

REPORT GIVES HISTORY OF COPPER SMELTING AND DESCRIBES PLANTS

Growth of Industry since first Operations has been rapid and Canada now has some of finest Plants

INDUSTRY BORN 1848

That the annual production of copper in Canada has increased from 3,505,000 pounds, valued at \$385,550, in 1886, to 118,415,829 pounds, valued at \$29,163,450, in 1918, is shown by statistics of the Mines Branch, Department of Mines. A historical review of the development of the copper smelting industries of Canada is presented in a report on the subject by Alfred W. G. Wilson, Ph.D., chief of the Metal Mines Division. It is of interest to quote from the report as follows:—

"Discoveries of copper ores in commercial quantities have from time to time been made in regions of Canada more or less remote from the settled districts and lines of transportation. With the development of the country these localities have become more and more accessible, and it has followed that deposits of a grade so low that in early days they were valueless can now be operated at a profit. Be a deposit either remote or easily accessible, except in rare instances, it is always desirable to employ some method of concentration whereby transportation charges will accrue only on shipments of the more valuable portion of the ore. The various attempts that have been made to accomplish this since the beginning of copper mining in Canada have always had in view the purpose to recover the valuable constituents of the ore and make them commercially available at the lowest possible cost. In reviewing the history of the development of copper mining in Canada we find that in nearly every centre where copper ores were discovered various attempts were made to reduce the copper to the form most convenient for transportation. Thus smelting or lixiviation processes were introduced at many different times and at many different centres. In only a few instances were these plants operated for any length of time. Usually either the process was a failure or the supply of ore was not adequate.

EARLY SMELTING OPERATIONS.

The first copper smelting operations attempted in Canada were those of the Montreal Mining Company at the Bruce mines near the end of the year 1848. The president of the company, the late Hon. James Ferrier, brought a copper refiner and three furnace men from Wales. The first engine-house was in the autumn of that year. The fire-bricks for use in the furnaces were brought from England by sailing ship to Montreal and thence transhipped by water route up the St. Lawrence and through the Great Lakes to Bruce mines. I have seen it stated that these bricks cost about 25 cents each laid down at the mines. The furnace no doubt was of the reverberatory type used at Swansea for many years. No description of this first plant is available. The operations were not successful, and the smelter was destroyed by fire a year or so later—probably in 1850.

"During the next fifty years we find that other plants were started at many points. . . . It may be noted that the progress of development of the copper smelting industry in Canada has kept pace with developments elsewhere. It will be found that not a few of the improvements in practice, now widely used, were first worked out and perfected by smelter men working in Canadian plants.

"The first large rectangular copper smelting furnace on the American continent was built at Eustis, Quebec, on

the site of the present concentrating mill. Canada at present possesses several of the finest and most complete smelting plants in the world. . . . The plant of the Canadian Copper Company, which may be said to have been in continuous operation for twenty-five years is the oldest plant in Canada." The report also describes in detail the various smelters in Canada.

PRODUCTION BY PROVINCES.

Of the total production of 118,415,829 pounds of copper in 1918, the various copper producing provinces contributed the following amounts:—

	Pounds.
British Columbia	62,858,628
Ontario	47,047,801
Quebec	5,869,694
Manitoba	2,000,000
Yukon	300,000

The copper production of Ontario has been almost wholly from the nickel-copper ores of the Sudbury district, and these of the Alexo mine in Timiskaming to which the Cobalt district contributes a small amount recovered from its silver ores. Shipments from a few copper properties under development also add slightly to the total. The production in British Columbia is from silver-lead ores and from the low grade copper ores of the Pacific coast. The Quebec production is from pyritic ores. No large deposits of copper ores have been developed in the Maritime Provinces, and the production of copper has been comparatively small. No copper has been produced by the Maritime Provinces recently. The important copper output of Manitoba in recent years is derived from the sulphide ore deposits at Schist lake, northwest of The Pas, according to information furnished by the Mines Branch Mineral Resources and Statistics Division of the Mines Branch.

OPERATING MILEAGE OF EXPRESS COMPANIES

The total operating mileage of the nine express companies—five Canadian and four American companies—doing business in Canada is 43,069, as stated in the Canada Year Book for 1918, compiled by the Dominion Bureau of Statistics. The gross operating receipts were \$16,836,874 in 1917, compared with \$12,860,629 in 1916, an increase of \$3,975,745. A deduction of \$8,052,606 for express privileges—that is, the amount paid to railways, steamboat, and stage lines for the carrying of express matter—leaves \$8,783,768 as the operating revenue for the year. Operating expenses in 1917 amounted to \$7,687,656, as compared with \$5,794,517 in 1916, and the net operating revenue to \$1,096,112, as compared with \$919,713 in 1916.

Tenders for Icebreakers.

Sealed tenders addressed to the undersigned and endorsed "Tender for ice-breakers at Richmond, Que." will be received at this office until 12 o'clock noon, Thursday, June 5, 1919, for the reconstruction of three ice-breakers at Richmond, County of Richmond, Que.

Plans and forms of contract can be seen and specification and forms of tender obtained at this Department, at the offices of the District Engineers at Sherbrooke, Que.; Post Office Building, Quebec, Que.; Shaughnessy Building, Montreal, Que.; and at the Post Office of Richmond, Que.

Tenders will not be considered unless made on printed forms supplied by the Department and in accordance with conditions contained therein.

Each tender must be accompanied by an accepted cheque on a chartered bank payable to the order of the Minister of Public Works, equal to 10 per cent of the amount of the tender. War Loan Bonds of the Dominion will also be accepted as security, or War Bonds and cheques if required to make up an odd amount.

NOTE.—Blue prints can be obtained at this Department by depositing an accepted blank cheque for the sum of \$10, payable to the order of the Minister of Public Works, which will be returned if the intending bidder submit a regular bid.

R. C. DESROCHERS,
Secretary.

Department of Public Works,

CONDITIONS OF FALL WHEAT, HAY AND CLOVER

Winter Killing and Condition of Crops is Summed up in Statement Compiled by Bureau of Statistics

SPRING SEEDING LATE

[Continued from Page 1.]

Manitoba, 99; Saskatchewan, 94; Alberta, 95; and British Columbia, 100.

Practically no progress with spring seeding had been made by the end of April in the Maritime Provinces and in Quebec. In Ontario very little had been done, and the spring is late. Snowstorms during the last week of April threw things still more backward and in many parts left the land too wet for seeding. In the West the spring opened up late, but by the end of April good progress was being made, and a good seedbed was, as a rule, being obtained. Numerically, about 60 per cent of spring wheat had been sown by April 30 in the five provinces of Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia, as compared with 66 per cent last year, including Quebec. In Ontario the proportion was 29 per cent, as compared with 68 per cent last year; in Manitoba, 40 per cent, against 94 per cent; in Saskatchewan, 62 per cent, against 85 per cent; in Alberta, 77 per cent, against 92 per cent; and in British Columbia, 45 per cent, against 66 per cent. Of oats, the percentage reported as sown is 9 per cent for the five provinces, and of barley it is 5 per cent. Of the total seeding, the proportion sown at the end of April was 30 per cent, or nearly one-third.

Fort William Tender.

Sealed tenders addressed to the undersigned and endorsed "Tender for extension to the revetment wall at Fort William, Ont." will be received at this office until 12 o'clock noon, Thursday, June 5, 1919, for the construction of a breakwater, as an extension to the revetment wall and wharves at the entrance to the Mission Channel, Fort William, District of Thunder Bay, Ont.

Plans and forms of contract can be seen and specifications and forms of tender obtained at this Department, at the offices of the District Engineers at Fort William, Ont.; Equity Building, Toronto, Ont.; and Shaughnessy Building, Montreal, P.Q.

Tenders will not be considered unless made on printed forms supplied by the Department and in accordance with conditions contained therein.

Each tender must be accompanied by an accepted cheque on a chartered bank payable to the order of the Minister of Public Works, equal to 10 per cent of the amount of the tender. War Loan Bonds of the Dominion will also be accepted as security, or War Bonds and cheques if required to make up an odd amount.

NOTE.—Blue prints can be obtained at this Department by depositing an accepted blank cheque for the sum of \$25, payable to the order of the Minister of Public Works, which will be returned if the intending bidder submit a regular bid.

By order.
R. C. DESROCHERS,
Secretary.

Department of Public Works,
Ottawa, May 12, 1919.

Grading and Road Work.

Sealed tenders addressed to the undersigned, and endorsed "Tender for Grading and Road Work, Military Hospital, Burlington," will be received until 12 o'clock noon, Friday, May 30, 1919, for grading and road work, Military Hospital, Burlington, Ont.

Plans and specification can be seen and forms of tender obtained at the

offices of the Chief Architect, Department of Public Works, Ottawa; the Superintendent of Dominion Buildings, Postal Station "F," Toronto; and the Caretaker, Public Building, Hamilton, Ont.

Tenders will not be considered unless made on the forms supplied by the Department and in accordance with the conditions set forth therein.

Each tender must be accompanied by an accepted cheque on a chartered bank payable to the order of the Minister of Public Works, equal to 10 per cent of the amount of the tender. War Loan Bonds of the Dominion will also be accepted as security, or War Bonds and cheques if required to make up an odd amount.

By order.
R. C. DESROCHERS,
Secretary.

Department of Public Works,
Ottawa, May 14, 1919.

Construction of Wharf.

Sealed tenders addressed to the undersigned, and endorsed "Tender for Wharf at Connaught Station, Ont." will be received at this office until 12 o'clock noon, Wednesday, June 11, 1919, for the construction of a timber pilework wharf at Connaught Station, District of Timiskaming, Ont.

Plans and forms of contract can be seen and specification and forms of tender obtained at this Department; at the Post Office, Halleybury, Ont.; and at the Post Office, Connaught Station, Ont.

Tenders will not be considered unless made on printed forms supplied by the Department and in accordance with conditions contained therein.

Each tender must be accompanied by an accepted cheque on a chartered bank payable to the order of the Minister of Public Works, equal to 10 per cent of the amount of the tender. War Loan Bonds of the Dominion will also be accepted as security, or War Bonds and cheques if required to make up an odd amount.

NOTE.—Blue prints can be obtained at this Department by depositing an accepted bank cheque for the sum of \$10, payable to the order of the Minister of Public Works, which will be returned if the intending bidder submit a regular bid.

By order.
R. C. DESROCHERS,
Secretary.

Department of Public Works,
Ottawa, May 14, 1919.

Construction of Dam.

Sealed tenders addressed to the undersigned, and endorsed "Tender for Protective Works at Nicomen Island, B.C." will be received at this office until 12 o'clock noon, Wednesday, June 18, 1919, for the construction of a dam, embankment and three groynes at Nicomen Island, Fraser River, District of New Westminster, B.C.

Plans and forms of contract can be seen and specification and forms of tender obtained at this Department; at the offices of the District Engineers at Victoria, B.C., New Westminster, B.C.; and at the Post Offices, Vancouver, B.C., and Deroche, B.C.

Tenders will not be considered unless made on printed forms supplied by the Department and in accordance with conditions contained therein.

Each tender must be accompanied by an accepted cheque on a chartered bank payable to the order of the Minister of Public Works, equal to 10 per cent of the amount of the tender. War Loan Bonds of the Dominion will also be accepted as security, or War Bonds and cheques if required to make up an odd amount.

NOTE.—Blue prints can be obtained at this Department by depositing an accepted bank cheque for the sum of \$20, payable to the order of the Minister of Public Works, which will be returned if the intending bidder submit a regular bid.

By order.
R. C. DESROCHERS,
Secretary.

Department of Public Works,
Ottawa, May 13, 1919.

Ask for War Savings Stamps.