

ver 0.748 ounces per ton, and copper 1.144 per cent. Cost per ton crushed was \$0.99.

As a result of the company's mining and milling operations in Rossland during the financial year ended September 30, 1910, the net profit was \$249,255.81.

Standard Mine, Silverton, B.C.

Mr. Vallance gave a comprehensive description of this property, which has attracted much notice of late owing to the opening in it of large shoots of ore containing much galena of good grade.

The group includes 13 mineral claims. The mine is at an altitude of 3,354 feet above sea level and 1,594 feet above Silverton, on the eastern shore of Slocan Lake, and distant from the mine one mile and a half. Development work on a systematic plan has been in practically continuous progress since 1904. The "big ore shoot" was cut by the lower levels in 1909-10, and the present remarkable showings of ore exposed.

The enclosing country consists of old and very siliceous sedimentary rocks, cut in places by masses and dikes of an eruptive rock generally classed as granodiorite. A large "boss" of this rock occurs along the east side of the Standard claim and is, apparently, the centre from which the local dikes radiate. The sedimentary strata is mainly hard, blocky argillites, siliceous shales, and impure quartzites. The Standard vein is a strong fissure cutting the Bedding planes of the enclosing sedimentary rocks; a dike of quartz-diorite-porphyry is intruded into the fissure and lies along the footwall side. This dike rock is much altered and appears to in some manner be closely connected with the principal orebodies found in the veins; probably the clayey-talcose matter of the altered dike has influenced the course of the mineral-bearing solutions and caused the ore to be deposited on or near the dike, where it is most frequently found. Much evidence of large and repeated movements is found in the vein, especially toward the hanging wall side, and, at some points movements have occurred after the formation of the orebodies—masses of galena being found deeply striated by movement of adjoining hard gangue material.

The principal minerals are argentiferous galena and zinc-blende, with some pyrite, chalcopyrite, and grey copper (Freibergite) as associated minerals. The Freibergite occurs as specks and bunches mixed with the galena, mostly, but occasionally with the blende, and it is evidently highly argentiferous for specimens have assayed as high as 2,000 ounces silver per ton. The vein gangue is quartz, lime spar, and spathic iron, with enclosed fragments of shale and occasional masses of altered dike rock.

In the workings above the fourth level, the orebodies were found lenticular in form and following a zone pitching about 30 degrees. From No. 4 down to No. 5 level the big shoot of galena has a pitch nearly 28 deg. Where the big shoot is cut by No. 5 level the vein gradually widens from 4 to 30 feet. Here the clean galena has its maximum width of 15 feet, the remaining 15 feet being high-grade milling ore with included masses of clean galena. From here to the present face of No. 5, which is approximately 1,200 feet from the portal of the adit, the vein widens and the orebody gradually changes its character, the shoot of clean ore giving place to a great mass of milling ore enclosing irregular bodies of solid galena. The ore shoot has

been opened a length of 250 feet; a cross-cut at the present face shows ore, chiefly milling grade, about 85 feet in width.

The mine workings consist of six levels, with connecting raises from No. 5 upward, and a number of cross-cuts from the levels, where the vein is wide. Not including stopes and cross-cuts, the mine openings have, together, a length of 8,500 feet. The depth on the vein, from No. 1 to No. 6 level, is 740 feet. After connection shall be made with No. 5 raise, No. 6 will become the main adit for the mine, and the upper terminal of the aerial tramway will be placed at its portal.

Ore from stopes above No. 4 level was taken out by ordinary overhand method, and the ground timbered with a two-piece set, or by stulls, as required. In the lower levels, where the vein is wider, the large orebody will be extracted by overhand stopes, with square-set timbering. Ore extracted has been roughly graded in the workings; the cleaner ore has been sent to the sorting houses, while the cobbings from this, and all second-grade ore from the mine, have been placed on the milling ore dumps. Shipments to the smelter to date aggregate 4,418 tons; average metal contents were: Silver, 78.46 ounces per ton; lead, 62.5 per cent.; zinc, 5.88 per cent. Some shipments returned more than 100 ounces silver per ton, and others 73 per cent. lead. In addition to large orebodies blocked out in the mine, there is much ore in the sorting houses ready for shipment when the aerial tramway shall be completed, while the quantity on the milling dumps is estimated at 8,000 tons, which will concentrate $3\frac{1}{2}$ or 4 tons into one ton of shipping product.

Preparatory to mining on a larger scale than in the past, and commencing milling operations, a 10-drill compressor plant and a concentrating mill with a grinding capacity of 200 tons and dressing facilities for 100 tons per diem, are being put in. Water power will be utilized, with a head of 160 feet at the compressor and 275 feet at the mill. The Leschen aerial tramway will be 7,900 feet in length, with a grade of 16 per cent., and a carrying capacity of 20 tons per hour. The tramway and compressor should be in operation in July and the mill in October next.

Efforts are being made to organize a mining school in Nelson, B.C. A provincial grant is asked for, and the school will be in affiliation with the local high school.

One of the most enterprising mine owners of Slocan district, British Columbia, is Mr. Alex Smith, formerly of Toronto. For years he and a partner have been engaged in developing the Surprise mine, situated on the mountain divide between Cody Creek and McGuigan Basin, Slocan. After having sunk to a depth of 300 feet and taken out a considerable quantity of ore, the work of driving a long deep-level adit was undertaken. Several years' work resulted in the face of this tunnel reaching a point under the old workings of the mine, from which a raise was commenced. The distance to be raised was nearly 800 feet, and of this about 600 feet has been accomplished. The work with only hand drills and the ventilation not being good, progress has been slow, but there is now only 170 feet required to be raised to make the intended connection.