PRELIMINARY REPORT ON THE MT. VICTORIA GOLDFIELD

by

LOFTUS HILLS, M.B.E., M.Sc.,

DIRECTOR, GEOLOGICAL SURVEY OF TASMANIA

(1) CIRCUMSTANCES AND SCOPE OF THE INVESTIGATION

This report deals with the net results of an examination of one unit of the extensive gold belt of North-eastern Tasmania, viz, the Mt. Victoria Goldfield, situated in the vininity of Alberton which is about 8 miles from the Station of Legerwood on the North-eastern railway.

The examination just completed constitutes part of the scheme for the complete investigation of the gold deposits of North-eastern Tasmania proposed by me in 1921 and accepted by the Honourable Minister for Mines at that time (the Hon. Sir N. E. Lewis K.C.M.G.). The scheme as originally outlined was designed to in the first place cover the fields on which extensive mining operations had been carried out, in order to collect all the available data necessary for the elucidation of the problems presented by those fields in which the amount of exploitation has been definitely limited. In accordance with this scheme the examination of the Beaconsfield area was undertaken but before its completion the present Minister for Mines (the Hon. E. F. Blyth) acceded to requests that the Mt. Victoria field should be reported on at once.

In carrying out this investigation attention was not confined to the mining properties alone but the geology of the surrounding area of 100 square miles was examined in detail in order to enable modern principles of economic geology to be applied to the gold lodes themselves. The actual portion of the Mt. Victoria-Mathinna-Mangana gold belt included in this present investigation is that extending from Donovan's freehold in the north to the old Una mine in the south - a distance of approximately 6 miles.

The objective aimed at during the investigation was to determine: (1) the factors controlling the formation of the lodes and the deposition of the gold; (2) the criteria by which the persistent and valuable lodes may be distinguished from those which are economically unimportant; and (3) the justification (if any) for appreciable expenditure on sinking on the lodes to determine their value in depth.

(2) OBJECT OF THIS REPORT

This report is intended to convey in a strictly summarised form the general conclusions arrived at in regard to the abovementioned points. It is desirable to do this at once in order that intending investors should know exactly what justification there is for the allocation of capital to the development of this field. Further than this, it is essential that whatever capital is thus invested, it should be used to the best advantage and used on such work as is destined to most expeditiously and effectively

bring about the development of a practically dormant field possessing potentialities as a gold producer.

(3) THE GOLD LODES AND THEIR ORIGIN

In the Mt. Victoria goldfield there have been located no less than 100 lodes. These have all been surveyed and examined during the present investigation with results that show a marked variation from the orientation, size and position of many of them as depicted in existing plans of the area.

The survey shows that the lodes are confined to a narrow belt about half a mile in width and having a bearing of 10° west of north. This belt parallels a double thrust fault which outcrops about ¾ mile to the eastwards but which passes under the auriferous zone. The direction of movement has been accompanied by a pronounced "buckling" of the strata being pushed along the upper side of the thrust plane. The axis of the anticline thus formed has a direction of 10° west of north and the lodes are confined almost entirely to this structural feature. Both to the east and west the more gently folded sandstones and slates do not show the fractures characteristic of these rocks within the effect of the anticlinal buckling. Such fracturing on the anticline has provided the openings through which the ore-bearing solutions have travelled and within which they were deposited and now constitute the gold lodes.

The origin of the ore-bearing solutions has undoubtedly been the underlying granitic batholith, continuations of which occur both to the east and west, where however it is characterised by the predominant presence of tin.

The gold belt, therefore, is confined to a narrow zone lying between the tin-bearing granite of the Star of Peace on the east and the Maurice on the West, and this belt is still further delimited, by the effect of the structural geology, to the anticlinal belt which is not more than ½ mile in width. The present investigation has produced abundant evidence which justifies the conclusion that no gold lodes of importance need be looked for outside this anticlinal belt. There is thus explained what in the past has been a mystery, viz, that no gold lodes had been located west of the Dorset River (except perhaps towards the extreme north of the area). The reason is that the anticline is on the eastern side of the river and only crosses it very near its head in the vicinity of Everett's and Bright Star lodes.

The lodes, being thus located on the crest and limbs of this anticline, are structurally of two types. One type which is very common throughout the belt is due to tensional fissuring near the crest of the anticline. Into these "cracks" the ore-bearing solutions migrated and quartz lodes were deposited, many of which contain good gold values. Because of the mode of origin, however, such lodes are limited both in length and depth although quite wide bulges in width occur. This is the explanation of many lodes pinching out both along the strike and dip. Such lodes although rich in places cannot be regarded as possessing that persistence which is essential to the existence of a permanent gold

mining industry.

The second structural type of lode, however, is of far greater importance, being due to definite faulting caused by compressive forces acting over a larger space than the local tensional forces causing the cracking on the crest. Such faults are up to some hundreds of feet in length and may be expected to persist downwards to an appreciable depth. Being due to compressive forces such fault fissures resemble other similar systems known in many mining districts where two systems of lodes occur with strikes approximately at right angles to each other and constitute a "conjugated system". It is on the lodes of this conjugated system that the future of the Mt. Victoria gold field must depend.

The character of the lode material varies throughout the field. There is one type of vein quartz which consists of white quartz carrying free gold and very little pyrite, arsenopyrite or galena. These latter minerals, however, are plentifully distributed in the other type of lode-filling which also carries free gold but portion of whose total gold content is carried by the sulphide minerals, particularly the galena. This latter type consists of a dark coloured quartz, the dark colour being due to the sulphidic minerals. A typical example of the former type is the quartz from No. 3 Lode on the Ringarooma Mine, and the latter type is represented by the Mercury Lodes.

The main gold deposition has resulted from the original appearance of the ore bearing solutions in the fissure channels and is not the result of secondary downward enrichment. The gold thus being primary may be expected to continue downwards along the definite gold shoots to such depths as would provide a basis for mining on a comprehensive scale.

In addition to the lodes there are several areas which possess distinct possibilities as sources of alluvial gold. One of these localities is on Donovan's freehold both near the homestead where the shaft was recently sunk and also further up the other branch of the Creek towards the Tiger Lode. The other locality is along the Dorset Valley particularly just above Becker's at Alberton and near the junction of the creeks flowing from the Ringarooma, and old Alberton Mines. Systematic boring in these localities is recommended as shaft sinking, which was unsuccessfully attempted in the past is too expensive and difficult in such ground.

(4) THE PRESENT STATUS OF THE FIELD

It is now over 40 years since this field was first discovered. During that time upwards of £60,000 worth of gold has been produced, the greater portion of which was secured during the first twenty years. When it is realised that in no part of the field have the lodes been worked at a greater depth than three hundred feet below the outcrop, it will be seen that their value must be such as to warrant serious attention. The greater number of the lodes have been sunk or driven on for a few feet, the immediately available ore extracted, and work then abandoned. At the time of such cessation of work the lodes either showed low values or had pinched out or the inflow of water terminated the ill-equipped operations. In most cases no serious attempt has

been made to pick up the extension of the lode or drive through the low-grade material, or cross-cut for parallel lodes. The result is that at the present time no estimate of the value of the lodes could be arrived at by sampling which would indicate the true average value.

The field has lain practically idle for 20 years until within the last twelve months, but the work accomplished by the recently organised companies and syndicates has not yet been sufficient to open up faces of ore which could be sampled and used as a reliable basis for an estimate of ore values. Any estimate of the value of the field must, therefore, at present be based on the result of past production taken in conjunction with the degree of probability of the downward persistence of the lodes themselves and their values to be deduced from the geological evidence.

The present status of the field is in fact exactly similar to that of the Mathinna field many years ago before the continuation of sinking below 200 feet disclosed the rich values which made the Golden Gate Mine a dividend payer for many years.

The present reputation of the field amongst investors is not generally favourable. This position is due to the failure in the past, as indicated above, to carry on work beyond a difficulty which may have been only temporary. Bad management and under-capitalisation have also contributed towards bringing about the stagnation which followed the initial activity. This has been accentuated by the fact that in several instances work has been concentrated on lodes of the tensional fissure type which, as indicated previously in this report, cannot be expected to persist to any appreciable extent. The disappearance of the lode in these latter cases has undoubtedly contributed to the present existence amongst investors of doubt as to the permanency of the lodes.

At the present time several syndicates have been formed to operate in the field. The strongest of these, the Ringarooma United Company hold several leases including the old Premier, Rosalind, Strahan, Cannon and neighbouring lodes. This Company intends to unwater the old shaft which was sunk to 60 feet below the main adit level and continue sinking to prove the value of this group of lodes in depth. The initial work with this objective is now proceeding.

The position of the other syndicates is that they have not sufficient capital to initiate or continue operations, investors at present hesitating until some authoritative indication is given that the general prospects of the field are better than has been believed for years past.

Such general prospects as disclosed by my renent investigations will now be concisely indicated in order to supply this essential factor in future development.

(5) THE FUTURE OF THE FIELD

In considering the future prospects of the field in the light of the position indicated above, three possibilities naturally appear which give rise to the following questions:-

(1) Is the field finally worked out?

(2) Are the payable values confined to a shallow surface zone which has been partially exhausted leaving only such occurrences as would be the basis for operations by parties of working miners?

(3) Do the lodes and values persist to such depth below the present deepest workings as to provide a potential future of the field of appreciable value?

The answer to question (1) is definitely in the negative as the general geological conclusions presented above clearly indicate.

As also indicated previously in this report the conclusion was arrived at as the result of this recent investigation that the gold is not a purely surface feature but of deep-seated origin and likely to continue to appreciable depths. Question (2) therefore must be answered in the negative.

The answer to question (3) cannot be definitely given. Undoubtedly the geological evidence warrants the conclusion that the lodes of the compressional conjugate system will persist in depth and that the gold of definite gold shoots will also persist in the same direction, but it cannot be stated on present evidence what the exact gold content will be in depth-payable or unpayable. The results of past crushings of quartz obtained down to the deepest level penetrated (300 feet below surface) have averaged not less than 25 dwts. per ton and probably appreciably higher as the results of many good crushings are not now available.

The problem now presents itself as to how the essential data on this latter point can be obtained.

The obvious means is by deep sinking but indiscriminate sinking will clearly not be as effective in attaining the desired result as concentration of the expenditure, which of course must be appreciable, on one or two points selected on the geological evidence as offering the best immediate possibilities at the least expense.

I have carefully considered this question from the above view points and selected the two locations at which deep sinking is most likely to supply reliable data in the most economic manner. It so happens that the two lode groups which offer greatest possibilities geologically are those on which some sinking has already been carried out. These two groups are the Premier-Rosalind-Gumsucker group of the Ringarooma United Company where a shaft 60 feet below the main adit exists, and the Mercury group held under the name of R.A. Blair (section 1539-G) where a shaft exists to 40 feet below the No. 2 adit. There is every justification on the geological evidence for the expenditure of the necessary capital to sink on these lodes to test them as a preliminary to at least 300 feet below the present main adit levels.

The future of the field will depend on the results disclosed by such sinking, and expenditure should be concentrated on that purpose. On the completion of such work and the result being favourable, the remainder of the field will then have readily available the justification and essential capital for comprehensive developmental work on such lodes as

possess favourable geological features. The following lodes can be definitely stated to justify future operations on such a basis:-

The Prendergast Lode on J. Donovan's freehold;

The lodes recently located by Holloway;

The lode group of the old Alberton Company (Now Forest King);

The Long Struggle group which also provides opportunity for developmental work above the main adit level on the Cross-lode, Long Struggle lode and Caxton lode;

The old Mt. Victoria group below the main tunnel;

Everett's Lode.

Other lodes on which future operations made possible by availability of capital, would probably be justified exist on the field, but the exact degree of such probability will only become clear as the final work accompanying the compilation of the complete bulletin is carried out. Similarly the details of the procedure for developing the individual lodes will be included in the complete bulletin.

(6) CONCLUSION

The Mt. Victoria Goldfield is at present in a dormant condition - a state of affairs which the results of the recent geological investigation shows not to be justified.

Concisely stated the future of the field depends on the results of deep sinking on the Ringarooma and Mercury groups of lodes. Such sinking is recommended as being perfectly justified by geological evidence and it is further urged that all capital available for the field should be concentrated on this essential work. Once the deep sinking shows the continuance of payable gold values to appreciable depth the long delayed development of the field is assured.

(sd) LOFTUS HILLS

DIRECTOR, GEOLOGICAL SURVEY OF TASMANIA

Launceston,

7th May, 1923