Level No. 7.—This level was started in May, 1903, and driven ahead for a distance of 278 feet from station No. 7. The vein was followed nearly from the start, showing a good width, but at the same time, low values, consisting mainly of siderite and a small percentage of zinc blende.

It could reasonably have been expected that the ore body, which had shown up so well in level No. 6, and in winze No. 1, would have reached down to level No. 7, but when it did not do so, I concluded to start an upraise at a point directly under winze No. 1, 140 feet from station, for the purpose of connecting and at the same time exploring the intermediate ground. This proved a good plan, for within a few feet of the level two feet of good ore was struck, and followed all the way until winze No. 1 was reached and connection made. This distance represents 110 feet on the dip of vein. Two short raises have since been put through from No. 7, meeting the ore shoot as shown on maps, whereby a triangular section of ground has been blocked out and designated as "Block E."

Tunnel No. 8.—The length of tunnel No. 8 from portal to present working faces, including all cross-cuts and drifts, is now 1,754½ feet. Of this distance 435 feet have been driven during the past year. Shortly after the freshet season in August, development work was resumed in the main tunnel in search of the vein. One hundred and thirty-six feet were driven towards southwest, through a hard silicious slate formation, until a point directly under No. 7 level was reached. No features of encouragement showed up until at this place a fault-fissure with an approximate strike of northwest and southeast, or nearly right angles to the main tunnel was intersected. This fissure, which afterwards led to the discovery of the vein, consisted of a single perpendicular wall, showing traces of severe movements. On this wall was bedded two inches of talc, followed by a considerable amount of water, flowing out of a narrow gash, which in some respects, reminded me of fault-fissures observed in upper levels, and caused me to believe that by following same in a southeasterly direction the vein would be recovered. A sharp turn was therefore made, as shown on maps, and for two months a cross-cut driven straight ahead alongside of the above mentioned faulting wall, until the main vein on February 1st, this year, was suddenly encountered laterally within a distance of 98½ feet from the turning point.

As soon as the heavy flow of water, which was struck at the same time, had run out, drifting on the vein in both directions was started, and at the present time of writing, the east drift is 60, and the west drift 61 feet, from discovery point. In both drifts the vein has been followed all the way, for a total distance of 121 feet, without showing any sign of particular disturbance in the formation. I may add that it was rather unexpected to find the vein extending both ways, inasmuch as the main fault in all upper levels heretofore had been cutting the vein off towards the northeast, and therefore limited the ore within the ore zone towards southwest.

I beg to call your special attention to this point, which I regard as an important feature.

In reference to the vein I can say that it has the appearance of a strong and well defined ledge with a strike of north 67 degrees east. It shows two distinct walls dipping 76 degrees from the vertical towards south, and has approximately the same dip as the vein in levels No. 6 and No. 7. It is an extension of the main vein, and proves the Payne mine to a depth of 900 feet below the apex. My impression is that we have entered the top of a new important ore shoot. The vein is wider and shows a higher grade of ore in the floor than in the roof of the drifts. In the drifts the vein is principally composed of concentrating ore of good grade and of similar physical character as in the ground above. Its average width is 2½ feet, showing in several places swellings of the vein.

The above particulars will furnish a general idea of the discovery.

Until more work is done I could hardly predict the tonnage or the grade of ore that in time will be produced from the vein above or below No. 8 tunnel, and have, therefore, not included it under Ore Reserves further on, but it bids fair to say that the discovery of pay ore in the vein, after a three years' search, is highly gratifying and of special importance as to future ore reserves and possibilities of the Payne mine.

Proposed Development Work.—With the encouraging prospects of finding ore in lower levels it would be extremely desirable to consider the question of exploring the mine below tunnel No. 8. One commendable plan would be to continue tunnel No. 8 for about 300 feet towards west, until directly under the crest of Payne Mountain, and at this point to sink a central shaft, approximately 350 feet deep, from where three new levels, Nos. 9, 10 and 11, could be driven as indicated on map in dotted lines. The result would undoubtedly be the opening of new ore reserves within two years, at which time the present ore reserves probably would be exhausted. To accomplish this it would be necessary to install an electric hoist over the shaft, together with an adequate pumping plant, also driven by electric power. If this plan was adopted it would be necessary to increase the present power plant by installing a sub-power station at Carpenter Creek, where the company now holds water rights to the extent of 500 miner's inches. A plant of this kind could be conveniently operated in conjunction with the present power plant and pole line to the mine, as this feature was taken into consideration last year, when installing the present plant.

Ore in Sight, Stope Fillings, Dumps, Etc.—From last year's report it will be observed that the estimated total tonnage of back fillings contained in old stopes at the mine, together with all dumps, etc., amounted to approximately 100,000 tons, which may be accepted as a correct figure. Of this tonnage one-third, or 33,000 tons, has been successfully concentrated in the mill during the past year, thereby leaving a reserve of 67,000 tons on hand. With the increased concentrating capacity, this can all be milled within the next twelve months, and will at the same ratio of concentration produce about 2,000 tons of high-grade silver-lead concentrates, and 4,000 tons of 60 per cent. zinc blende. To this reserve can be added the estimated quantity of concentrating ore found in other parts of mine amounting to about 20,000 tons, which on account of being of a higher grade than the fillings will require about six months to concentrate.

From the above it will be seen that a total reserve of 87,000 tons of concentrating material is available, also that under favourable conditions this can be concentrated during eighteen months of continuous operation. It is, however, more likely to cover a period of two years, especially if there should be more material on hand in old stopes and dumps than estimated.

Recapitulation of Ore Reserves.—During the past two months the London lead market has advanced approximately 25 per cent. over quotations for the balance of the year, and you are now getting $60.00 per ton, net smelter returns, for silver-lead concentrates, with present prices of silver 49c. per oz., and lead $2.00 per cwt. (smelter settlement.) This valuation is, therefore, figured in the following estimate of total ore reserves. Improvements in the concentrator and the benefits that will be derived from the new magnetic zinc separating plant has also been considered in the same estimate. Furthermore it would seem that the Dominion Government necessarily will have to decide on placing an adequate import duty on lead for the protection of the Canadian lead industry The Government can hardly disregard the united petitions from a section of the Dominion that under favourable conditions, is able to add more than any part of Canada, to its general wealth.

In the United States the lead producer is now receiving $3.90 per cwt. against $2.00 (or less) in Canada. With your 60 per cent. lead ore, equal to 1,200 lbs. of lead, this price brings $24.00 per ton, less 10 per cent. loss in smelting or a total of $21.60. From this amount a $15.00 freight and smelting charge, besides all cost of mining and general expenses, has to be deducted. It will therefore readily be seen that there would be little or no profits in lead mining, were it not for the high values of silver in the ores.

Concentrator Report.—It is with considerable gratification that I am able to state to you that the concentrating plant, completed on the 1st of May, 1902, has been an unqualified success from the start, even with the extremely low prices that have governed the metal markets during the entire year.