

Copper Mining and Refining in British Columbia

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It will be remembered that about three years ago there was appointed by the Minister of Militia and Defence "a Commission to Investigate the Feasibility of Refining Copper and Producing Metallic Zinc on a Commercial Scale in the Dominion of Canada." The members of that commission were: Hon. Lt.-Col. David Carnegie, M. Inst., C.E., Chairman, Ordnance Advisor to Shell Committee; Dr. Alfred W. G. Wilson, Chief of Metal Division, Mines Branch of Canada Department of Mines, Ottawa, and Dr. A. Stansfield, Professor of Metallurgy, McGill University, Montreal. The Commission was formed after several conferences, concerning the supply of copper and zinc for the British War Office contracts, with the Minister of Militia and Defence, General Hughes; the Chairman of the Shell Committee, Brig.-General Bertram; Mr. David Carnegie, Ordnance Advisor, and finally with Sir Robert Borden, the Prime Minister. The investigations of the commission covered a period from March to August, 1915. In 1916 the Imperial Munitions Board, Ottawa, with the approval of the Minister of Militia and Defence, authorized the publication of the report which was the outcome of the investigations of the commission and which, as stated by its chairman, included "information of value to many in the Dominion, as it contained the mature opinions of the most expert men in Canada on the subjects dealt with."

It is thought probable that, leaving out for the present the subject of the production of metallic zinc, which, by the way was successfully established at Trail, B.C., on a commercial scale before that of refined copper was also undertaken there, a general review of the situation in regard to the production of copper in British Columbia, keeping in mind the opinions expressed during the time the investigations were made, will be of interest. No reference will be made to the production of copper in Ontario, though this is of important and increasingly large proportions, for the reason that in its preliminary conclusions the commission, after having expressed its opinion that the time was opportune to commence refining copper in Canada, favored Trail, B.C., as "the best location where to begin." It may be well to quote from the report of the commission its preliminary conclusions, as under:

"Preliminary Conclusions Regarding the Refining of Copper in Canada.

"(1) We are of opinion that the time is opportune to commence refining copper in Canada.

"(2) The best location where to begin refining copper is, in our opinion, at the works of the Consolidated Mining and Smelting Company of Canada, Trail, B.C., because:

"(a) The works are owned and operated by Canadian capital.

"(b) The company is free to commence refining copper immediately, as it has no binding contracts with companies in the United States, such as exist for at least two years between the copper producers at the coast and the refineries in the United States.

"(c) The companies at the coast are all controlled by firms in the United States.

"(d) The Consolidated Mining and Smelting Company of Canada now possesses an efficient staff capable of managing a copper refinery.

"(e) As the electrolytic refining of lead has been carried on successfully at Trail for some years past the company is in a more favorable position to produce electrolytic copper more economically and at less initial cost of plant than any of the companies on the coast.

"(f) The establishment of a refinery at Trail would in no way interfere with the subsequent establishment of a refinery at the coast, should this be found advisable.

"Advantages of Refining Copper in Canada:

"(1) The establishment of a copper refinery in Canada means the beginning of a new industry, which will lead to the manufacture of copper products now imported from the United States and elsewhere, such as wire, bars, sheets, tubes, etc.

"(2) It means that the money value of the labor now enjoyed by the United States, in manufacturing the imported products, could be kept within the Dominion. The value of the imported products is upward of \$5,000,000 annually. This amount does not include the value of brass imported.

"(3) It means that as approximately one-third of the value of the copper produced in the Dominion now goes to the United States to pay the cost of refining, freight, and marketing, that amount would be saved to the Dominion.

"Note.—It costs from 8c to 11c per lb. to produce the finished product—ingot copper ready for the manufacturers—from copper ore in the mine. The market price of copper usually varies from 12c per lb. upward.)

"Copper Available.—Dr. Wilson estimates that there is more than 1,000,000,000 lb. of copper available in the known ore deposits of British Columbia, most of which will be mined in all probability during the next 15 years. The undeveloped resources cannot be estimated.

"Total Copper Mined Annually.—The total copper mined and partially manufactured in Canada is about 75,000,000 lb. annually. This will be increased probably to 100,000,000 lbs. within two years.

"The total copper mined and partially manufactured in British Columbia is about 45,000,000 lbs. annually. This, too, will be increased within the next two years."

It is of interest to note that Dr. Wilson's prediction as to an increase in the production of copper has been amply realized. The output of copper in the Dominion and British Columbia, respectively, during the last three years is shown in the following table:

Year.	Whole of Canada. British Columbia.	
	Lb.	Lb.
1915	100,785,150	56,692,988
1916	117,150,028	63,642,550
1917 (estimated)	108,860,358	57,717,535

(Note.—The foregoing figures are those of the Dominion Statistician, who obtains actual production of metallic copper.)

British Columbia Copper Producers.

The larger producers of copper from mines in British Columbia are the Granby Consolidated Mining, Smelting & Power Co., Ltd., operating in both the Boundary and Coast districts; the Britannia Mining and Smelting Co., Ltd., in the Coast district; the Canada Copper Corporation, Ltd. (formerly the British Columbia Copper