

EXTRACTS FROM,
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THE SOUTH HEEMSKIRK TIN FIELD, By
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THE MINING PROPERTIES - THE FEDERATION TIN MINE

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"This large and important body of ore has been described with the work done upon it in the past, and as it promises to be the biggest ore-producer on the property in the near future its development and future working need consideration.

It must be recognised at once that little is known of this ore-body at the present time, and that further prospecting is necessary to learn something of its structure at a greater depth. But surface prospects are so encouraging that further work is certainly justified, and should be carried on as soon as possible. Whether this huge mass of ore is a purely local development at the intersection of a favourable set of fissures, or whether it will maintain its size and value as a greater depth is attained, the future alone can decide, but progressive work should be carried out without delay, in order to provide reliable data for the planning of future work. The writer is of opinion, after studying the formation, that a strong and well-defined lode will be encountered, and that it will be permanent to a very considerable depth.

Even in its present state, a large body of ore is available for economic mining by open-cut methods. But it is advisable, in order that it should not be a burden, that developmental work should be carried out while the quarrying of the ore at the surface is in progress."

Page 314 - The Lode -

"(a) Value - The tin content of the lodes, considered apart from the actual market value of tin, is of little real use as a criterion; the latter will be considered under a separate heading. In estimating the tin content, two methods are useful, and one should always, where possible, supplement the other. These are the actual battery returns of ore treated, and assay values of samples taken systematically as work progresses. The battery returns from bulk parcels treated in the past have, I understand, been quite satisfactory. Actual return from the operations of the old Cumberland Company are not available, but it is known that rich ore was treated. From the No. 2 adit and Messrs. Fowler and Dunn's workings actual returns were between 5 and 6 per cent tin oxide. The Whip Shaft workings produced about 330 tons of stone, from which the battery return was 1.1 per cent. From the Black Face workings over 700 tons of ore yielded about 1 per cent metallic tin. It must be clearly borne in mind that these figures represent actual battery returns, and that in all cases owing to the unsuitable plant, losses in concentration were much heavier than would be the case with a modern plant under efficient management. The small amount of work done on the property has been noted, yet as a result of this work, over 200 tons of tin oxide have been produced since the commencement of operations. The writer did not systematically sample the mine. He did, however, take occasional samples at doubtful points, and at others had prospects washed to satisfy himself as to the actual tin content. As a result of this,

with a study of results obtained during previous official examinations, the writer satisfied himself that, so far as tin values are concerned the property is thoroughly genuine. Viewed as a whole, it is unlikely that the mine will maintain a continuous output of rich ore, but that rather it will prove (if worked on proper lines) a big low grade proposition, keeping up for a long period an output which, if the market price of tin be not too low, should yield a satisfactory margin of profit over working expenses. Rich shoots of ore have been found in the past, and it is certain that prospecting will reveal others but these will not prove the mainstay of the mine.

(b) Size - This feature of the lode-formation is important, as rich tin veins might exist, which are not payable because of the narrow width. But on this property, the size of the lodes must be considered as very satisfactory, and values quoted are certainly over payable widths. It seems superfluous to again quote the actual sizes of the various formations which have already been described in detail, but there is no question as to the size of the lodes.

(c) Permanency - This aspect is of the utmost importance in considering the probable future of the property. As has been indicated in the course of this report, most of the work carried out up to the present has been surface work. The deepest level driven (the Long Tunnel) has not been continued far enough to cut the lodes exposed on the hill over 300 feet above, although shoots of rich tin ore have been cut in this tunnel and are undoubtedly continuing strongly underfoot. The veins cut in this tunnel are in no respect different from those exposed on the surface on other parts of the property. The 57 feet level also exposes a lode which can be traced on the surface for a considerable distance, and the tin contents at the greater depth have suffered no appreciable diminution. Although mining has not given much positive information as to the behaviour of the lodes at a depth below the present surface, indications are all favourable to the permanency of the lodes and of their contained tin values to considerable depths. The main branch of Packer's Creek, which traverses the south-western portion of the property, has cut through a quartz-tourmaline lode which outcrops for a considerable distance on the surface. In the creek it is between 600 and 700 feet vertically below the highest point on the outcrop. The nature of the stone exposed here is exactly similar to that higher up; samples do not appear to have been assayed, but the tin value does not appear to be high, a fact which is no argument against the permanence of tin values to depth, as the tin is known to occur in shoots, and the point in question may be beyond the limits of a definite shoot. In the branch of Packer's Creek to the north of the property, too, a lode-formation is shown to be continuous for between 400 and 500 feet vertically."

Conclusion - Although the Federation Mine at the present time can scarcely be called a well developed and thoroughly equipped mine, it is one which offers some distant inducements to the investor. For the small amount of development work done about 200 tons of tin oxide have been sent away. Several distinct tin-bearing lodes have been partially opened up. A large tonnage of ore is available for immediate extraction by open-cut methods. A large amount of backs can be rendered available for extraction by stoping, by adits of moderate length. There is a considerable quantity of detrital material lying about the surface, which is estimated to carry highly payable values. The writer considers that the tin values are likely to be permanent in depth, that there is no reason for believing that the ore will become more complex at depth (exceeding that pyrite will be present in at least some of the lodes), and that structural features are not likely to hinder economic working.

There are exceptionally fine facilities for economically mining and treating the ore.

Although rich ore has been won in the past, it appears more likely that the mine will become, on further development, a big low grade proposition, rather than a small producer of rich ore.

Progress has been hampered in the past, and the mine is at a standstill at the present time, largely for lack of capital to carry out the necessary developmental work. One of the chief reasons why the necessary capital has not been forthcoming appears to have been that the property happens to be situated in a mining field which was boomed some years ago. In the boom time large amounts of money were subscribed, and wasted mainly in unwarranted and unsuitable surface works. Very little genuine mining work was carried out and the inevitable crash came. Public confidence was severely shaken and the few genuine properties have felt the effects ever since.

The time is not far distant when confidence in the Heemskirk tinfield will be restored, and the Federation Mine is one of the properties which certainly deserves further development. If developments continue to be satisfactory and the writer believes they will- the necessary remodelling of surface plant can be confidently undertaken and the future of the property should be assured."