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Manufactures of the  
**NON-FERROUS METALS**  
IN CANADA  
1921

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## PREFACE

The present summary report contains the principal statistics of manufactures of the non-ferrous metals in Canada during 1921, totals being shown for each of the six groups included under this heading. While only summary statistics are given it is the intention, in so far as it may be possible, to issue detailed reports on each of the six groups named therein. The preparation of the summary report, however, has been given precedence in order that up-to-date information may be made available to the trade at the earliest possible moment.

The preparation of the report has been carried out by Mr. Sydney B. Smith, M.A., under the direction of Mr. S. J. Cook, B.A., A.I.C., F.C.I.C., Chief of the Mining, Metallurgical and Chemical Branch.

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DOMINION BUREAU OF STATISTICS,  
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# MANUFACTURES OF THE NON-FERROUS METALS IN CANADA, 1919, 1920, 1921

Year	Number of Plants	Capital Em- ployed \$	Number of Em- ployees	Salaries and Wages \$	Cost of Materials \$	Selling Value of Products \$	Value Added by Manu- facturing \$
ALUMINIUM INDUSTRY							
1919.....	4	6,932,197	861	969,607	2,899,641	7,581,366	4,681,725
1920.....	8	8,579,197	1,120	1,513,385	3,164,751	9,445,614	6,280,863
1921.....	8	8,131,088	481	609,170	1,704,432	3,633,616	1,929,184
BRASS AND COPPER PRODUCTS INDUSTRY							
1919.....	78	16,166,261	3,431	3,977,309	8,154,229	15,458,606	7,304,377
1920.....	79	19,514,502	4,461	5,433,295	9,886,407	19,516,187	9,629,780
1921.....	81	18,122,034	3,134	3,844,055	4,184,674	10,477,206	6,292,532
LEAD, TIN AND ZINC PRODUCTS INDUSTRY							
1919.....	11	2,249,398	312	398,426	2,034,762	3,080,008	1,045,246
1920.....	18	3,337,039	506	651,460	2,901,174	4,574,165	1,672,991
1921.....	19	3,180,149	501	682,562	1,654,642	2,886,415	1,231,773
PRECIOUS METALS PRODUCTS INDUSTRY*							
1919.....	53	4,177,574	1,201	1,308,444	2,214,759	4,934,470	2,719,711
1920.....	105	8,562,063	2,716	3,437,047	5,004,922	11,079,293	6,074,371
1921.....	118	10,371,208	3,021	3,781,626	4,206,957	9,941,635	5,734,678
ELECTRICAL APPARATUS AND SUPPLIES INDUSTRY							
1919.....	100	46,066,584	9,594	9,729,043	15,383,577	34,427,978	19,044,401
1920.....	99	69,000,008	14,115	16,587,044	27,220,861	55,965,896	28,745,035
1921.....	100	63,609,530	10,640	13,555,712	19,438,688	45,093,591	25,654,903
MISCELLANEOUS NON-FERROUS METAL GOODS INDUSTRY							
1919.....	21	649,778	400	368,158	355,691	940,034	584,343
1920.....	16	394,096	246	274,270	260,299	708,780	448,481
1921.....	18	665,481	162	219,659	250,596	557,420	306,824
ALL INDUSTRIES							
1919.....	267	76,241,792	15,799	16,750,987	31,042,659	66,422,462	35,379,803
1920.....	325	109,386,905	23,164	27,896,501	48,438,414	101,289,935	52,851,521
1921.....	344	104,079,490	17,939	22,692,784	31,439,989	72,589,883	41,149,894

\*Classification changes were made in 1920 so that 1919 data given are not exactly comparable.



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# MANUFACTURES OF THE NON-FERROUS METALS IN CANADA, 1921

**General Review**—In 1921 there were 344 establishments in Canada engaged in manufacturing products in which the principal materials used were metals other than iron and steel. Included in this number were 8 plants making aluminium ware; 81 plants in the brass and copper products group; 19 plants producing lead, tin and zinc products; 118 plants making precious metal products; 100 plants in the electrical apparatus and supplies group; and 18 plants making miscellaneous non-ferrous metal goods, principally lantern burners and weather strip.

The slackening demand and lower prices in the first part of the year due to the general depression in manufacturing were reflected in a downward trend of production. The value of the output in 1921 was \$72,590,000, as compared with \$101,290,000 in the preceding year and \$66,422,000 in the same industries in 1919. The electrical supplies industry produced goods to the value of more than forty-five million dollars and the manufactures of brass and copper products amounted in value to nearly ten and one-half million dollars. The precious metals group including electroplating and the manufacture of jewelry, clocks and watches, showed an output valued at nearly ten million dollars. Deducting the total cost of the materials used from the selling value of the products made, the value added by manufacturing was found to be approximately \$41,150,000, as compared with \$52,852,000 in 1920 and \$35,380,000 in 1919.

The average number of wage-earners employed throughout the year was 13,838. The year opened with a pay-roll of 16,040 wage-earners but this number was gradually reduced until in October the minimum for the year of 12,119 was reached. A slight recovery raised the number employed to 12,359 in December. The corresponding number for the previous year was 18,854, and in 1919 the average was 15,931. The decrease in numbers in 1921 from the previous year was 26.6%; wages were less by a like percentage. The number of salaried employees was 4,101 and salaries paid amounted to \$7,526,846. Corresponding data for 1920 showed 4,310 salaried employees receiving salaries amounting to \$7,228,051.

On December 15 (or the nearest representative date) the number of wage-earners employed was 13,652. Classified according to their weekly rates of pay, these employees fell into the following groups; less than \$10 per week, 995 or 7 per cent; between \$10 and \$20 per week, 4,950 or 36 per cent; \$20 and less than \$30 per week, 4,435, or 33 per cent; between \$30 and \$40 per week, 2,272 or 17 per cent; between \$40 and \$50 per week, 717 or 5 per cent; \$50 and over, 283 or 2 per cent. The weighted average weekly wage rate was about \$21.80. The wage-earner occupying the central position in regard to remuneration received a weekly wage of \$21.60.

In the year of 304 working days each plant on the average worked 268 days and was idle 36 days. During 1920, each plant on the average was in operation 289 days.

The total cost of fuel used by the firms manufacturing non-ferrous metal products during 1921 was \$1,113,970. Of this amount the electrical apparatus and supplies group expended \$633,749 or 57 per cent, while the brass and copper group paid out on this account \$300,548 or 27 per cent of the total. Bituminous coal was principally used amounting for \$642,713 or 58 per cent of the total fuel cost. The cost of bituminous coal used in 1920 in these industries was \$775,395 and represented 49 per cent of the total amount spent for fuel in that year.

More than \$104,000,000 was reported as capital employed in manufactures of the non-ferrous metals in Canada in 1921. The electrical apparatus and supplies group led in this respect with an investment of \$63,609,530 or 61 per cent of the total, and the brass and copper products group

came next with \$18,122,034 capital employed or 17 per cent of the total. Of the investment in all plants, the amount credited to lands, buildings, machinery and tools was 46 per cent of the total; the balance represented the book value of cash, operating accounts, bills receivable and the value of stocks and supplies on hand. The total operating expenditures by these industries in 1921 was \$64,777,067, comprising materials costing \$31,439,989 or 49 per cent; salaries and wages, \$22,692,784 or 35 per cent; fuel, \$1,113,970 or 1 per cent; and other miscellaneous operating expenses, \$9,530,324 or 15 per cent.

The value of production was \$72,589,883 leaving an operating revenue of \$7,812,816. The operating ratio computed by taking the percentage of the total expenditures to the gross production was 89 per cent and as already noted the value added by manufacturing was \$41,150,000.

The manufacture of products from the non-ferrous metals is largely concentrated in Ontario and Quebec. In 1921, nearly 97 per cent of the Dominion production was reported from these two provinces. Of the 344 establishments, 226 were situated in Ontario, 70 were in Quebec, 19 in British Columbia, 15 in Manitoba, 7 in Alberta, 6 in New Brunswick and 1 in Nova Scotia.

The capital employed in Ontario plants was \$69,463,727, while Quebec plants reported \$28,184,055. Manitoba held third place with \$1,348,490. Ontario plants provided employment for 9,463 wage-earners and 2,787 salaried employees, and salaries and wages paid amounted to \$15,855,088. The employees in similar plants in Quebec numbered 3,945 wage-earners and 1,152 salaried employees earning \$6,076,451.

**Aluminium Industry**—Smelting of imported bauxite ore for the production of aluminium was carried on in Canada only by the Northern Aluminium Company at Shawinigan Falls, Quebec and fabricated products were made by the same firm at a plant at Toronto. The manufacture of aluminium cooking utensils and other fabricated aluminium-ware was also carried on by The Ideal Aluminium Company Limited, Toronto; Veribest Aluminium Company of Canada, Toronto; Wentworth Manufacturing Company, Hamilton; The Duro Aluminium Company, Hamilton; Aluminium Ware Manufacturing Company, Oakville; George C. Clark Metal Products Company Limited, Windsor, Ont. As the Wentworth Manufacturing Company of Hamilton manufactured brass, copper and other products in a much greater amount than they produced aluminium-ware, their operations have been included under Brass and Copper Products. The production of aluminium products by the firms classified in this industry was valued at \$3,633,616; the cost of materials was \$1,704,432 so that the value added by manufacturing was \$1,929,184. The average number of workers employed was 481 of whom 110 were on salary and 371 on wages.

Outside piece workers to the number of 23 were employed during the year; payments to these workers amounted to \$25,877. Data regarding the number of these outside piece workers, and payments to them have been excluded from the tables.

The aluminium industry in America dates from 1890 when the first successful process was worked out for the economical extraction of the metal from its ores. The lightness and ductility of the metal, and the fact that it is not readily attacked by organic acids, air, or water, together with the feature that it transmits heat readily soon brought it into favor as a material for kitchen utensils and in this connection it has become well known. Large quantities of aluminium wire are now used for electric transmission lines and quantities are used in the manufactures of such apparatus as cream separator parts and other light machinery. Alloyed with magnesium it possesses great tensile strength and finds extensive use. Aluminium bronzes, too, are widely used and during the war great quantities were utilized in the manufacture of aeroplane engines and parts.

The aluminium industry in Canada is expanding rapidly to meet the demand which has been created, and the future of the comparatively new industry is very promising.

**Brass and Copper Products**—This group includes factories mainly engaged in the rolling and casting of copper and brass, the manufacture of lightning rod systems and of finished brass goods. The chief commodities of value were brass and copper castings, brass sheet, brass fittings, valves and plumbers' goods. As a result of world-wide conditions in the non-ferrous metals industry, production in this group was much depressed in 1921. The value of the output was only \$10,477,206; the value added by manufacturing obtained by deducting the cost of materials from the value of products made, was \$6,292,532, as compared with \$9,629,780 in 1920. Pro-



duction in each of the last two years of the war including materials produced for munitions purposes, was valued in excess of twenty-four million dollars. The average number of wage-earners was 2,444 in the year under review, or 1,342 below the average of 3,786 for 1920.

The capital employed in the industry was \$18,122,034, of which 44·6 per cent was invested in lands, buildings and equipment, and the remaining 55·4 per cent represented current assets. The 39 brass foundries accounted for 63·4 per cent of the total capital and the establishments producing finished brass and copper goods, reported an investment representing 33·6 per cent, leaving the balance for the concerns making lightning rods.

Of the 81 plants in the industry, 52 were located in Ontario, 15 in Quebec, 6 in British Columbia, 4 in Manitoba, 2 in New Brunswick, 1 in Nova Scotia and 1 in Alberta. Distributed by groups, the 81 plants included 39 brass foundries, 34 plants producing brass and copper hardware and similar finished products, and 8 concerns manufactured lightning rods.

**Lead, Tin and Zinc Products.**—The manufacture of lead, tin and zinc products, including babbitt metal, solders, type metals and refined non-ferrous metals produced from scraps such as lead, zinc, tin, etc., was carried on in Canada in 19 different plants, 8 of which were in Quebec, 7 in Ontario, 2 in British Columbia, 1 in Manitoba and 1 in New Brunswick. The total selling value of the output was \$2,886,415 and as the cost of materials used was \$1,654,642, the value added by manufacturing process was \$1,231,773. The manufacture of these non-ferrous metals, or in general the white metal trade in Canada, has made very considerable progress in recent years. The collectors of junk, the dominion over, bring to the white metal works quantities of scrap which in the aggregate reach very large proportions. On the other hand, the consumption of solders in manufacturing and in plumbing repairs takes up much of the output and the increased use of monotype and linotype equipment in printing necessitates the production of special type metals in great quantities.

**Precious Metals Products.**—Electro-plating, the manufacture of silverware, the production of dental gold and alloys, the manufacture of jewellery, clocks, and watches, and other goods from gold and silver have been grouped together under the foregoing title.

The total production in 1921 reached a value of \$9,941,635 and the cost of materials used amounted to \$4,206,957, leaving the value added by manufacturing at \$5,734,678. Nearly 2,400 wage-earners were employed.

**Electrical Apparatus and Supplies.**—The group includes the establishments engaged primarily in the manufacture of apparatus for use in the generation, transmission and utilization of electric energy. The principal products include dynamos, transformers, switchboards, motors and batteries for the generation and transmission of power, as well as incandescent lamps, telephone apparatus, insulated wires and cables required for the utilization of electric energy. The total production of the industry as thus defined was \$45,093,591 in 1921 and the value added by manufacturing computed by deducting the cost of materials used from the value of products made was \$25,654,903. The average number of workers employed was above 8,000.

Among the important items of production were storage batteries, dry cells, incandescent lamps, central switchboards, each of which was produced in quantities sufficiently large to raise the value of production above the million-dollar mark.

**Miscellaneous Non-Ferrous Metal Goods.**—The manufacture of lantern burners and weather stripping, etc., has been reviewed under this heading but as the industry is small, and complete data are given in the tables, no further comment need be made.

**Table 1.—Number of Plants and Value of Products Made in Manufactures of the Non-Ferrous Metals in Canada, by Industries and Provinces, 1921.**

Industry	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada
<b>ALUMINIUM—</b>								
Number of plants.....			1	7				8
Value of products.....				(a) 3,633,616				3,633,616
<b>BRASS AND COPPER—PRODUCTS—</b>								
Number of plants.....	1	2	15	52	4	1	6	81
Value of products.....	(b) 239,245	2,965,940	6,235,426	672,936			(c) 353,559	10,477,206
<b>LEAD, TIN AND ZINC PRODUCTS—</b>								
Number of plants.....		1	8	7	1		2	19
Value of products.....		(d) 739,090	1,849,136				(e) 298,189	2,886,415
<b>PRECIOUS METALS PRODUCTS—</b>								
Number of plants.....		3	26	73	4	4	8	118
Value of products.....		20,142	2,248,365	7,432,309	95,388	37,217	108,214	9,941,635
<b>ELECTRICAL APPARATUS AND SUPPLIES—</b>								
Number of plants.....			17	73	5	2	3	100
Value of products.....			9,280,188	35,281,477	354,304		(f) 177,622	45,093,591
<b>MISCELLANEOUS NON-FERROUS METAL GOODS—</b>								
Number of plants.....			3	14	1			18
Value of products.....			75,759	(g) 481,661				557,420
<b>TOTAL—</b>								
Number of plants.....	1	6	70	226	15	7	19	344
Value of products.....								72,589,883

(a) Includes the production of 1 firm in Quebec.

(b) Includes the production of 1 firm in Nova Scotia.

(c) Includes the production of 1 firm in Alberta.

(d) Includes the production of 1 firm in New Brunswick.

(e) Includes the production of 1 firm in Manitoba.

(f) Includes the production of 2 firms in Alberta.

(g) Includes the production of 1 firm in Manitoba.

**COMMODITY STATISTICS—TABLES 2 to 10****Table 2.—Materials Used, Products Made and Value Added by Manufacturing in Manufactures of the Non-Ferrous Metals in Canada, by Industries, 1921.**

Industry	Cost of Materials	Value of Products	Value Added in Manufacturing
Aluminium.....	\$ 1,704,432	\$ 3,633,616	\$ 1,929,184
Brass and copper.....	4,184,674	10,477,206	6,292,532
Lead, tin and zinc.....	1,054,642	2,886,415	1,231,773
Precious metals.....	4,206,957	9,941,635	5,734,678
Electrical supplies.....	10,438,688	45,093,591	25,654,903
Miscellaneous non-ferrous metal goods.....	250,596	557,420	306,824
<b>Total.....</b>	<b>31,439,989</b>	<b>72,589,883</b>	<b>41,149,894</b>

**Table 3.—Materials Used, Products Made and Value Added by Manufacturing in Manufactures of the Non-Ferrous Metals in Canada, by Provinces, 1921.**

Province	Cost of Materials	Value of Products	Value Added in Manufacturing
Nova Scotia.....	\$ 95,879	\$ 296,622	\$ 200,743
New Brunswick.....			
Quebec.....	8,059,455	17,007,049	8,947,594
Ontario.....	22,212,575	53,185,063	30,972,488
Manitoba.....	669,190	1,265,898	596,708
Alberta.....	158,834	306,457	306,457
British Columbia.....	244,056	528,794	284,738
<b>Canada.....</b>	<b>31,439,989</b>	<b>72,589,883</b>	<b>41,149,894</b>

Table 4.—Products of the Aluminium Industry in Canada, 1920 and 1921.

	1920 Selling Value	1921 Selling Value
<b>Total Production</b> .....	\$ 9,445,614	\$ 2,433,616

Table 5.—Products of the Brass and Copper Products Industry in Canada, 1920 and 1921

Items	Unit of Measure	1920		1921	
		Quantity	Selling Value	Quantity	Selling Value
			\$		\$
<b>Ingot and Bars—</b>					
Brass.....	lb.			53,612	94,159
Bronze.....	lb.			100,224	
Copper.....	lb.			100	
<b>Plates and Sheets—</b>					
Brass.....	lb.		2,229,435	1,232,443	578,839
Bronze.....	lb.			52,296	
Copper.....	lb.			62,852	
Other.....	lb.		77,785	247,465	
<b>Rods—</b>					
Brass.....	lb.			242,285	170,341
Bronze.....	lb.			165,666	
Copper.....	lb.			62,752	
Other.....	lb.			303,219	
<b>Tubing—</b>					
Brass.....	lb.			1,475	1,427
Bronze.....	lb.			50	
Copper.....	lb.			1,800	
<b>Castings and Machinery Fittings—</b>					
Aluminium.....	lb.		148,568	5,477	2,455,693
Brass.....	lb.		1,453,563	1,908,610	
Bronze.....	lb.			8,264,021	
Copper.....	lb.			1,788	
Mixed.....	lb.		7,033,501	456,407	
Aluminium ware.....			105,219		56,681
Automobile accessories.....			112,162		153,153
Babbitt metal, etc.....			76,550		78,830
Bells.....					65,620
Bottlers' machinery.....			26,323		34,676
Brass and copper hollow ware.....			52,000		121,498
Brass spinings.....			18,000		20,411
<b>Brass, Water and Steam Fittings—</b>					
Brass and copper products (miscellaneous).....			328,332		26,667
Bushings.....			180,137		35,161
Taps.....			400,000		105,000
Valves and cocks.....			1,381,744	478,068	779,606
Other.....	No.	753,459	2,146,355		1,525,370
<b>Builders' hardware</b> .....			148,787		163,640
Copper cables.....	yds.			422,820	219,326
Electric fixtures.....			956,723		281,208
Iron valves.....	No.			10,957	266,132
Iron wire work.....			38,000		30,100
Lightning rods and supplies.....					281,405
Locomotive fittings.....					149,422
<b>Recovered Metals—</b>					
Aluminium.....	lb.			28,172	18,115
Brass.....			149,405		
Copper.....	lb.			54,791	31,573
Lead.....	lb.			350	84
Zinc.....				110,508	24,639
Stoves, radiators and parts.....			100,000		80,000
Wire cloth.....	sq.-ft.	1,019,268	655,645		519,728
All other products.....			1,457,644		1,903,006
Amount received for Custom work and repairs.....			240,309		207,658
<b>Total</b> .....			19,516,187		10,477,256

Table 6.—Products of the Lead, Tin and Zinc Products Industry in Canada, 1920 and 1921

Kind	Unit of Measure	1920		1921	
		Quantity	Value	Quantity	Value
			\$		\$
Alloy castings.....	lb.			930,000	57,917
Aluminium Products.....			25,711		13,937
Babbitt.....	lb.	5,716,000	1,348,638	2,804,475	662,978
Brass—					
Boxes.....					2,800
Castings.....	lb.			30,051	8,484
Pipe fittings.....	"				15,101
Plumbers' goods.....	"		384,446		113,624
Valves.....	"				3,460
Dross and slag—					
Lead.....	lb.			141,960	2,248
Zinc.....				175,409	4,387
Lead—					
Bar.....	lb.	2,190,000	253,858	34,666	2,479
Castings.....	lb.			79,701	14,527
Pipe.....	"	1,422,000	191,859	1,110,218	120,416
Sheet.....	"	2,500,000	394,000	1,546,443	121,986
Traps and fittings.....			47,178		28,170
Other.....			116		13,401
Lead and copper 50/50—					
Castings.....	lb.	128,000	43,170	36,001	10,457
Packing.....	lb.			43,135	15,959
Metals Recovered—					
Brass.....	Tons	25	9,500	100	62,000
Copper.....	Tons	12	7,065	38	8,917
Lead, refined.....	lb.			1,896,018	105,370
Tin.....	Tons	47	59,210	34,089	10,543
Zinc.....		65	12,801	775,013	63,005
Phosphor tin (ctg. 5% phosphor).....				4,000	1,763
Putty.....		140,000	23,058	72,924	5,257
Solders—					
2 and 1 wiping.....				755,870	156,440
60-40 joint.....		1,394,000	407,376	104,975	21,157
45-55 strictly.....	lb.			603,371	136,563
50-50 guaranteed.....				385,117	97,240
Tin—					
Pipe.....	lb.			4,602	2,549
Tubes (collapsible).....	gross	15,392	74,360	22,200	84,162
Type and type metal—					
Containing less than 90% lead.....	lb.			1,460,657	126,720
Containing more than 90% lead.....	lb.			1,044,023	75,263
Not specified.....			318,876		30,700
All other products.....			912,943		686,375
<b>Total.....</b>			<b>4,574,165</b>		<b>2,886,415</b>

Table 7.—Products of the Precious Metals Products Industry in Canada, 1920 and 1921

	Unit of Measure	1920		1921	
		Quantity	Selling Value	Quantity	Selling Value
			\$		\$
Jewelry.....			2,806,528		3,706,526
Clocks.....			196,437		208,381
Watches.....			585,898		294,225
Gold plate solders.....	Ozs.		236,877	8,055	169,146
Cabinet silverware.....			858,988		382,850
Table cutlery, etc.....	Doz.		1,500,459	103,016	300,352
Electro-plated ware.....	No.		858,988	95,000	170,000
Britannia metal ware.....	Doz.		373,056	12,854	459,261
Nickel silverware.....	Gross		129,742	7,100	245,524
Hollow ware.....			25,524		222,732
All other products.....			3,408,706		3,602,638
<b>Total.....</b>			<b>11,679,293</b>		<b>9,941,635</b>



**Table 8.—Products of the Electrical Apparatus and Supplies Industry in Canada, 1920 and 1921**

Kind	1920			1921		
	Number	Total Kilowatts	Selling Value at Factory or Works	Number	Total Kilowatts	Selling value at Factory or Works
Dynamios—			\$			\$
Direct current.....	138	3,381	303,842	100	932	93,963
Alternating current.....	3,086	164,740	2,788,628	2,356	263,658	5,196,919
Dynamotors, motor generators, boosters, rotary converters and double current generators.....	55	9,303	462,856	55	9,381	591,335
Parts and Supplies.....			272,100			226,911
Transformers for light and power—						
50 kw and over.....	2,426	252,978	1,787,170	3,140	447,417	2,852,315
Under 50 kw.....	6,779	82,489	885,226	4,087	57,741	923,975
Switchboards, panel boards, cut-out cabinets for light and power.....			1,216,770			1,734,874
Motors—						
Direct current for power.....	158	2,857	141,228	169	6,156	320,761
Alternating current for power.....	6,319	101,984	3,123,816	6,424	54,529	1,582,382
For railways.....	54	2,460	78,049	508	29,890	985,470
Miscellaneous for fans, elevators, etc.....	44,600	31,661	486,372	11,726	1,805	189,698
Parts and supplies.....			425,958			421,011
		(wt. of Plates) lb.			(wt. of Plates) lb.	
Storage Batteries.....	227,275	1,560,033	999,116	85,677	1,905,406	1,390,700
Parts and supplies.....			365,375			
Primary Batteries—						
Liquid.....			126,981			77,564
Dry.....			1,995,077			1,375,198
Carbons—						
Lighting.....				513,546		45,079
Furnace.....						46,394
Incandescent Lamps						
Carbon filament.....	759,501		151,680	851,487		241,040
Geni.....	944		285			
Tungsten.....	9,458,960		3,534,053	10,280,635		3,932,050
Decorative and miniature lamps, X-Ray bulbs, vacuum tubes, etc.....			740,336			401,408
Socket receptacles, bases, etc.....			1,785,453			800,616
Electric lighting fixtures of all kinds.....			1,011,157			575,130
Telegraphs—						
Police, fire, district and miscellaneous.....			6,338			35,629
Wireless apparatus.....			950			10,228
Telephones—						
Instruments.....			1,257,626			851,724
Central switchboards.....	213		1,068,233	166		1,262,663
Private exchange boards.....	516		98,851	495		108,475
Insulated wires and cables.....			14,208,228			6,909,469
Conduits.....			615,559			213,076
Lightning arresters.....			35,801			96,301
Fuses.....			479,039			149,556
Rheostats and resistances.....						36,795
Electric heaters.....			462,310			221,484
Electric cooking stoves.....			422,929			409,528
Electric flat irons and toasters.....			644,016			381,896
Electric measuring instruments—						
Station apparatus.....			338,489			258,087
Testing and scientific.....			5,607			4,738
Meters for consumers' circuits.....			970,202			672,586
Magneto-ignition apparatus, spark coils, etc.....			20,000			458,479
Electrical switches, signals and attachments.....			907,927			1,082,116
All other electrical machinery, apparatus, and supplies.....			3,714,295			1,995,093
All other products.....			6,187,975			4,114,247
Amount received for custom work and repairing.....			930,950			1,068,786
Gas mantles and meters.....			78,070			124,870
Vacuum cleaners.....	21,208		830,971	14,481		565,912
<b>Total</b> .....			<b>55,965,896</b>			<b>45,093,591</b>

**Table 9.—Products of the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1920 and 1921**

	Unit of Measure	1920		1921	
		Quantity	Selling Value	Quantity	Selling Value
Weather strip.....			\$ 100,875		\$ 88,558
Lamp and lantern burners.....	Dos.	87,605	90,241	38,666	32,649
Lamps.....	Dos.	7,233	73,253	4,941	171,125
All other products.....			444,411		265,088
<b>Total</b> .....			<b>769,780</b>		<b>557,420</b>



**Table 10.—Imports into Canada and Exports of Non-Ferrous Metals and Their Products during the Calendar Years 1919, 1920 and 1921**

(Compiled in the External Trade Branch from Customs Records)

	Imports			Exports		
	1919	1920	1921	1919	1920	1921
	Value	Value	Value	Value	Value	Value
	\$	\$	\$	\$	\$	\$
<b>Aluminium and its products—</b>						
United Kingdom.....	98,332	215,704	87,713	1,021,680	1,749,604	3,422
United States.....	2,445,520	3,398,380	1,399,124	3,240,620	4,045,022	772,651
Other countries.....	8,444	28,935	63,440	252,070	474,159	757,031
<b>Total.....</b>	<b>2,552,296</b>	<b>3,643,019</b>	<b>1,550,277</b>	<b>4,514,370</b>	<b>6,269,685</b>	<b>1,533,104</b>
<b>Brass and Its Products—</b>						
United Kingdom.....	145,761	825,870	535,734	309,893	157,811	87,848
United States.....	4,113,582	5,422,289	2,883,432	1,490,892	522,062	134,542
Other countries.....	16,385	56,943	60,919	129,723	170,738	75,861
<b>Total.....</b>	<b>4,275,728</b>	<b>6,305,102</b>	<b>3,480,085</b>	<b>1,930,508</b>	<b>851,511</b>	<b>298,251</b>
<b>Copper and Its Products—</b>						
United Kingdom.....	26,291	375,064	86,865	822,112	1,260,898	528,337
United States.....	6,903,580	10,203,922	3,686,192	12,839,500	14,146,720	6,071,198
Other countries.....	66,894	63,173	51,710	1,018,822	460,688	856,259
<b>Total.....</b>	<b>6,996,765</b>	<b>10,642,159</b>	<b>3,824,767</b>	<b>14,680,434</b>	<b>15,872,306</b>	<b>7,455,794</b>
<b>Lead and Its Products—</b>						
United Kingdom.....	86,226	1,532,953	95,064	606,844	10	61,898
United States.....	483,563	553,414	120,895	705,699	385,858	256,991
Other countries.....	182,477	503,013	40,321	76,469	1,819	930,430
<b>Total.....</b>	<b>752,268</b>	<b>2,589,380</b>	<b>262,280</b>	<b>1,389,012</b>	<b>387,683</b>	<b>1,249,319</b>
<b>Nickel and Its Products—</b>						
United Kingdom.....	34,790	138,301	112,461	1,041,440	2,696,899	947,191
United States.....	1,996,949	2,660,648	1,514,910	6,775,718	9,389,081	1,189,043
Other countries.....	9,330	29,361	40,672	553,688	449,272	983,445
<b>Total.....</b>	<b>2,041,075</b>	<b>2,828,310</b>	<b>1,668,046</b>	<b>8,460,846</b>	<b>12,526,252</b>	<b>3,119,679</b>
<b>Precious Metals and Their Products—</b>						
United Kingdom.....	142,930	694,582	435,884	5,606,335	3,836,611	4,033,452
United States.....	4,522,841	3,047,459	906,323	12,228,979	8,366,928	6,557,577
Other countries.....	12,380	48,406	56,834	3,937,878	5,047,812	470,994
<b>Total.....</b>	<b>4,678,151</b>	<b>3,790,447</b>	<b>1,459,041</b>	<b>21,773,192</b>	<b>17,251,351</b>	<b>11,062,023</b>
<b>Tin and Its Products—</b>						
United Kingdom.....	1,722,910	2,164,240	443,341			
United States.....	619,592	1,355,417	682,765			
Other countries.....	261,978	146,334	117,872			
<b>Total.....</b>	<b>2,604,480</b>	<b>3,665,991</b>	<b>1,243,978</b>			
<b>Zinc and Its Products—</b>						
United Kingdom.....	1,588	59,552	43,242	403,483	260,220	70,520
United States.....	835,067	580,108	288,483	286,578	122,387	1,354
Other countries.....		41,561	72,819	307,400	252,053	1,265,808
<b>Total.....</b>	<b>836,655</b>	<b>681,221</b>	<b>404,544</b>	<b>997,461</b>	<b>634,666</b>	<b>1,337,682</b>
<b>Other Non-Ferrous Metal Products—</b>						
Alloys—						
United Kingdom.....	9,707	115,312	123,489			
United States.....	105,215	126,250	101,906			
Other countries.....	47	2,317	7,223			
<b>Total.....</b>	<b>114,969</b>	<b>243,879</b>	<b>232,618</b>			
Clocks and Watches—						
United Kingdom.....	23,104	59,741	34,534			
United States.....	2,000,321	2,201,150	1,447,808			
Other countries.....	885,040	1,786,214	981,395			
<b>Total.....</b>	<b>2,917,471</b>	<b>4,047,105</b>	<b>2,463,737</b>			
Electrical Apparatus, Lamps and Fixtures—						
United Kingdom.....	135,243	500,482	604,251	128,669	325,481	135,328
United States.....	13,405,188	17,220,783	10,975,303	267,938	166,270	98,336
Other countries.....	212,485	225,391	406,343	884,150	158,562	219,711
<b>Total.....</b>	<b>13,752,916</b>	<b>17,946,656</b>	<b>11,986,897</b>	<b>1,280,757</b>	<b>650,313</b>	<b>453,375</b>

**Table 10.—Imports into Canada and Exports of Non-Ferrous Metals and their Products during the Calendar Years 1919, 1920 and 1921—Concluded.**

	Imports			Exports		
	1919	1920	1921	1919	1920	1921
	Value	Value	Value	Value	Value	Value
	\$	\$	\$	\$	\$	\$
Gas Apparatus—						
United Kingdom.....			12,537			
United States.....			176,885			
Other countries.....			3,452			
<b>Total</b> .....			<b>192,594</b>			
Printing Materials—						
United Kingdom.....	10,526	12,660	34,846	360	6,809	6,910
United States.....	241,442	299,124	276,257	13,762	8,423	10,637
Other countries.....	2,910	1,475	3,937	596	3,607	3,387
<b>Total</b> .....	<b>254,878</b>	<b>313,259</b>	<b>315,040</b>	<b>14,718</b>	<b>18,839</b>	<b>20,934</b>
Miscellaneous Non-Ferrous Metal Products—						
United Kingdom.....	152,443	284,504	101,969	934,643	336,607	105,740
United States.....	3,540,060	4,468,775	2,257,788	1,490,422	677,397	406,893
Other countries.....	175,747	77,077	73,699	267,757	218,537	171,210
<b>Total</b> .....	<b>3,868,250</b>	<b>4,830,356</b>	<b>2,433,456</b>	<b>2,701,822</b>	<b>1,232,541</b>	<b>683,843</b>
Recapitulation, Non-Ferrous Metals and Their Products—						
United Kingdom.....	2,590,151	6,078,965	2,751,953	10,875,459	10,639,956	5,980,646
United States.....	41,221,022	51,537,719	26,777,771	39,349,108	37,831,946	15,499,222
Other countries.....	1,834,129	3,010,200	1,986,836	7,458,553	7,228,247	5,734,136
<b>Total</b> .....	<b>45,646,302</b>	<b>61,626,884</b>	<b>31,516,560</b>	<b>57,683,120</b>	<b>55,700,149</b>	<b>27,214,004</b>

# EMPLOYEES, SALARIES AND WAGES, TABLES 11 and 12

**Table 11.—Number of Employees, Salaries and Wages Paid in Manufactures of the Non-Ferrous Metals in Canada, by Industries, 1921**

Industry	Average Number of Salaried Employees		Average Number of Wage-Earners	
	Male	Female	Male	Female
Aluminium.....	79	31	324	47
Brass and copper.....	562	128	2,207	237
Lead, tin and zinc.....	132	44	306	19
Precious metals.....	400	229	1,074	418
Electrical supplies.....	1,806	648	6,162	2,024
Miscellaneous non-ferrous metal goods.....	31	11	90	30
<b>Total</b> .....	<b>3,010</b>	<b>1,091</b>	<b>11,063</b>	<b>2,775</b>

**Table 12.—Number of Employees, Salaries and Wages paid in Manufactures of the Non-Ferrous Metals in Canada, by Provinces, 1921**

Province	Average Number of Salaried Employees		Average Number of Wage-Earners	
	Male	Female	Male	Female
Nova Scotia and New Brunswick.....	34	11	126	13
Quebec.....	881	271	3,007	938
Ontario.....	1,096	791	7,649	1,814
Manitoba.....	52	11	139	8
Alberta.....	21	1	37	—
British Columbia.....	26	6	100	2
<b>Canada</b> .....	<b>3,010</b>	<b>1,091</b>	<b>11,063</b>	<b>2,775</b>

## FUEL AND POWER, TABLES 13 to 16

Table 13.—Fuel Consumption in Manufactures of the Non-Ferrous Metals in Canada, by Provinces, 1921

Industry	Coal			All Other Fuel	Total value of all Fuel Used
	Anthracite	Bituminous	Value		
	Tons	Tons	\$	\$	\$
Aluminium.....	15	5,763	52,730	5,800	58,530
Brass and copper.....	3,882	12,608	142,645	157,903	300,548
Lead, tin and zinc.....	199	2,520	26,872	23,523	50,395
Precious metals.....	1,103	4,215	48,898	15,956	64,854
Electrical supplies.....	2,967	48,747	462,615	175,134	637,749
Miscellaneous non-ferrous metal goods.....	63	60	1,509	385	1,894
<b>Total.....</b>	<b>8,229</b>	<b>73,913</b>	<b>735,269</b>	<b>378,701</b>	<b>1,113,970</b>

Table 14.—Fuel Consumption in Manufactures of the Non-Ferrous Metals in Canada, by Industries, 1921

Province	Coal			All Other Fuel	Total Value of all Fuel Used
	Anthracite	Bituminous	Value		
	Tons	Tons	\$	\$	\$
Nova Scotia and New Brunswick.....	68	1,598	11,343	4,830	16,182
Quebec.....	4,522	22,207	286,925	71,950	358,875
Ontario.....	3,550	49,481	427,821	272,518	700,339
Manitoba.....	87	427	7,017	15,264	22,281
Alberta.....	—	3	30	6,733	6,763
British Columbia.....	—	197	2,133	7,397	9,530
<b>Canada.....</b>	<b>8,229</b>	<b>73,913</b>	<b>735,269</b>	<b>378,701</b>	<b>1,113,970</b>

Table 15.—Power Equipment installed for the Production of Manufactures of the Non-Ferrous Metals in Canada, by Industries, 1921

Class of Power	Number of Units	Horse-power	
		Rated	Used
Boilers—			
(a) Fired by hand.....	82	6,366	3,941
(b) Fired mechanically.....	16	5,223	2,767
Engines—			
(a) Steam.....	13	1,367	1,063
(b) Steam turbines.....	7	5,250	915
(c) Gas.....	4	8	8
(d) Oil.....	2	31	24
(e) Gasolene.....	—	—	—
Hydraulic turbines or water wheels.....	7	2,525	2,525
Electric motors—			
(a) Alternating current.....	3,093	37,472	21,913
(b) Direct current.....	593	4,354	1,470
Other power.....	24	1,281	1,381
Generators or dynamos—		K.V.A.	K.V.A.
(a) Alternating current.....	46	18,923	9,571
(b) Direct current.....	26	6,837	5,784

**Table 16.—Power Equipment Used in the Manufacture of Non-Ferrous Metals in Canada, by Industries, 1921**

Class of Power	Aluminium	Brass and Copper	Lead, Tin and Zinc	Precious Metals	Electrical Supplies	Miscellaneous non-ferrous metal goods	Total
	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.
Boilers—							
(a) Fired by hand.....	300	1,734	112	812	3,208	200	6,366
(b) Fired mechanically....	—	700	—	—	4,523	—	5,223
Engines—							
(a) Steam.....	15	1,151	20	26	125	—	1,367
(b) Steam turbines.....	—	125	—	—	5,125	—	5,250
(c) Gas.....	—	—	—	—	8	—	8
(d) Oil.....	—	6	25	—	—	—	31
Hydraulic turbines and water wheels.....	—	25	—	—	2,500	—	2,525
Electric motors—							
(a) Alternating current.....	1,197	9,862	1,992	2,314	21,956	151	37,472
(b) Direct current.....	718	291	125	407	2,813	—	4,354
Other power.....	—	—	—	—	1,381	—	1,381
Generators or dynamos—	K.V.A.	K.V.A.	K.V.A.	K.V.A.	K.V.A.	—	K.V.A.
(a) Alternating current.....	—	2,367	—	11,954	4,602	—	18,923
(b) Direct current.....	112	4,965	1	562	1,197	—	6,837

**Table 17.—Capital Employed in Manufactures of the Non-Ferrous Metals in Canada, by Industries and Provinces, 1921**

Industry—Province	Capital Employed as Represented by:				Total
	Lands, Buildings and Fixtures	Machinery and Tools	Materials on Hand and Stocks in Process	Cash Trading and Operating Accounts	
<b>ALUMINUM—</b>					
Quebec and Ontario.....	254,830	4,544,716	2,198,187	1,145,355	8,131,088
<b>Canada.....</b>	<b>254,830</b>	<b>4,544,716</b>	<b>2,198,187</b>	<b>1,145,355</b>	<b>8,131,088</b>
<b>BRASS AND COPPER—</b>					
Nova Scotia and New Brunswick.....	110,350	102,445	211,107	179,293	603,195
Quebec.....	821,663	801,587	1,000,574	2,094,213	4,718,037
Ontario.....	2,815,010	3,052,044	3,211,473	2,032,213	11,110,740
Manitoba.....	102,948	59,808	83,235	575,342	821,333
Alberta and British Columbia.....	140,508	73,278	54,088	564,855	868,729
<b>Canada.....</b>	<b>3,986,479</b>	<b>4,089,162</b>	<b>4,560,477</b>	<b>5,475,916</b>	<b>18,122,034</b>
<b>LEAD, TIN AND ZINC—</b>					
New Brunswick and Quebec.....	193,935	136,424	109,515	400,313	840,187
Ontario.....	271,497	366,699	710,078	712,994	2,061,268
Manitoba and British Columbia.....	42,799	35,000	102,874	98,021	278,694
<b>Canada.....</b>	<b>508,231</b>	<b>538,123</b>	<b>922,467</b>	<b>1,211,328</b>	<b>3,180,149</b>
<b>PRECIOUS METALS—</b>					
New Brunswick.....	6,935	600	1,765	1,450	10,750
Quebec.....	241,828	479,353	905,319	339,499	1,965,997
Ontario.....	1,236,058	1,873,103	3,361,271	1,811,909	8,282,341
Manitoba.....	198	15,979	40,652	3,550	60,379
Alberta.....	—	5,500	5,085	262	10,847
British Columbia.....	8,767	7,302	18,853	5,982	40,894
<b>Canada.....</b>	<b>1,493,774</b>	<b>2,381,837</b>	<b>4,332,945</b>	<b>2,162,632</b>	<b>10,371,288</b>
<b>ELECTRICAL SUPPLIES—</b>					
Quebec.....	5,448,539	4,316,248	4,562,505	1,841,290	16,168,582
Ontario.....	11,823,399	7,944,872	13,675,830	13,569,820	47,013,921
Manitoba.....	95,049	39,405	126,364	62,285	323,103
Alberta and British Columbia.....	7,605	26,904	36,360	33,055	103,924
<b>Canada.....</b>	<b>17,374,592</b>	<b>12,327,429</b>	<b>18,401,059</b>	<b>15,506,450</b>	<b>63,609,530</b>
<b>MISCELLANEOUS NON-FERROUS METAL GOODS—</b>					
Quebec.....	34,352	18,603	50,058	25,666	128,679
Ontario and Manitoba.....	221,933	87,992	139,292	87,585	536,802
<b>Canada.....</b>	<b>256,285</b>	<b>106,595</b>	<b>189,350</b>	<b>113,251</b>	<b>665,481</b>



**Table 18.—Miscellaneous Expenses Chargeable to Manufactures of the Non-Ferrous Metals in Canada, 1921**

Items	Cost
Rent of offices, works and machinery.....	\$ 698,485
Cost of purchased power.....	383,999
Insurance.....	386,727
Taxes—Municipal.....	270,231
Provincial.....	169,522
Federal.....	675,285
Royalties, use of patents, etc.....	171,692
Advertising expenses.....	835,276
Repairs to buildings and machinery.....	786,986
All other sundry expenses not including fuel costs, materials used, salaries and wages.....	4,024,961
<b>Total.....</b>	<b>9,530,324</b>

**Table 19.—Summary of Financial Statistics Relative to Manufactures of the Non-Ferrous Metals in Canada, by Industries, 1921**

Industry	Capital Employed	Wages and Salaries	Miscellaneous	Fuel	Cost of Materials	Total Expenditures	Selling Value of Products
Aluminium.....	8,131,088	609,170	171,382	58,530	1,704,432	2,543,514	3,633,616
Brass and copper.....	18,122,034	3,844,055	1,756,669	300,548	4,184,674	10,085,946	10,477,206
Lead, Tin and zinc.....	3,180,149	682,562	387,885	50,395	1,654,642	2,775,484	2,886,415
Precious metals.....	10,371,208	3,781,626	1,431,027	64,854	4,206,957	9,484,464	9,941,635
Electrical supplies.....	63,609,530	13,555,712	5,718,220	637,749	19,438,688	39,350,369	45,093,591
Miscellaneous non-ferrous metal goods.....	665,481	219,659	65,141	1,804	250,596	537,290	557,420
<b>Total.....</b>	<b>104,079,490</b>	<b>22,692,784</b>	<b>9,530,324</b>	<b>1,113,970</b>	<b>31,439,989</b>	<b>64,777,067</b>	<b>72,589,883</b>

**Table 20.—Summary of Financial Statistics Relative to Manufactures of the Non-Ferrous Metal in Canada by Provinces, 1921**

Province	Capital Employed	Wages and Salaries	Miscellaneous	Fuel	Cost of Materials	Total Expenditures	Selling Value of Products
Nova Scotia and New Brunswick.....	735,559	201,143	37,334	16,182	95,879	350,538	296,622
Quebec.....	28,184,055	6,076,451	1,794,233	358,875	8,059,455	16,289,014	17,007,049
Ontario.....	72,652,798	15,855,088	7,444,787	700,339	22,212,575	46,212,789	53,185,063
Manitoba.....	1,348,490	306,794	159,897	22,281	669,190	1,158,162	1,265,898
Alberta.....	800,871	70,057	36,114	9,763	158,834	271,768	306,457
British Columbia.....	350,717	183,251	57,959	9,530	244,050	494,796	528,794
<b>Total.....</b>	<b>104,079,490</b>	<b>22,692,784</b>	<b>9,530,324</b>	<b>1,113,970</b>	<b>31,439,989</b>	<b>64,777,067</b>	<b>72,589,883</b>





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