

Mr. Weller will gladly submit estimates for work in his line, and his praiseworthy record for the past year in Rossland justifies the assertion that any contract he may enter into will be executed in the most satisfactory manner and in strict accordance with specifications.

It might go without saying that Mr. Weller can furnish references. He has done much of the best work that has been let since he came to Rossland, in evidence of which we append the following brief but representative list: Hoffman House, Goodeve Block, Butte Hotel, Hotel Shaw, Hotel Cardiff, Western Hotel, Goff building, the Bank building at Trail, residences of H. S. Wallace, Charles R. Hamilton, barrister, H. Stevens and others.

Address C. M. Weller, Rossland, B. C., P. O. Box 271.

### THE BRITISH COLUMBIA SMELTING & REFINING CO.

The officers of this smelter, which is located at Trail Creek, B. C., are: President, F. A. Heinze; Gen'l Sup't (also of Mr. Heinze's smelter at Butte, Mont.,) H. C. Bellingier. This smelter began work on Oct. 10th, 1895, and the first furnace was fired in February, 1896. There are now five furnaces in full operation, and additions under construction that will fully triple the capacity of the works.

The Smelter now comprises:—The Sampling Mill, daily cap. 300 to 500 tons; bin cap. in mill, 1000 tons. The ore passing through a 12x22 inch Blake crusher, to run through a trommel, whence the fines go to a Constant cylindrical sampler and the over size to a 9x15 crusher and rolls, and then to the sampler and into the bins, until the lot of ore is settled, from whence it goes to the calciners or the bins from which it can be drawn in the cars to the blast furnace. This sampler is inadequate for the amount of ore offered, and is now being enlarged so as to handle 350 to 550 tons per 24 hours.

In the *Roast House* is one O'Hara automatic calcining furnace, with foundations laid for a second. This furnace is 120 feet long over all, and has two 90 foot hearths, one above the other, 9 feet wide. One traveling chain passes along the center of the hearths, carrying 6 plows and 6 trolleys or chain carriages, at the rate of about 25 to 35 feet per minute, and as yet very little repairs have been required, the chain, plows and trolleys showing but little sign of corrosion in the furnace. Fifty tons of ore crushed to pass a half-inch ring are roasted per day, with a loss of 70 per cent. of sulphur contents, the ore taking 12 to 14 hours to pass through the furnaces in which ten fire places fired with wood supply the heat. Besides this furnace, there are in the furnace-room six circular calciners, such as is used in Butte, placed above the reverberatories, the ore automatically fed, passing over 6 horizontal revolving hearths that discharge alternately from the rim and center upon the lower one, thence into the hoppers below that are immediately over the hearth of the reverberatory. It is designed in this furnace that when once ignited no further fuel will be needed than the sulphur, but they must run continuously, and on ac-

count of irregularity, until recently, in the operation of the reverberatories, these calciners have not been used.

The dust chamber is 180 feet long, 10x12 feet inside with walls from the sides every 10 feet, not overlapping, but having a clear space through the chambers to the chimney, which is 140 feet high and 8½ feet square inside.

*Furnace Room*, 60x310 feet, 68 feet to peak of roof. The ore is being smelted after two methods:—(a) In four reverberatories, hearths 14x22 feet, 40 tons each per 24 hours, in charges of roasted and unroasted ores, slag and limestone are now being treated. The fuel is wood, but as this is not yet dry enough to give the required heat, coal also is being used, over 70 tons a day, from the Anthracite Coal Co's mines, on the eastern limits of the Rocky Mountains, whence it is brought over the Canadian Pacific Railroad to Revelstoke, or Arrowhead, and thence in scows down the Arrow Lakes and the Columbia to the smelter, whence it is raised up an incline 160 feet by a small steam hoist with cable and car, to a trestle along which the car can be run to the shutes wherever needed in the works; (b) In two 38x144 Rect. blast furnaces, with a capacity of 200 tons each, floor water jacketed with 14 four inch tuyeres, ore is now smelted. As the amount of sulphur in these ores is low, and that in the pyrrhotite not available for fuel, as already in a natural matte, a typical form of pyr. smelting cannot be used, but more or less fuel is necessary, and a very satisfactory grade of coke is got from Fairhaven, Washington, although it carries from 20 to 24 per cent. ash. A small amount of limestone is added to the charge, but at present a very acid slag, rather thick, but giving a good separation, is flowing, but very careful handling of the furnace is imperative.

The bluff on which the smelter stands is sand, but the top and face of the dump 120 feet high, is being covered with slag that flows in sand gutters from the reverberatories, or is wheeled out in the usual slag-pots from the blast furnace; but in a short time all slag will run from the furnaces into water troughs, be granulated and then swept out to the dump, which will be protected from scouring out by the slag covering.

In the engine room are one 165 H.P. Corliss engine and two 125 H.P. engines each electrical motors, built by the Canadian Electric Co. Power for engines is furnished by two Pelton wheels. Two No. 7 Root blowers are now used, but a No. 7 will be needed when the big blasting furnace is blown in. Power is transmitted by shafting, but mostly by wire cables running over large pulleys to different parts of the works. However, steam power may soon be replaced by electricity as a plant is to be erected at the foot of the dump and supplied with Pelton wheels and water under a 200 foot head. On a tributary of the Columbia, not far from Trail, a very large water power has been secured by Mr. Heinze, who proposes the installation of an electric plant for the distant transmission of electrical energy which may be brought to the mines as electricity has now become so successful and economical a factor in mining else-

where. At present 200 to 220 tons of ore per day are now being brought down from Rossland by the Tramway, but this amount will be greatly increased.

From 175 to 200 men are now employed and when all these improvements are completed, this smelting plant will be well equipped and capable of handling 350 to 400 tons of ore daily; and if the demand increases, a still larger plant can easily be added. Again with the increased means of transport, and the building of roads into our mineral producing districts, access to other classes of ore may greatly better and cheapen the process of smelting.

Besides that with the Le Roi, contracts have been made with the War Eagle, Iron Mask and Crown Point. The recent refining of and making two gold bricks, one weighing 250 ounces and the other between 200 and 250 ounces, has created much comment throughout the district.

### E. S. TOPPING, Esq.

E. S. Topping, Esq., "The Father of Trail" was born in Suffolk county, N. Y., in 1844. His life if written with regard to all the data at hand, would read like a romance. He was a sailor boy at eleven years of age. He was a contractor on the U. P. Ry. in 1867, at the age of twenty-two. He was an explorer and miner in the Yellowstone Park in the early seventies and was the discoverer of the Norris Geyser basin. In 1874 and 1875, he trapped and hunted in the Sioux country, and took part in some Fort Peace fights with the Indians. He was with Gen. Crooks' expedition as a scout, and was at the same time a correspondent for eastern papers.

Mr. Topping was a pioneer to the Black Hills, and was fortunate in his locations and speculation. He returned to Montana in 1883, and accepted a situation as a collector of facts and as a writer for Bancroft's history. He about this time published a work of his own, entitled "Chronicles of the Yellowstone." The following four years were inopportunity spent in working delusive prospects in the Cœur d'Alenea.

Mr. Topping came to British Columbia in 1888. He had the misfortune to meet with an accidental gun-shot wound in his wrist, which laid him up for some months, and exhausted his ready funds. Nothing daunted, he began work as a fisherman as soon as he was able to get out, and with one hand only serviceable, cleared \$100 per month falling. He next took charge of a store, and having become a Canadian citizen, was appointed Recorder and Constable.

From this time on Mr. Topping's fortunes have attained a more rosy hue. He has a double title to the town of Trail, in the fact that it was due to his advice and assistance that the discoverer of the now famous Le Roi continued prospecting to a demonstration with the richness of the ore, and to the added fact that he had laid out and built the now thriving town of Trail, the first town in the Trail Creek district.

The town of Trail is most advantageously situated, not only for a trading point, but, as well for smelters and for manufacturing sites. It is at the mouth of Trail Creek, on the Columbia river. The town is in contact with the mines, seven miles distant, by the C. W. Ry. and with all outside points by steamers on the Columbia. The largest industry yet in operation at Trail, is Mr. F. A. Heinze's great smelter. A number of other industries necessary to a mining section, have been established, and the town divides honors with Rossland as a trade center; but it will probably be as a manufacturing and smelting point that Trail will excel all other places in the Kootenays.

In concluding this too brief sketch, it should be added that "The Father of Trail" owns and occupies one of the finest residences in the town, and is one of the most prominent, popular and esteemed citizens of the district.

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