

## PROF. CARLYLE'S REPORT.

THE MINING DISTRICTS OF THE SLOCAN, NELSON AND AINSWORTH, B.C.

(Continued.)

## THE SLOCAN MINING DIVISION.

The Ore and Ore Deposits.

There are four distinct kinds of veins in the Slocan:—

1. The argentiferous galena, with zinc blended, and some grey-copper in a gangue or matrix of quartz and spathic iron. These veins cut across the stratified rocks, and through the dykes of eruptive rock, where in many cases, there is a good body of ore and they also occur in the granite area, and with even the limited amount of prospecting, some have been traced from 3 to 4,000 feet along the strike, and one for nearly two miles. In the Slocan slates, it has not yet been proven that as the vein cuts through shales, slates, limestones, or quartzites, that any one of the series has been more favorable to the formation of ore-bodies than another, as in the different veins it will be seen that good ore shutes may have the wall of any of these rocks mentioned. The ore has been deposited along fissures, both in the open fissure cavities, and by impregnation of the country rock, and in the cavity-filled veins can be seen the banded structure described elsewhere, or the solid, usually big-cubed galena, shows lines of foliation parallel with the walls, but it is evident that further motion has occurred along some of these vein fissures, after ore has been deposited.

Most of the veins are narrow, varying from 2 and 3 inches, to 15 and 20 inches in width, with occasional widenings to 3 or 4 feet of solid ore, and even much more, as seen in the Slocan Star and the Alamo-Idaho veins. The ore shutes are not persistent horizontally, as is characteristic of nearly all veins, but ore is often continuous for several hundred feet, and where it then pinches, a thin streak of oxides is the index usually followed in the search for more ore, which seldom fails to re-appear with more or less work. The mistake is made sometimes of following along a slip-wall or crevice that may cross the vein crevice at a flat angle, and thus lead the miner astray. Besides the solid ore, some veins have associated with them 2, 3 or more feet of mixed ore, gangue and country rock, or a brecciated mass, which may be of such grade as to pay well for concentration; and already there are three concentrators, the Alamo, Slocan Star and Washington, doing very satisfactory work, and the Noble Five mill almost completed, with the erection of two, at least, contemplated this year. The product or concentrates is silver-bearing galena, but any value contained in the decomposed material that may enter the mill, will in all probability not be saved, likewise, that in much of the grey copper, which apparently slimes badly and escapes.

The ore is shipped as "crude," or the solid or unaltered sulphides, or as "carbonates," i.e., the decomposed ore, consisting of oxides and carbonates of iron, lead and silver, the mass having a reddish-brown color, with more or less yellow material; those carbonates with a soft, velvety feel, assaying highest in silver. All material about these veins should be carefully assayed before being relegated to the waste-dump, where good ore, unsuspected, has already been thrown, especially soft, iron-stained decomposed rock or vein matter.

Gold.—It might be well to be on the

lookout for gold, remembering the good gold values found in the galena ores of the Monitor mine, which yield from \$2 to \$14 per ton; one lot of 20 tons of crude ore assaying \$20 per ton in gold, while the "carbonates" average \$13, the smelter paying for all gold above \$2, or one-tenth of an ounce. The "carbonates" seldom are as high grade in silver as the unaltered, or crude ore in the vein, but in some mines this class of ore is very valuable.

Zinc.—In most of these veins the zinc blende carries a small silver value and is sorted or concentrated out of the ore, so that very little ore sent to the smelters has over 10 p.c. zinc limit. But in the "Enterprise" mine, on Ten-Mile Creek, the best silver assays are said to be got from the zinc blende, which is much more valuable than the galena. As is to be expected, small lots of very rich ore are mined, lots that will yield from one to two thousand ounces per ton, but the average figures already given will indicate the importance of these veins that are now being mined in both the granite and stratified rocks of this district.

2. The veins of argentiferous tetrahedrite or grey copper and jamesonite and silver compounds in a quartz gangue.

These veins can be seen in the granite exposure on the "Best" and "Rambler" mines, and in the stratified rocks on the "London Hill" property, from which very high grade ore has been shipped.

3. The "dry ore" veins on Springer and Lemon Creeks, in the granite, with a quartz gangue containing argentite, native silver, and gold.

These veins are now attracting much attention, as high assay returns have been secured as per smelter returns; sorted ore of this character from the Howard fraction yielding 163 to 206 ounces of silver per ton, and \$16 to \$26 per ton in gold.

The "Chapleau" recently received the smelter returns on four tons of sorted ore, from which 3.6 ounces of gold and 94.7 ounces of silver per ton were returned, netting to the owners \$102 per ton after deducting freight and treatment charges.

4. The gold-quartz veins in the southern part of the granite, such as those reported to be on the Alpine group.

The value and characteristics of the last three mentioned classes of vein will be better known later on, as the work now begun yields results and information.

## SLOCAN LAKE.

This beautiful lake, lying in a deep valley between the valleys of the Arrow and Kootenay Lakes, is 23 miles long and about one mile wide, and in the valleys and on the ridges that trend away from it to the east, mines of very great importance are being rapidly opened up, and new finds of value, are being made as prospecting is more thoroughly and widely carried on. As yet the great granite mountains to the west have not been found to be mineral bearing, but more diligent search may reveal as good veins of rich mineral as have been found in the granite area east of the lake, which, until lately, was shunned by the prospectors, who had an unwarranted lack of faith in the likelihood of veins being in this formation.

However, all doubt has been dispelled, the granite area is fast gaining in importance, and this part of the Slocan now offers many good inducements for further search and investment. It is true that most of the leads so far discovered are small, but the high value of the ore

to a great extent compensates for this, and as to their persistence, there is no reason why these payshutes should not continue to carry their size and value as depth is attained.

At Roseberry the lake steamers connect with the C.P.R., and then stop at New Denver, which has one of the best town sites in Kootenay, and is the official centre for the Slocan; at Silverton at the mouth of Four Mile Creek; at landings at Ten Mile and Twelve Mile Creeks, or any other point desired; and at Slocan City and Brandon, two rival towns at the south end of the lake, whence the trails lead off to Springer, Lemon, Twelve and Ten Mile Creeks, and a branch of the C.P.R. will be built during the coming season to connect with the line running from Robson to Nelson.

On the south slope of the range dividing the south fork of Carver Creek from Four Mile Creek, on the north slope of which are the series of mines, from the Slocan Star to the Idaho and Alamo, are the Mountain Chief, California, Alpha, Group, Reed and Robertson, Jenny Lind, Ottawa Group, and Fisher Maiden all of which were visited except the first two, and south of the Four Mile Creek are the Thompson Group, Vancouver Group, and the Hewitt Claim.

Four Mile Creek, for ten miles of its course, forms a dividing line between the Slocan slates and the granite, although small areas of each cross the river in place.

## Springer and Lemon Creeks.

From the rival towns of Slocan City and Brandon at the foot of the lake, trails lead off to the country drained by Twelve Mile Creek, Springer and Lemon Creeks, and in this part of the district many locations have been made, some on galena veins, but many others on the "dry ore" veins and the gold-bearing quartz leads, all in the granite. Much prospecting was being done and considerable development work; but as many investors have recently been securing bonds and options on many locations, the coming season promises much greater activity, and certainly the careful attention of mining men is warranted by the very favorable results already attained by the as yet very small amount of work. The Howard Fraction, Two Friends Group and the Arlington were visited, besides these properties on Ten Mile Creek already described, and the writer is much indebted to Messrs. Gwillim and Johnson, Mining Engineers, Slocan City, for information concerning other claims it was impossible to visit this season.

## Cariboo Creek.

Twenty miles south of Nakusp, Cariboo Creek, on the east side of the river flows into the Columbia at a small settlement, Burton City. A trail leads thence through an area of granite 6 miles to the junction of Mineral Creek, at point known as Mineral City, and thence trails lead farther on up Cariboo Creek, crossing over to Snow Creek, and also up both sides of Mineral Creek, one crossing over the divide to Blue Grouse Creek. Most of the area is the regular Slocan granite, but isolated areas of stratified rocks, as slates, etc., can be seen, especially up Mineral City. A number of properties are reported to have been sold during the past season, and much more work will be done this year, to prospect many of the claims now located.

(To be continued.)