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REPORT ON THE STRATA IN THE SHAFT OF THE NEW SOVEREIGN MINE, MANGANA.

Government Geologist's Office,  
Launceston, 6th November, 1899.

SIR,

IN accordance with your instructions, I visited Mangana on the 20th ult., and examined the strata in the main shaft of the New Sovereign mine, owned by the Mangana Gold Reefs Company, Limited, of London. The company leases three 10-acre blocks, 380, 381, 382-93G, at Mangana, five miles W.N.W. of the township of Fingal.

The entire property is in the belt of auriferous slates traversed by the quartz reefs of the Mathinna and Mangana mines. No fossils have been found in these strata, but, upon stratigraphical grounds, the whole series is referred to the lower division of the Silurian system, the same as the country rocks on the Beaconsfield and Lefroy goldfields. I am not aware that any one has taken the trouble to follow up these slates on their line of strike northwards, but it would be interesting to do so, and connect them actually with the strata further north, at Mathinna. As Mathinna is nearly due north, and the strike of the Mangana beds is W. of N., I fancy the line of continuity would come out a little to the W. of the Mathinna township. But this does not affect their geological position in the slightest: there is no doubt whatever that they are part and parcel of the Silurian slate series, in which all the great goldfields of the Colony are situate.

The reef runs into the hill in Sailor's Gully, and has the same strike as the slates which enclose it. The slates of the surrounding country are often vertical, or dip at high angles to the N.E., but where the reef runs through them at the main shaft of this mine they are much flatter, and have an average dip of only 2½ feet in the fathom. Near the reef they are traversed by numerous small veins of quartz, and often carry iron and arsenical pyrites, with occasional splashes of galena: sometimes, too, they are heavily charged with copper pyrites.

I found the reef, as laid open by the workings from the main shaft, an undeniable fissure lode, varying from 20 to 25 feet in width, between good walls. The narrower width prevails at the lower levels. Thus, at the 110-ft. level, the width is 25 ft.; at the 164-ft. level, 22 ft.; and at the 209-ft. level, 20 ft. In the upper levels, 110 ft. and 164 ft., a fine body of quartz is exposed, accompanied by lode slate and other reef material. The quartz gets more stringy going down, and at the 209-ft. level it is broken by a horse of sandstone, from which it is separated by soft slate. But, taking the whole make of stone for 200 ft. below surface, we have, unmistakably, a remarkably good body of quartz. The reef is one of the well-known Australian type of lode channels, in which the space between walls is filled with quartz and lode-slate. Slickensides are seen on the walls, and signs of movement within the channel itself. This is a feature very marked in the upper parts of the gold-bearing reefs at Mathinna. As on the previous day I had been through the New Golden Gate mine, the resemblance impressed itself upon me. The massive appearance of some of the stone likewise invited a comparison. The quartz itself is rather poor, the present company, according to returns kindly furnished to me by Mr. W. Grant Meudell, having obtained from 2866 tons stone a yield of 532 ozs. 7 dwt. 16 grs. smelted gold, or an average of 3 dwt. 17 grs. per ton. The upper parts of the reef gave the highest yield, these returns being from stopes in the higher section of the company's mine. From the upper zones in the reef

crushings have been taken out, giving from ½ oz. to 1½ oz. gold per ton, but the stone in the main-shaft workings has not yielded more than from 2½ to 4 dwts. It probably bulks under 3 dwts. At the depth now attained it is likely that a settled average has been reached, and a very little improvement will, at this moderate depth, with approved treatment and economical working, suffice to make the stone payable.

The reef runs through the company's blocks, and has been traced for a still greater length. This, and its inherent nature, augur well for its persistence in depth. The country through which it passes is, in descending order, yellow and light slate in its upper portion, grey and black greasy slate at the 110-ft. level, black greasy slate at the 164-ft., giving place then to grey sandstone down to 250 ft., where it is replaced by a nice black slate. A light slate is now coming in at the bottom of the shaft, which is 280 ft. deep. The country in the bottom is veined with quartz, an indication that the stone is still living down in the reef, which cannot here be more than ten or twelve feet away.

It is said that the company intend sinking another 140 ft., making a total depth of 420 ft. This, after all, is only shallow mining, and it would be ridiculous to stake the future of the mine upon the results which may be obtained at such a small depth from the surface. There are good grounds for perseverance in continuing the present work of sinking. The facts which support a hopeful outlook are:—

1. The lode channel is a true fissure, extensive in length and important in size.
2. The auriferous quartz, in its best parts, is a singularly inviting and solid body of stone.
3. The indications in the bottom of the shaft are that the stone is still in the reef at that depth.
4. The strata through which the shaft is being sunk are the slates and sandstones which contain the auriferous reefs of the Colony, and the slates at the bottom of the shaft have an appearance which, in this district, is considered favourable for good quartz.

For these reasons I regard the prospects as encouraging. The only serious drawback is the low grade of the stone; but the work should be persevered in, with the hope of an improvement in this particular.

It is scarcely needful to add that this work, if successful, will infuse new life into the somewhat neglected goldfield of Mangana. My impression is that at Mangana there are the conditions for a permanent and flourishing field, and I recommend very strongly a resolute policy of deep-sinking.

I here beg to thank Mr. T. M. Hooper, Manager of the New Sovereign mine, for attention and information. I invite attention to accompanying sections of reef and shaft.

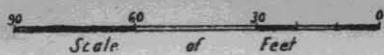
I have the honour to remain,  
Sir,  
Your obedient Servant,

W. H. TWELVETREES,  
Government Geologist.

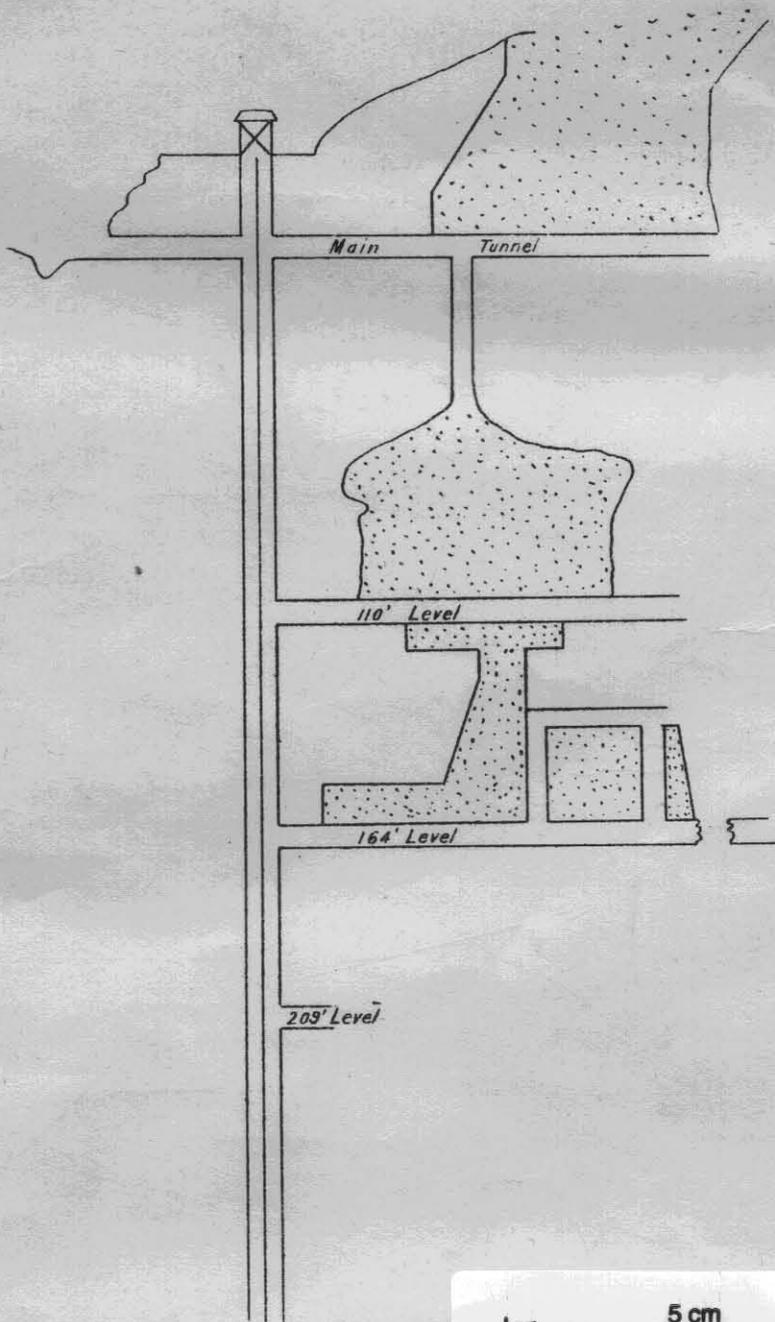
W. H. WALLACE, Esq.,  
Secretary of Mines, Hobart.

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### LONGITUDINAL SECTION



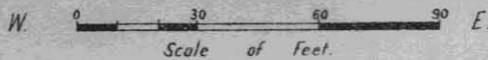
W. H. Twelvetrees  
Government Geologist



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# MANGANA GOLD REEFS LIMITED

## REEF AND MAIN SHAFT AT NEW SOVEREIGN MINE



W. H. Twelvetrees  
Government Geologist

### Cross Section

