NEW MOORINA TIN MINE (LATE ECHO MINE)

The writer made an examination of the hydraulic sluicing workings of this Mine on 28th November, also site of proposed tunnel to serve as a tail race extending in a northerly direction under the main road to a point on the Ringarooma River.

In Geological Survey Bulletin No. 35 Mr. P.B. Nye describes in detail, the position of the property, its history, and general features of the deposit. All particulars given being of recent date it will not be necessary to refer to them here. (p 53)

Productive Operations

Sluicing work with one nozzle is at present being carried out on the southern part of the large face on the weld lead extending northerly through the leases.

At the point being worked the face of drift is exposed to a depth of 80 feet. The upper portions composed chiefly of basaltic detritus with bands of clay carry little or no tin, the payable part being confined to a comparatively narrow layer lying on the granite bottom.

As the work progresses it is found a gradual dip of the lead takes place northerly.

This fact, so far as dealing efficiently with the lead is concerned, renders it necessary to change the existing arrangements for working the deposit, owing to the tail race being cut to its lowest possible level for the discharge of tailings.

The section of the tail race through the tunnel is not wide enough for the discharge of the quantity of material which the nozzle is capable of dealing with, consequently the full sluicing capacity of the plant cannot be availed of, thereby limiting the quantity of drift treated with a corresponding restriction of the tin output.

The mine Manager (Mr. H.C. Lawry) estimates the average grade of the drift as present being treated at considerably less than half a pound of tin per cubic yard.

On the lower side of tunnel the channel for discharge of tailings to the Ringarooma River is not sufficiently confined to carry the drift away, which spreads and tends to back up to the channel through the tunnel, thereby impeding operations.

Methods of Working

The present method of working the lead is the cheapest form of alluvial mining. A natural head pressure of 270 feet is available. Owing, however, to the difficulty of discharging tailings through the race referred to, the full benefit of the work which the nozzle pressure is capable of performing, cannot be availed of resulting in intermittent work. When an excess of drift is broken down it is necessary to deflect the nozzle to a position in which it will not break down further quantities until such time as the water discharged through it has cleared the tail race sufficiently for normal work to be resumed. Obviously the operators are working under very disadvantageous circumstances when such conditions prevail.

The main tail race now used has moreover a further serious defect with regard to its position in relation to the face of drift as a whole, it being possible only to work the southern and poorer part. The northern and more productive portion, is at too low an elevation and therefore for the time being cannot be worked.

An old tail race channel has been cut from the northern part of the face to a point near the tunnel entrance, this, if put in order and widened would be utilised as a discharge channel from the northern end of face at its present level.

This race is cut through the floor of the old workings and takes a direct course from the face to the point mentioned.

It will depend upon the scheme of future operations whether the old tail race will be used as a discharge channel.

Seeing that the better quality of drift is dipping below the level of the floor of the open face in the direction in which it is being worked an alteration in the present method of working will be essential.

A suggested method of dealing with the drift is to elevate it by means of a gravel pump and discharge tailings on the worked out paddock.

Another proposal is to cut a new tail race from a point 23 chains north of present face near the head of a small creek which flows into the Ringarooma River, this will involve driving a tunnel under the main road.

A surveyof the proposed route of race has been made by the District Surveyor (Mr. Campbell Smith). It has been levelled from a point on the floor of the open face near to its north eastern extremity to Ringarooma River.

Taking the datum level at the point of discharge into the Ringarooma River at 100 feet, the tail race level in the north eastern portion of the open face is 167.24 feet or a difference in altitude of 67.24. The distance between these points measured in a direct line is 30 chains, allowing the minimum fall of 2 feet per chain in tail race, the proposed channel would serve only todischarge tailings from the present level of the drift workings, and would be of no utility when working the deeper ground known to occur below the present face.

The distance along the surveyed route of proposed drainage tunnel, the channel of which would empty into a smalltributary stream of the Ringarooma River at a point 9 chains from the latter is 30 chains making the total distance 39 chains. Allowing a drop of 2 feet per chain the difference in elevation should be 78 feet as against the actual survey of 67 feet from present level of bottom of face.

A gravitation scheme to work the deeper ground on this property is not possible under the conditions in which it is situated with respect to the Ringarooma River the chief drainage channel of the district.

Before any proposal relative to the future working of the property can be seriously considered it is necessary that the ground north of the face should be tested by boring for the purpose of locating and defining the lead dipping below the floor of the present workings.

Bore Holes

Sites for seven proposed bore holes have been marked off on the ground as shown on sketch plan. Holes put down in the positions shown would give sufficient information and serve as a guide for future operations.

It is necessary that this work should be undertaken without delay.

The prospects showing in the lower portions of the face, particularly to the north, dipping below the floor are encouraging and fully warrant testing by boring.

The future of the mine will rest entirely upon the results obtained by boring tests. The area immediately north of the old workings offers the best prospects for the continuance of the lead but there is no definite data to indicate precisely the direction of its course in that direction.

Should the results from the proposed bores be unsatisfactory, it would be advisable to continue a line of bores south westerly parallel to the present working face to a point due south of these. Pending the results obtained from the proposed bores, the question of providing an efficient sludge channel for the discharge of tailings should remain in abeyance.

Former Workings and Values

A detailed plan prepared by the Company shows than an area of 12 acres have been worked, the depth of wash ranging from 12 feet at the south west portion to 80 feet at the north. Average depth worked is 33 feet but the lower limits of the lead have not been determined. The total yield of tin oxide from it is given as 155 tons.

High grade drift has been proved to occur for a considerable depth below the paddock worked particularly in the south eastern and north eastern portions of it.

Present operations have reached a stage when a new scheme of work should be formulated and carried into effect, this however must be considered in the light of future developments by boring already referred to.

Conclusion.

The property is equipped with an efficient plant consisting of 8 miles of water race estimated to carry 35 sluice heads. Water from race is conveyed to face in two pipe columns 15" and 11" diameter respectively, under a head pressure of 270 feet. The pipe columns are made of 16 gauge galvanised iron. The plant generally is in good condition.

J. B. Scott
STATE MINING ENGINEER

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