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THE NON-FERROUS SMELTING AND REFINING INDUSTRY IN CANADA, 1930.

Considerable information regarding Canadian smelting and refining of domestic and imported non-ferrous ores is contained in a bulletin just issued by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa.

Sales and production of blister copper by the Noranda smelter, Noranda, Quebec, were considerably in excess of 1929. The smelter received from the mine 422,135 tons of direct smelting sulphide ore averaging 7.22 per cent copper, 0.77 ounces of silver, and \$3.30 gold per ton; also 252,797 tons of silicious ore, used as flux, of an average grade of 1.30 per cent copper, 0.27 ounces silver, and \$2.94 gold per ton; the concentrator treated 174,351 tons of an average grade of 2.35 per cent copper, 0.41 ounces silver, and \$3.40 gold per ton; 733,971 tons of ore and concentrates treated by the smelter yielded 76,142,246 pounds of blister copper.

The new plant of the Canadian Copper Refiners, Ltd., a joint enterprise of Noranda Mines, Ltd., the British Metals Corporation, and the Nichols Copper Co. of New York, is nearing completion at Montreal East. This refinery is designed to produce 75,000 tons of electrolytic copper annually; blister copper from Noranda and other sources will be treated here. This refining company has also acquired a considerable financial interest in the Canada Wire and Cable Company which is erecting a rod mill and wire drawing plant near the copper refinery.

The Aluminum Company of Canada operated both the Shawinigan and Arvida plants throughout 1930 utilizing alumina and imported bauxite ores.

In Ontario the International Nickel Company treated 2,285,127 tons of copper-nickel ores as against 2,033,457 tons in 1929. Matte was shipped to Clydach, Wales; Huntington, West Virginia, U.S.A.; and to the Port Colborne refinery, the latter plant producing converter copper, electrolytic nickel, nickel oxide, and residues containing metals of the platinum group. Monel metal was made and gold and silver recovered in foreign plants. The company now operates a very complete and modern precious metals refinery at Acton, England. In Copper Cliff, the new plant of the Ontario Refining Company, was completed and electrolytic copper produced for the first time in Eastern Canada. This works, with an initial capacity of 120,000 tons per annum, is the largest of its kind in the British Empire. The company is at present producing wire bars, ingot bars, and other electrolytically refined

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products from blister copper received from British Columbia smelters and the International Nickel Company. At Galetta, the Kingdon Mining, Smelting and Manufacturing Co. Ltd., produced pig lead from the Kingdon mine galena concentrates. Cobalt-silver ores and concentrates from Cobalt, South Lorrain and Gowganda districts were treated in the plant of the Deloro Smelting and Refining Company, Ltd., Deloro, Ontario. Production from this refinery included fine silver, metallic cobalt, cobalt oxides, nickel oxide, nickel salts, white arsenic, cobalt alloys and a silver-lead-bismuth bullion.

Manitoba in 1930 became, for the first time, one of <sup>the</sup> copper smelting and zinc refining provinces of the Dominion. A complete metallurgical plant, capable of producing 2,500,000 pounds of blister copper monthly, has been erected and placed in operation at Flin Flon by the Hudson Bay Mining and Smelting Company. Blister copper was shipped during the latter part of the year to United States refiners of the metal and electrolytic zinc was sold in both domestic and foreign markets. The designed capacity of the zinc plant is 50,000,000 pounds annually. The company's hydro-electric plant at Island Falls has been developed to its full capacity of 40,000 h.p.

Metallurgical industries in British Columbia were affected adversely by the depressed metal prices prevailing during 1930. The large Trail works of the Consolidated Mining and Smelting Co. Ltd., produced gold, silver, lead, refined copper, copper matte, cadmium, bismuth, platinum and palladium from both customs ore and tonnage from their own mines, the largest of which is the Sullivan, a mine possessing one of the world's greatest known silver-lead-zinc deposits. The Granby Consolidated Mining, Smelting and Power Company's production of blister copper was considerably less than in 1929; this output was shipped to both United States and Canadian refineries; customs ores and those from their own properties were treated at the company's smelter at Anyox.

Capital invested in lands, buildings, plant, machinery and tools, cost of supplies and stocks on hand and cash, in the non-ferrous metallurgical industry in Canada amounted to \$163,092,471 in 1930 as against \$146,699,085 in 1929. There were 788 salaried employees and 7,838 wage-earners who received \$13,796,124 for their services. Fuel and electricity cost \$6,465,898, in addition to which coke to the value of \$3,262,541 was used for smelting. Total power employed was 297,802 h.p. comprising 16,513 h.p. generated by steam engines and steam turbines, 390 h.p. from gasoline, oil and gas engines, 65,035 h.p. from hydraulic turbines and water wheels, and 215,874 h.p. by electric motors operated by purchased power. In addition there were 619 other electric motors in use having a combined rating of 15,140 h.p. which were operated on energy generated by the primary power of the industry. The estimated





value of material treated was \$45,310,472, and the sales value from the smelters and refineries amounted to \$100,946,136, indicating that the value added by converting the ore to saleable products was \$55,635,664.

Canadian producers of non-ferrous metals have experienced, together with those of foreign countries, considerable losses from the severe and world-wide industrial depression existing during the past year. It is, therefore, highly gratifying to witness, in the face of these adverse conditions, such events in the industry as the successful commencement of zinc and copper production at Flin Flon, Manitoba; the operating of the recently completed electrolytic copper plant of the Ontario Refining Company at Copper Cliff;<sup>the</sup> almost continuous operation of the new Falconbridge <sup>the</sup>nickel smelter; construction of the refinery at Montreal East by Canadian Copper Refiners, Ltd., and an increased copper-gold production from Noranda Mines. Ample supplies of low cost hydro-electric power combined with the smelting of large tonnages of copper-bearing ores containing important values in precious and other commercially valuable metals contribute greatly to the stability and strength of the Canadian non-ferrous metal industry.

PRINCIPAL STATISTICS OF THE NON-FERROUS METALLURGICAL INDUSTRIES IN CANADA, 1929 and 1930.

	1929	1930
Number of companies.....	7	10
Number of plants.....	10	13
Capital employed.....\$	146,699,085	163,092,471
Number of salaried employees.....	684	788
Salaries.....\$	1,753,840	2,009,895
Number of wage-earners.....	7,435	7,833
Wages.....\$	12,018,553	11,786,229
Cost of fuel and electricity.....\$	6,208,733	6,552,569
Estimated cost of ores, concentrates, etc., treated.....\$	41,416,446	45,310,472
Value of smelter products.....\$	109,854,468	100,946,136
Value added by smelting.....\$	68,438,022	55,635,664

