

the merest fraction of the wealth of the country has been ascertained. Within the limited time and space at our disposal for the compilation of the foregoing report it was impossible to do more than refer briefly to the wonderful resources of the district visited, but we endeavored, above all things, to obtain and lay before you information which may be relied on. This we believe we have accomplished, and would merely add, in conclusion, each member of the party is personally satisfied with the result of his trip, as confirmatory of the existence of the unlimited wealth of West Kootenay.

D. R. KER, *President.*
GUS. LEISER, *Vice-President.*
F. ELWORTHY, *Secretary.*

Victoria, B.C., Sept. 21, 1895.

Trail Creek Mines.

The Trail Creek mining country, of which Rossland is the present mining depot, cannot, in extent of territory, be bounded correctly on the maps, nor in the possibilities of its prospects and ore bodies can it be diagnosed satisfactorily in the chemical laboratories. Trail Creek proper is a minor tributary of the Upper Columbia, which makes a rapid descent to the river from the higher altitudes of the range immediately west, pursuing a course nearly parallel to the international boundary. In six lineal miles of watershed it drains an enviroined slope of ridges and gulches comprising thirty square miles, at the upper or western limit of which the highest elevation is about 8,000 feet. Throughout this fairly known region the country rock is similar, and the east and west trend distinctive; while the ores are significantly characteristic.

As to the permanence and qualities of the ore bodies in the Trail Creek district one authority will say they are wonderful; another they are a mystery, and a third and more explicit, that they exist in the richest discovered area of a volcanic mineral belt which plainly traverses the continent from beyond Sudbury, through the copper and iron deposits of Michigan, and on to the western slope of the Cascades. The formation is exceedingly tough; the ores dense. The cost of work averages not less than \$20 a foot. Iron and copper exists in varying percentages, under sulphide conditions, not even regulated in distinctive characteristics by the localities or ledges, with gold for a companion. So notable are the mineral combinations that neither the experience of the crucible nor the optical skill of the profoundest expert can enable one to estimate correctly the value of two samples of ore similar in appearance coming from different strikes, even in the same vicinity. And this is also true of the samples from the same mines, and the smelter returns from the War Eagle shipments, which have largely exceeded the sample calculations. Ordinarily the reverse is the experience in mining.

As the channel of the Columbia is followed toward the lake system, it is noted that the lime agglomerations give way to steadier and more distinct formations. The quartzite belt over which the river pours at Kettle Falls can be traced to Idaho on the east, and west through the Colville reservation. This break seems to mark the point at which should be observed the geological relations extending northward. While to the south the lime country rock contains rich minerals and some paying propositions, the deposits are pockety, and the locations, denominated fissures or veins, run in all directions, having neither continuity nor likeness of conformation. North of the quartzite lime comes in again, but it becomes more uniform in character and is seamed east and west with low grade argentiferous ores. Sandstone, shale and micaceous granite alternately parallel to within about ten miles of the international boundary, where two contacts of shale roof and silurian floor enclose immense ledges of glistening white silica, said to accompany each other across the country for forty miles.

Immediately at the boundary sulphide ores, of lower grade than those of Trail Creek, make their appearance in irregular strata of shale and limestone. The trend of these veins is also east and west, occasionally broken by lime "horses," and walled now and again by the diorite which begins to show itself unexpectedly. Large bodies of \$10 and \$12 (gold) sulphide materials are opened at the surface on these finds, while pocket prospecting along the

veins discloses seams of galena, tinted with zinc, which assay high in gold. The galena does not seem to continue with depth of development, but is displaced by sulphides.

Moving north into and upon the mountains the denser metamorphic rocks make permanent appearance, until at length the divide of Sheep and Trail Creek is reached, when the carbonized diorite leviathan of the camp, Red Mountain, honeycombed by mole-like holes, and studded with newmade shaft sheds and cabins, bursts upon the view. On the lower reaches are the War Eagle, Le Roi and Josie mines, all shippers, whose total yields for the last fiscal year were \$468,375.25, of which \$46,372.65 was copper, \$21,802.30 silver, and \$400,200 gold.

Red Mountain, the scene of the original discoveries and the present seat of productive activities, is appropriately named. Almost wholly denuded of timber and the denser shrubberies, the sanguinary color with which it is bedaubed from base to apex the elements have extracted from the mineral in its veins. This distinguishing peculiarity undoubtedly made it the point of first attraction to the earlier prospectors, although its white neighbour to the south, O. K. mountain, was known to contain fine gold quartz ledges. Only three miles separate the two yet in mineral-bearing characteristics they are wholly different.

After the so-called iron croppings of Red mountain were found several years ago, they were prospected in a desultory and half-hearted fashion. Prospectors and practical miners of long experience in the Rocky Mountain camps, and many reputable experts, actually condemned the discoveries. In other sections, notably in Colorado, these pyritic materials were barren, and no one having had any previous trial with like propositions held out the slightest hope for the future of Trail Creek. One after another combination or co-partnership successively tried to determine that Red Mountain was a mountain of mines, and one after another succumbed, until at length the resoluteness and faith of the Spokane operators secured an almost complete control of the valuable properties of the district.

It is not the purpose in this sketch to venture upon any predictions as to what will come of the camp with deeper explorations and a subsidence of the bonding mania. Suffice it that, under every conceivable disadvantage, with imperfect and inadequate machinery, expensive mining, remoteness from smelting markets, wagon hauls and transfers, the mines have paid handsomely, and up to date results have silenced the sceptics. On the other hand, disappointments must terminate the enterprising efforts of many of those who are digging and delving on the innumerable feeders and seams to be found on every side. Capt. Burbridge, who expeted the district when it was comparatively unknown, and who then expressed his confidence in the outcome, is of the opinion that with depth a gradual and persistent expansion of value will be noted. Proof of his theory is yet to be had. The ore seems to have no disposition to arrange itself into pyramidal volumes. According to a practical authority its tendency is, on the contrary, to form in parallelogram beds. Again, I am assured by Mr. Davey a very competent chemist and assayer, that the values rarely show improvement with depth; that where the value is not high above, it does not become so below, unless the mineral conditions change, which rarely occurs. The evolutionary enhancement of the value of the ore with depth is one of the oldest of mining camp beliefs, and will always find willing auditors and firm adherents.

It has been well said of Trail Creek that if three more shipping mines are added to the present list the camp will soon rank with the best. Most of all, a smelter is needed; or the local operation from such process as is used in cheaply treating the sulphide ores of the Little Johnny mine of Leadville.

In the values of the shipments the uniformity is striking. Taking the figures of May, June and July only slight variations of value in the total product are discernable. In May, 1,923 tons of ore returned an average of \$46 per ton; in June, 2,930 tons gave \$48 per ton; and in July, 2,724 tons yield \$46.90 per ton. An approximate 90 per cent. of these values was gold, 7 per cent. cop-