin prospects known to be present within our Exploration Licence E.L.7/68. If preliminary exploratory drilling results show interesting widths and values, extensions should be traced by ground geophysics and further drilling.

4. Our aim should be to indicate in the first instance some 1,000,000 tons of tin ore grading near 1% Sn. Such a tonnage could be contained in a block 200 yards length by 150 yards depth by 15 yards width. The value of metal in the ground if such an aim were realised would exceed $A30,000,000 on the present tin market. If the objective were realised it would be a prelude to extensions of exploration for lode tin throughout the Peripatetic area.

Dr. J.H. Rattigan

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Table I

Appendix I

Map I

TABLE I

Site	DDH No.	Bearing and Depression	Target	* Approx. depth of intersection (and hole depth)	*Vertical depth of intersection	Remarks
1	1	130°, 70°,	Main Lode where good width and values are indicated beneath No. 3 Tunnel	200', (450')	180'	-
	1A	130°, 55°		140', (250')	115'	Contingent on old workings
2	2	130°, 70°,	Main Lode beneath winze, where excellent grade ore is cited	200', (450')	180'	-
	2A	130°, 55°		140', (250')	115'	Contingent on old workings
3	3	130°, 75°	Main lode beneath old shaft	200', (450')	180'	Contingent on intersecting mineralisatic from Site 1 and 2.
	3A	130°, 55°		140', (250')	115'	

* Lode dip is uncertain but is presumed to be 80°N.W.

APPENDIX I

Extract from Geol. Survey of Tasmania, Annual Reports 1900-1903 by G. Waller.

The Peripatetic Mine.

Section 5157-93M, 10 acres, charted in the name of G. Smith. This section is situated in the north-western portion of the Heemskirk field. It is a mine which, in the old days, was held in high repute, but, like some other good mines in the district, was abandoned when the boom which was the cause of so much extravagance collapsed. The company owned a stamp battery and concentrator, but I learn from Mr. Con. Curtain, Inspector of Mines at Mount Lyell, who was the then mining manager, that very little stone was crushed. The old mistake was made of erecting the battery and concentrator before developing the mine, and without making provision for unfortunate contingencies, which are almost inseparable from a mining venture of this kind in a new district. From information kindly supplied to me by Mr. Curtain, I conclude that the plant was so inefficient, the consequent loss in dressing the fine tin (aggravated by want of skilled labour) so great, that only the richest ore would pay for treatment, and, under these circumstances, with tin at a very low price, the mine could not pay for its own development, and for want of further capital had to close down. Mr. Curtain tells me that he still has faith in the mine, and that twice since the mine was abandoned he has himself taken up the ground, and tried to get capital into it; unfortunately, without success. Such is in outline the history of the mine about to be described.

Plate III. gives a topographical sketch-map of a portion of the section. The mine workings are situated on the eastern slope of a low spur which separates two small creeks. The surface rubble of the eastern slope of this spur proved to be rich in tin, and some of this has been worked by the present owner of the mine, with satisfactory results. The tin is both coarse and fine, the coarse-grained pieces being often beautifully crystallised. Great difficulty was experienced in saving the fine tin in the streaming-box, and no doubt a large proportion of this was lost.

The underground work has demonstrated the presence of, at least, one tin-bearing vein, striking about 40° E. of N., and dipping towards the north-west. Both the granite in which this vein occurs and the vein-matter itself are much decomposed, and it is often not an easy matter to distinguish between them. Where the tin is richest the matrix consists of a soft iron-stained kaolinic substance, which I think is derived from the decomposition of pinitoid and felspar. I think, therefore, that in depth the vein will turn out to be one of the pinitoid type, but it is too soon yet to speak with

certainty. Where I could observe it, the vein has no walls; the decomposed vein-matter simply passes over into the decomposed granite. In one portion of the mine, at least, the granite is not normal. It is fine in the grain, and contains quartz-tourmaline nodules in abundance. In general character it approaches an aplite. On the beach, to the west of the mine, I observed a rock of similar texture, also with quartz-tourmaline nodules, occurring as a distinct dyke in the coarse-grained granite, and I think it is likely that this rock is also a dyke. The rock is one which should be carefully studied, because, as will be seen later, it has to some extent been impregnated with tin ore from the vein.

No. 1 tunnel was started almost from creek-level, on a course of N. 30° E. A fall of earth prevented my making an examination of the workings. It appears that the lode was cut about 75 feet from the mouth of the tunnel, and driven on for 45 feet. At this point a winze was sunk on the lode for a distance of 33 feet. Mr. G. Smith tells me that about seven years ago he bailed out this winze and found that the lode was 4 feet in width, and contained a seam of almost solid ore 4 inches in thickness, the remainder being decomposed vein-matter, containing fine tin in payable quantities. Mr. Curtain informs me that the rich ore is very patchy, no less than three-makes having been encountered in 33 feet. Below water-level there is a good deal of pyrites present, which probably accounts for much of the difficulty experienced by the old company in treating the ore. No provision was made in those days for roasting, and, in consequence, where pyrites occurred, the lode was considered to be unworkable.

No. 2 tunnel was started about 10 feet (vertically) above No. 1. The lode was cut 30 feet from the entrance, and some ground to the north of it was stoped out and crushed. There is pyrites in the ore, which no doubt gave the company much trouble. The stopes are open and untimbered, and could not be properly examined.

In No. 3 tunnel the lode was cut close to the entrance: it is here 7 feet wide, and consists of decomposed iron-stained kaolinic matter, carrying fair tin. A bulk sample taken by me from the whole of the lode-matter exposed returned 2·5 per cent. metallic tin. A little further in, a second, somewhat irregular, vein was cut, which carries rich tin in patches. A bulk sample across 2 feet of lode-matter yielded 2 per cent. metallic tin. This tunnel continues in the coarse-grained aplite already mentioned, containing abundant quartz-tourmaline nodules, but is blocked up 42 feet

from the entrance by a fall of earth. Up to this point the rock all contains fine tin ore, distributed through it. A large bulk sample, taken outside the veins for a total distance of 30 feet, yielded 0·93 per cent. of metallic tin. With the object of ascertaining the distribution of the tin ore, the following selected samples were taken:—(1) A sample of the quartz-tourmaline nodules; this yielded 0·4 per cent. of metallic tin, or approximately the same as that obtained from these nodules in other parts of the field. (2) White decomposed aplite, or fine-grained granite, which yielded 0·8 per cent. metallic tin. (3) Decomposed aplite, or fine-grained granite, slightly stained with iron-oxide, which yielded 1·6 per cent. of metallic tin. I think these results practically demonstrate that the tin has been derived as an impregnation from the veins. Had the tin been an original constituent of the aplite, we should have expected it to have been concentrated, more or less, in the quartz-tourmaline nodules; the opposite, however, is the case. The nodules contain their normal percentage of tin, while the aplite contains an abnormal amount. The fact that the iron-stained aplite contains a higher percentage than the white aplite, may be accounted for on the assumption that the former has been more affected by the impregnating solutions than the latter, and that, besides more tin, perhaps a little pyrites, or some other iron mineral, has been deposited. Perhaps, also, the cause of the impregnation may be found in the structure of the aplite. Aplites frequently contain numerous minute spaces, known as miarolitic cavities; and assuming that to be so in the case of this aplite, we may readily imagine that the rock would lend itself to impregnation by the stanniferous vapours arising along the vein-channel. Whether this is the case or not, the fact remains that this rock has been impregnated to a much greater extent than the surrounding granite. I tested the granite in other parts of the mine, but nowhere did I obtain more than $\frac{1}{4}$ per cent. metallic tin.

The bulk samples taken in this mine are, I believe, reliable so far as they go, the nature of the stone permitting a large sample to be easily taken. In each case, from 40 to 80 lbs. of stone was broken, and carefully quartered down. The results, I believe, are satisfactory, and demonstrate the presence of a large formation, carrying tin in payable quantities. The bulk sample from the aplite is, of course, low, but still, considering the extent of the formation, it should be payable; and it must be remembered that this sample is exclusive of the richer stone contained in the veins. If

this be included, we get, as an average of all the stone exposed in the first 39 feet of tunnel, 1·26 per cent. metallic tin. In depth we may expect the tin contents to decrease somewhat, as, owing to the decomposition of the granite, and the consequent removal of a portion of the felspar, the tin becomes to some extent concentrated near the surface. This cause affects the tin contents of the vein-matter to a greater extent than the aplite, because the former is more decomposed; but, on the other hand, none of the rich patches of solid tin ore which were met with in No. 1 tunnel, and the winze below that tunnel, are included in the samples, so that these rich patches may to some extent make up for any decrease in the amount of the finely disseminated tin.

It is impossible to estimate the extent of the tin-bearing aplite at the present time. It is not cut in either of the tunnels further north, and I think it may be a flat dyke dipping to the north, and, therefore, underneath the northern workings. This theory is strengthened by the fact that flat dykes of a similar nature occur on the coast-line to the west of the mine, where a good section is exposed. It is also possible that it is merely a mass produced by segregation in the granite magma. The point can only be definitely decided by underground work.

No. 4 tunnel was started from a small surface-stope, which was made by Mr. G. Smith, on the second vein of tinstone met with in No. 3 tunnel. The stone was thoroughly decomposed, and was treated in a sluice-box. Mr. Smith tells me, however, that the tin ore was so fine that he only succeeded in saving a small proportion. I took a sample from some of the better-class stone exposed, which yielded 4 per cent. of metallic tin. The tunnel is driven through decomposed granite, which contains a little tin. Two samples taken by me along the tunnel from the first 22 feet and the second 22 feet yielded 0·25 and 0·2 per cent. of tin-oxide respectively, showing that, although the granite has been to some extent impregnated with tin ore, this has not taken place to such an extent as in the aplite.

No. 5 tunnel was driven along a flat quartz-tourmaline vein of unfavourable appearance, dipping towards the east. The granite here also contains a very small percentage of tin. This tunnel is too far west to have cut either of the lode formations exposed in the other workings.

I believe the Peripatetic Mine is a thoroughly genuine prospecting show. It presents two propositions, both of which appear to me to be very promising. In the first place, there is the lode, which, so far as I can learn, is pay-

able as far as it has been developed; and, in the second place, there is the impregnation of ore in the aplite, also payable as far as exposed. Further developmental work is, of course, required before the value of the mine can definitely be demonstrated; but, as far as surface indications go, I consider them to be most encouraging. It is to be hoped that, in the event of a mining company being formed, it will not follow the example of so many mines in the district, and erect machinery before testing its mine. Developmental work must precede the erection of machinery; any other course must end in failure.

The Persic Mine.

Section 233M, 40 acres, charted in the names of W. Rodd and D. Sullivan. This section is situated on the St. Dizier Creek, at North Heemskirk. There is a small vein of green tourmaline on this section, striking about 30° W. of N., which carries good tin, and has shed a fair quantity into the rubble at its outcrop. Much of the tin contained in the rubble is in the form of coarse nuggets, and these have also been obtained from a small creek in the vicinity, which has been worked for tin. I think the vein is hardly large enough where exposed to warrant much expenditure, but it would be worth while sinking a prospecting shaft a short distance, to ascertain if any improvement takes place. Some more surface trenching should also be done, to locate any larger veins of the same character which may be present. There is a good deal of tourmaline aplite on the section, some of which is exceptionally rich in tourmaline nodules. These all contain some tin, and I think it would be worth while taking a bulk sample to ascertain if it is present in payable quantities; with the large quantities of stone present, a small percentage would pay.

Wilson and Brampton's Sections.

Sections 178M and 179M, each 40 acres. These are situated north and adjoining the Persic. Near the south-east corner of Section 179M a prospecting shaft has been sunk on a small quartz-tourmaline vein, from which some rich samples of tin have been obtained. The tip has been industriously picked over, and the best of the stone crushed by hand and dollied. I fear that this vein, where exposed, is too small to warrant sinking operations being undertaken,

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SKETCH PLAN OF THE PERIPATETIC MINE

H.E.M.SKIRK

5 cm

SCALE OF FEET

30 0 150 300

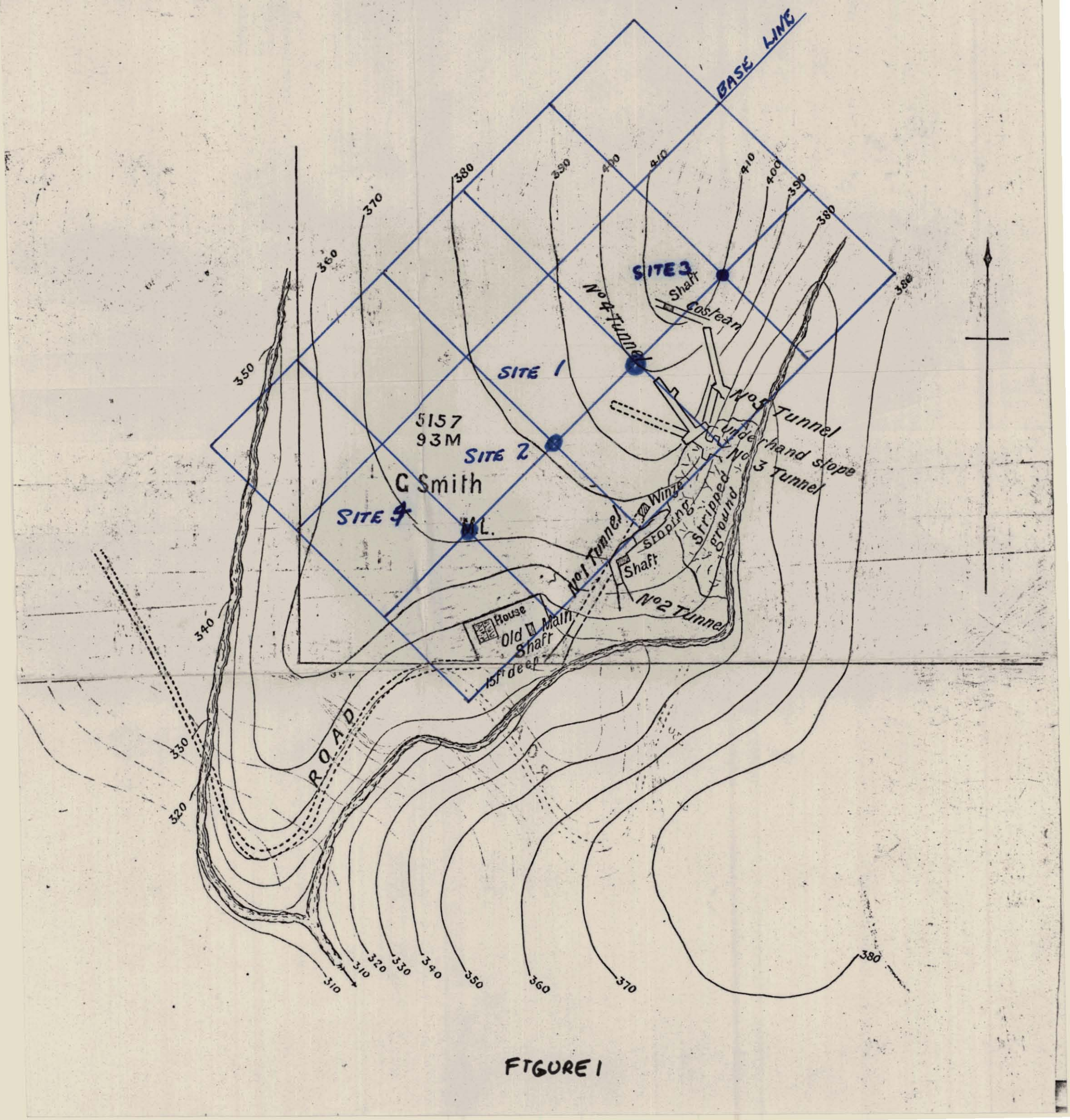

FIGURE 1