CANADA—DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
MINING, METALLURGICAL AND CHEMICAL BRANCH

Manufactures of the NON-FERROUS METALS IN CANADA 1924

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NOTE ON STATISTICS OF PRODUCTION

In the collection of production data, the Dominion Bureau of Statistics makes a division between primary and secondary production. In the first-named class, there are separate sections for the collection of statistics on (a) **Agricultural Products,** (b) **Furs,** (c) **Fish,** (d) **Forest Products,** (e) **Mineral Products.** In the second are included (a) **Manufacturing,** and (b) **Construction.**

The scheme of classification used for the collection of data on the manufacturing industries of Canada provides for a grouping of producing concerns according to the principal component material of the major products made. For example, makers of leather goods are classified under "Animal Products"; the pulp and paper industry, under "Wood and Paper," etc.

In order that students of the Bureau reports on manufactures may have a true conception of the plan followed, an outline of the scheme of classification in use is given below:

MANUFACTURERS OF:—

(1) **Vegetable Products,** including—Coffee and Spices; Cocoa and Chocolate; Preserved and Canned Products; Pickles, Vinegar and Cider; Flour and Cereals; Bread and other Bakery Products; Macaroni and Vermicelli; Distilled and Brewed Liquors and Wines; Rubber Products; Starch and Glucose; Sugar; Tobacco Products; Linseed Oil and Oil Cake.

(2) **Animal Products,** including—Fish and Fish Products; Dairy Factory Products; Meat and Meat Products; Leather and Leather Products; Furs and Fur Products.

(3) **Textiles and Textile Products,** including—Cotton Textiles (Cloth, Yarn, Thread and Waste); Woollen Textiles (Cloth, Yarn, Blankets, Felt and Waste); Silk Products; Factory-made Clothing; Carpets, Rugs and Mats; Cordage, Rope and Twine.

(4) **Wood and Paper,** including—Pulp and Paper Mill Products; Paper Goods, Printing, Publishing and Lithographing; Saw and Planing Mill Products; Furniture; Carriages, Wagons and Sleighs; Wooden Containers; Woodenware; Turned Wood Products; and the Output of Similar Wood-Using Industries.

(5) **Iron and Steel and their Products,** including Pig Iron and Ferro-Alloys; Steel and Rolled Products; Castings and Forgings; Boilers and Engines; Agricultural Implements; Machinery; Automobiles; Auto Accessories; Bicycles; Railway Rolling Stock; Wire and Wire Goods; Sheet Metal Products; Hardware and Tools; Miscellaneous Iron and Steel Products.

(6) **Manufactures of Non-Ferrous Metal Products,** including—Aluminium Products; Brass and Copper Products; Lead, Tin and Zinc Products; Manufactures of Precious Metals; Electrical Apparatus and Supplies; Miscellaneous Non-Ferrous Metal Products.

(7) **Manufactures of Non-Metallic Mineral Products,** including—Aerated Waters; Asbestos and Allied Products; Cement Products and Sand-Lime Brick; Coke and By-Products; Illuminating and Fuel Gas; Products from Imported Clay; Glass (blown, cut, ornamental, etc.); Petroleum Products; Monumental and Ornamental Stone; Miscellaneous Manufactured Non-Metallic Mineral Products, including (a) Artificial Abrasives, (b) Abrasive Products, (c) Electrodes, (d) Gypsum Products, (e) Mica Trimmings.

(8) **Chemicals and Allied Products, including**—Coal Tar and its Products; Acids, Alkalies, Salts and Compressed Gases; Explosives, Ammunition, Fireworks and Matches; Fertilizers; Medicinal and Pharmaceutical Preparations; Paints, Pigments and Varnishes; Soaps, Washing Compounds, and Toilet Preparations; Inks, Dyes, and Colours; Wood Distillates and Extracts; Miscellaneous Chemical Products.

(9) **Miscellaneous Products,** including—Brooms and Brushes; Electric Light and Power; Musical Instruments, etc.

Statistics of manufactures are also classified according to the **use** or **purpose** of the end product as follows:

(1) **Food,** including—Breadstuffs; Fish; Nuts, Fruits and Vegetables; Meats; Milk Products; Oils and Fats; Sugar; Infusions; Miscellaneous.

(2) **Drink and Tobacco,** including—Beverages, alcoholic; Beverages, non-alcoholic; Tobacco.

(3) **Clothing,** including—Boots and Shoes; Fur Goods; Garments and Personal Furnishings; Gloves and Mitts; Hats and Caps; Knitted Goods; Waterproofs; Miscellaneous.

(4) **Personal Utilities,** including—Jewelry and Time Pieces; Recreational Supplies; Personal Utilities, n.e.s.

(5) **House Furnishings.**

(6) **Books and Stationery.**

(7) **Vehicles and Vessels.**

(8) **Producers' Materials,** including—Farm Materials; Manufacturers' Materials; Building Materials, General Materials.

(9) **Industrial Equipment,** including—Farming Equipment; Manufacturing Equipment; Trading Equipment; Service Equipment; Light, Heat and Power Equipment; General Equipment.

(10) **Miscellaneous.**

PREFACE

Statistics on the manufactures of the non-ferrous metals have been published by the Bureau for several years, and the present report is issued in continuance of this series. In the scheme, of classification now in use, there have been gathered into the group of "Manufactures of the Non-Ferrous Metals" those industries which use non-ferrous metals chiefly as their materials in manufacturing. There are thus brought together in this group such industries as the manufacture of aluminium and aluminium ware; brass and copper foundries; the white metal industry, using lead, tin and zinc, chiefly; concerns manufacturing jewelry, silverware, and other products, in which precious metals form the chief component of value; producers of electric apparatus and supplies, who use large quantities of aluminium, brass, copper, lead, zinc, nickel, etc.; and a miscellaneous group including other relatively small firms who manufacture lamps and lanterns, screens, and non-ferrous metal novelties, etc.

Several features have been added to the present report. An alphabetical list of the products made in the various industries coming within the scope of the report, has been prepared, so that the total output of a given commodity may be readily found. The convenience of this arrangement will be apparent to the reader who desires to know what the total production of a given commodity amounts to, although it may be produced in several different industries. Some tables also, have been expanded to show data in greater detail than was possible in previous years.

On the next preceding page will be found a description of the Bureau's classification of industries for the collection of production statistics; the industries now under review form a group of manfuactures and the place of this group in the general scheme, is shown in the notes on the next preceding page.

This report contains a revised list of the names, addresses and plant location of those firms classified in this industry.

Co-operation on the part of the industries represented, has done much to facilitate the work of the Bureau in the preparation of this report. To all those who have contributed information or advice, the Bureau extends its cordial thanks; it is thought that the assembled data will prove helpful to the industry as a whole.

Preparation of the present report has been carried out by Mr. H. McLeod, B.Sc., 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 of the Bureau.

R. H. COATS,
Dominion Statistician.

DOMINION BUREAU OF STATISTICS,
OTTAWA, April 30, 1926.

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Year	Number of plants	Capital employed	Number of employees	Salaries and wages	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$
ALUMINIUM AND ALUMINIUM WARE							
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
1922	9	7,632,722	707	817,864	1,997,488	3,851,925	1,854,437
1923	11	8,994,806	1,007	1,196,287	3,192,546	7,017,830	3,825,284
1924	11	8,936,025	1,098	1,362,774	3,454,116	7,700,822	4,246,706
BRASS AND COPPER PRODUCTS							
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
1922	83	17,608,876	3,457	4,079,825	5,106,224	12,253,691	7,147,467
1923	81	20,322,808	4,097	4,773,528[a]	7,548,898	16,793,595	9,244,697
1924	81	18,594,443	3,747	4,604,293	7,889,367	15,487,826	7,598,459
LEAD, TIN AND ZINC PRODUCTS							
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
1922	19	3,213,867	534	728,502	2,048,431	3,118,445	1,070,014
1923	20	1,749,383	193	246,528	1,556,716	2,181,273	624,557
1924	20	3,229,833	480	557,476	2,277,414	3,353,910	1,076,496
PRECIOUS METALS PRODUCTS							
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
1922	97	10,653,458	2,725	3,464,613	3,926,116	9,815,697	5,889,581
1923	97	9,760,071	2,648	3,572,255[b]	3,950,186	10,072,672	6,122,486
1924	104	10,440,218	2,473	3,235,981	3,941,706	9,449,284	5,507,578
ELECTRICAL APPARATUS AND SUPPLIES							
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
1922	101	62,436,282	10,630	12,162,607	17,546,839	41,208,368	23,661,529
1923	108	65,077,942	13,268	14,991,550	26,257,361	51,360,400	25,103,039
1924	109	72,301,204	13,670	16,089,492	24,370,996	56,490,465	32,119,469
MISCELLANEOUS NON-FERROUS METAL PRODUCTS							
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
1922	16	663,070	169	198,218	236,797	607,567	370,770
1923	16	739,457	196	251,856	269,557	773,556	503,999
1924	16	853,248	202	268,823	322,001	741,066	419,065
ALL INDUSTRIES							
1920	**325**	**109,386,905**	**23,164**	**27,896,501**	**48,438,414**	**101,289,935**	**52,851,521**
1921	**344**	**101,079,490**	**17,939**	**22,692,784**	**31,439,989**	**72,589,883**	**41,149,894**
1922	**325**	**102,208,275**	**18,222**	**21,451,629**	**30,861,895**	**70,855,693**	**38,993,798**
1923	**333**	**106,644,467**	**21,409**	**25,032,004**	**42,775,264**	**88,199,326**	**45,424,062**
1924	**341**	**114,354,971**	**21,670**	**26,118,839**	**42,255,600**	**93,223,373**	**50,967,773**

a Includes $126 paid to 1 piece worker.
b Includes $16,213 paid to 41 piece workers.

DOMINION BUREAU OF STATISTICS

R. H. COATS, B.A., F.S.S., (Hon.) F.R.S.C., Dominion Statistician.

S. J. COOK, B.A., A.I.C., F.C.I.C., Chief of the Mining, Metallurgical and Chemical Branch.

MANUFACTURES OF THE NON-FERROUS METALS IN CANADA, 1924

CHAPTER ONE

GENERAL REVIEW

(a) Summary

A substantial increase in output characterized the non-ferrous metal products industry in Canada in 1924, when production reached a total value of $93,223,373, the largest since 1920 and an increase of 5 million dollars over that of 1923. Production in the brass and copper products industry was lower than in 1923; the miscellaneous non-ferrous metals group and the precious metals products industry maintained outputs near that of the previous year; the aluminium industry showed a slight improvement; the lead, tin and zinc products industry recovered from a poor year and produced commodities with a selling value of 3·4 million dollars, an increase of a million dollars over the total for 1923, and electrical apparatus and supplies showed continued expansion with a production worth 56·5 million dollars, the highest point yet attained in this industry.

From the standpoint of value, the production of 1920 was the greatest on record, but this was partly due to the inflation of prices in the immediate post-war period. An interesing compilation does away with this variation in prices from year to year and reduces the outputs to a standard basis of comparison. Taking the average prices prevailing in 1913 as 100, the index of prices for non-ferrous metal products, computed by the Dominion Bureau of Statistics and weighted according to the volume of trade in the 15 commodities listed, showed an average of 137·7 in 1920; dropped to 98·6 in 1921; rose slightly to an average of 98·9 in 1922; declined to 96·8 for 1923, and stood at 96·3 for the year 1924. By applying these index numbers to the actual production values for each of the five years mentioned, it is possible to obtain a set of figures which more nearly represents the growth in quantity production, than do the gross selling values of the products made in each year. For example, the aggregate production in 1920 was valued at $101,289,935; the index number of non-ferrous prices for the year was 137·7, in comparison with 100 for 1913 prices; the application of this factor to the gross value of production mentioned above shows that the output of non-ferrous metal products in Canada during 1920 computed on the basis of 1913 prices was actually worth $73,558,000. Computed on the basis of 1913 prices the production values for each of the four succeeding years were: 1921—$73,621,000; 1922—$71,644,000; 1923—$91,115,000, and 1924—$96,805,000. These figures give a better indication of the growth in quantity production of non-ferrous metals and their products in Canada than the actual market values of the output show, and make it apparent that the peak in production values reached in 1920 was very largely due to enhanced commodity prices. On this basis both the 1922 and 1923 outputs were in excess of the 1920 production, and the volume of production in 1924 was then the highest on record.

Throughout 1924, the prices of non-ferrous metals and their products showed a slight downward trend. In January, the index, based on average prices of 1913 as 100, stood at 94·5; rose to 98·1 in March; declined to 93·1, the low point for the year, in July; and then rose steadily to 101·5 in December. For the whole year the average was 96·3, as compared with 96·8 in 1923.

In 1924 there were 341 establishments in Canada manufacturing products from metals other than iron and steel. These included 11 plants producing aluminium and aluminium ware, 81 plants fabricating brass and copper products; 20 plants making white metals; 104 plants

manufacturing precious metal products; 109 plants making electrical goods; and 16 plants making miscellaneous articles from non-ferrous metals.

Capital employed by these concerns, as represented by the value of lands, buildings, machinery, stocks on hand, cash, and collectable accounts, was $114,354,971, or about 7 per cent over the total of $106,644,467 reported for 1923. The electrical apparatus and supplies industry showed the greatest capital investment at $72,301,204; the brass and copper group came next with $18,594,443; precious metal products accounted for $10,440,218; the aluminium industry for $8,936,025; white metals, $3,229,833; and a group of firms manufacturing miscellaneous non-ferrous metal products accounted for the balance.

These industries afforded employment to 21,670 persons and paid $26,118,839 in wages and salaries. As the manufacture of non-ferrous metals is largely centred in Ontario and Quebec, over 25 million dollars of the total salaries and wages paid, was distributed in these two provinces. The trend of the industry throughout the year was reflected in the average number wage-earners employed each month. From 16,924 in January, the number of wage-earners rose steadily to 17,499 in April, dropped slightly during the succeeding months to 16,578 in August, and then gradually increased again to reach a peak of 17,884 in December. The average for the year stood at 17,213, as against 17,087 in 1923.

Manufacturing of non-ferrous metal products is largely centred in Ontario and Quebec. In Ontario, where there were 240 plants operating, products aggregated $63,598,837 in value, and in Quebec the 61 plants produced commodities valued at $27,138,813. In Manitoba, the 12 plants in operation had an output worth $1,150,207; in British Columbia, there were 16 plants with production valued at $504,763; in New Brunswick, 3 plants had an output worth $427,888; in Alberta, 7 plants produced $372,605 worth of non-ferrous metal products; and in Nova Scotia there were only 2 producing plants classified in this industry.

Fuel and electricity used by the firms manufacturing non-ferrous metal products during 1924 cost $1,805,153. Of this amount the electrical apparatus and supplies group expended $884,808 or 49 per cent, while the brass and copper group paid out on this account $453,764, or 25 per cent of the total. Expenditure for electric power in these industries amounted to $746,848, and the cost of bituminous coal used, amounted to $538,205.

Imports into Canada for the non-ferrous metal trade declined in value to $41,660,085 in the calendar year 1924 from $42,431,222 in 1923; of this value $34,074,557, or 81·8 per cent, came from the United States, and only $4,029,750, or less than 10 per cent, represented purchases from the United Kingdom. Exports in 1924 rose in value to $84,780,015 from $56,814,055 in 1923. Exports to United States in 1924 were valued at $55,128,028 or 65 per cent of the total, and to the United Kingdom $14,992,464, or 17·7 per cent.

The group of industries fabricating products from the non-ferrous metals, represents a secondary development in the metallurgical field; the smelting of ores and the subsequent refining of the metals constitute the primary production. This distinction is made in statistical practice, it having been found convenient to so divide the various enterprises contributing to production. The manufacture of non-ferrous metal products bears a relation to the primary metallurgical industry, which in turn is inseparable from the metal mining industry. The recovery of metals from their ores, is dealt with in the *Annual Reports on the Mineral Production of Canada*, but for the convenience of the reader interested in this phase of the metal industry, abstracts from that report have been included herein; for more detailed information reference should be made to the publication mentioned above.

Production in Primary Metallurgical Works.—Products of the primary metallurgical plants of Canada sold during 1924 were valued at $42,154,808, an increase of approximately 7 million dollars over the total for the previous year. The primary metals turned out by these plants were gold, silver, copper, lead, zinc, nickel and cobalt. In addition to the foregoing, metals in the semi-refined state were exported for further treatment and consisted of blister and converter copper, nickel-copper matte, speiss residues, lead-silver-bismuth bullion, and precious metal precipitates, containing quantities of gold, silver, platinum, palladium, iridium, etc. Nickel in the form of oxide and refined arsenic As_2O_3 were also sold directly for use in other manufactures. Refined gold and silver were produced by the Royal Mint at Ottawa, chiefly from the treatment of crude bullion from Ontario gold mines. A small portion of the Mint production was also derived from imported crude gold bullion and from scrap. Statistics on the

production of the Royal Mint have not been included with the records of the metallurgical plants, but have been shown in a separate table. The table shown below gives in some detail the quantities of the various materials sold during 1924 by primary metallurgical plants in Canada. In addition, large quantities of ore containing copper, lead and silver, were shipped to United States smelters for treatment, and some also to European smelters; the data given in the following table show only sales from Canadian smelting and refining plants.

Table 2.—Products Sold by the Primary Metallurgical Works in Canada, 1924

Industry and Material	Unit	Quantity	Value
			$
NICKEL-COPPER SMELTERS AND REFINERIES—			
Matte	ton	26,565	4,667,136
Nickel, electrolytic and shot			
Copper, electrolytic and converter			9,760,022
Nickel oxide			
Residues containing: gold	oz.	878	17,530
silver	"	58,145	38,607
platinum	"	1,353	139,102
palladium	"	1,744	117,887
other metals	"	503	51,120
Total			14,791,404
SILVER-COBALT SMELTERS AND REFINERIES—			
Silver bullion (fine)	oz.	4,301,595	2,936,927
White arsenic (As_2O_3)	lb.	3,596,165	309,108
Cobalt-metal, oxides, salts, etc. (metal content)	lb.	626,400	1,421,826
Nickel-metal, oxides, salts, etc. (metal content)	lb.	42,482	9,418
Copper sulphate	lb.	10,072	533
Speiss residues	ton	617	235,317
Silver-lead-bismuth bullion	lb.	60,044	87,264
Total			5,000,393
COPPER-LEAD-ZINC SMELTERS—			
Blister copper			
Refined copper	lb.	34,996,508	5,005,982
Copper sulphate			
Gold	oz.	23,412	484,001
Silver	oz.	3,124,834	2,098,186
Lead and zinc and lead bullion	lb.		14,774,842
Total			22,363,011
Total Sales			**42,154,808**

ROYAL MINT PRODUCTION, 1924

Gold	111,193·42 ounces.
Silver	19,008·17 "
Total value	$2,311,342·45

During the period there were 7 companies in Canada operating in all 9 separate plants; names and locations, with the principal products, were as follows:

BRITISH COLUMBIA

The Consolidated Mining and Smelting Company of Canada, Limited, Trail, B.C., operating many mines in addition to a large smelter and refinery and producing gold, silver, lead, copper, copper sulphate and zinc.

The Granby Consolidated Mining, Smelting and Power Company, Limited, Anyox, B.C., operating mines and a copper smelter producing copper, gold and silver.

ONTARIO

The International Nickel Company of Canada, Limited, Copper Cliff, Ontario, operating several mines, a smelter near Copper Cliff and a refinery at Port Colborne, Ontario, producing nickel metal, nickel oxide, and copper.

The Mond Nickel Company, Limited, operating mines and a smelter at Coniston, Ontario, and shipping the matte to Wales for refining.

The British America Nickel Corporation, Limited, operated mines and a smelter near Sudbury and a refinery at Deschenes, Quebec, and produced nickel and nickel compounds, copper and some precious metals prior to July,1924, at which time the company went into liquidation and the plants were closed.

The Deloro Smelting and Refining Company, Limited, operating a smelter at Deloro, Ontario, and treating cobalt ores, concentrates and residues, and producing silver bullion, the metals and oxides of cobalt and nickel, white arsenic, the alloy "stellite" and insecticides such as paris green, lead arsenate and lime arsenate.

The Kingdon Mining, Smelting and Manufacturing Company, Limited, Galetta, Ontario, operating a mine and a smelter and producing pig lead from galena ores.

The capital invested in the plants operated by these companies amounted to $66,337,664. Employment was furnished to 5,521 people to whom the salaries and wages paid amounted to $8,136,251. Miscellaneous expenses were $6,884,890. Cost of fuel totalled $3,820,079; electric power cost $945,404. Complete records of this phase of Canada's metallurgical industry are contained in the *Annual Reports on the Mineral Production of Canada* issued by the Bureau.

(b) By Industries

Aluminium and Aluminium Ware.—Aluminium is produced in Canada by only one firm, the Northern Aluminium Company at Shawinigan Falls, Quebec. This company treats imported bauxite ore and produces the refined metal in ingots, bars, wire and other forms. The manufacture of aluminium products, however, such as cooking utensils and other fabricated wares, was represented by 10 establishments, all located in Ontario. This review covers both the smelting of the ore and the fabrication of aluminium utensils.

The production of aluminium and its products in 1924 advanced about 10 per cent to a selling value of $7,700,822, as compared with $7,017,830 in 1923. Raw materials cost 8 per cent more at $3,454,116 and the value added by manufacturing at $4,246,706 was 12 per cent above the total for the previous year.

There was an appreciable increase in employment in the aluminium industry as compared with 1923 and the amount of salaries and wages paid was proportionately greater. An average of 994 wage-earners found employment in this industry in 1924, the number employed rising gradually from an average of 936 in January to 1,022 in December. Salaried employees numbered 104, bringing the total for the industry to 1,098 as compared with 1,007 in 1923. Salaries and wages amounted to $1,362,774.

Fuel and electricity cost $294,024; expenditure for electricity amounted to $240,913 or 82 per cent of the total.

Brass and Copper Products.—The brass and copper products group includes all those plants whose principal products in 1924 was brass or copper—rolled, cast or fabricated. As thus defined, the industry was represented by 81 plants in Canada in 1924, including 54 in Ontario, which is the principal centre of the industry, 16 in Quebec, 6 in British Columbia, 2 in Manitoba and 1 in each of the provinces of Nova Scotia, New Brunswick and Alberta.

Capital investment in plant and equipment, together with the cash on hand, bills receivable, etc., amounted to $18,594,443, or 8 per cent less than in 1923, due chiefly to decreased balances in cash and open accounts. Nearly 11 million dollars was invested in Ontario plants and over 5·7 million dollars in plants located in Quebec. Alberta, British Columbia, Manitoba and the Maritime Provinces were also substantially represented.

Production values declined over a million dollars to $15,487,826, but the cost of materials at $7,889,367 was slightly above that of the previous year, leaving thus, a value added by manufacturing of $7,598,459 or 1·6 million dollars below the corresponding value for 1923. Plants in Ontario contributed $10,835,069 to the total value of the brass and copper products made in Canada in 1924, and the 16 plants in Quebec produced commodities valued at $3,161,940.

The industry employed 3,747 persons and paid out $4,604,293 in salaries and wages during the year.

Lead, Tin and Zinc Products.—Twenty firms in Canada manufactured white metal alloys as a major product in 1924, the principal commodities being babbitt metal, lead bars, ingots and pipe, solders, type metals, collapsible tubes, etc., The industry had a capital investment of $3,229,833 and was represented by 8 firms in Ontario, 6 in Quebec, 3 in British Columbia, 2 in Manitoba, and 1 in New Brunswick.

Products made had a total selling value of $3,353,910; the cost of materials was $2,277,414, leaving $1,076,496 as the value added by manufacturing. Production as measured by values showed an increase of 54 per cent in 1924 over the total of $2,181,273 for 1923.

Manufactures of these non-ferrous metals, or in general the white metal trade in Canada, thus made a decided recovery from a rather poor year in 1923, when production dropped off nearly a third in value from that of the preceding year; the 1924 total also surpassed the output of any previous year except 1920, when enhanced prices partially accounted for the high value of production.

Precious Metal Products.—In 1924, the 104 establishments in Canada engaged in the manufacture of commodities from the precious metals and their alloys produced jewelry, clocks, watches, table cutlery, silver and silverplated ware, dental supplies, etc., reaching a total value of $9,449,284. These plants represented a capital investment of $10,440,218 and were distributed as follows: 68 in Ontario; 23 in Quebec; 5 in British Columbia; 3 in Alberta; 3 in Manitoba; 1 in Nova Scotia, and 1 in New Brunswick.

Jewelry was the principal product made and accounted for about one-third of the production in the entire industry, but the amount made was somewhat below the output of 1923; clocks and watches were made in greater quantities; and silverware, including electroplated ware, sterling silverware, stainless steel cutlery and similar products, was valued at $3,216,858. As a whole the production reported at $9,449,284 was slightly below the value of $10,072,672 reported in the preceding year, but was still sufficient to indicate that the manufacture of precious metal products in Canada represents a very considerable volume of trade.

Electrical Apparatus and Supplies.—The electrical equipment and supplies industry continued to grow and in 1924 reached a record production value of $56,490,465, which was partly accounted for by the rapid development of the radio and partly by the increased use of electrical equipment.

This industry includes all establishments primarily engaged in the manufacture of apparatus for use in the generation, transmission and utilization of electrical energy and, in 1924, embraced the operations of 109 concerns located as follows: 87 in Ontario, 13 in Quebec, 4 in Manitoba, 3 in Alberta, and 2 in British Columbia. Ontario accounted for nearly two-thirds of the entire production of this industry in Canada.

Among the more important items of production were motors and generators, storage batteries and dry cells, incandescent lamps, switchboards, radio apparatus, telephone material, transformers, vacuum cleaners and electrical fixtures of all kinds. The principal materials used included copper, brass, aluminium, lead, glass, porcelain, insulating materials of all kinds and quantities of iron and steel. In all, the production amounted in value to $56,490,465 and raw materials cost $24,370,996.

The industry afforded employment to 13,670 persons throughout the year and paid out $16,089,492 in salaries and wages.

Miscellaneous Non-Ferrous Metal Products.—The 16 firms included under this heading were those whose products could not be properly classified as belonging to any of the foregoing groups. The principal articles produced were lamps, lanterns and parts, train signals, screens and weather stripping. The market for this class of goods is steady and the quantity produced annually is fairly constant. Production in 1924 was valued at $741,066 as compared with $773,556 in the previous year.

(e) By Provinces

Nova Scotia.—Only 2 establishments in Nova Scotia were engaged in the manufacture of non-ferrous metal products. One manufactured brass and copper products, and the other was in the precious metal products group.

New Brunswick.—New Brunswick was represented in the non-ferrous industry by only 3 firms. One of these was a brass foundry; another made lead pipe as the principal product; and the third produced supplies for the dental business. These 3 plants represented a capital investment of $537,179, afforded employment to 189 persons and had a combined production valued at $427,888.

Quebec.—Quebec ranked next to Ontario as a producer of non-ferrous metal products. In 1924 there were 61 plants operating as follows: 1 plant smelted bauxite for the production of aluminium ingots and bars; 16 establishments made brass and copper products; 6 produce white metals; 23 were in the precious metal products industry; 13 manufactured electrical supplies; and 2 firms were included in the miscellaneous group. The combined production of these plants reached a value of $27,138,813, of which the electrical supplies industry contributed $15,300,028, the brass and copper industry $3,161,940, and precious metal products $2,011,076.

Fuel and electricity consumed during the year cost $707,942. Electricity alone cost $410,053; bituminous coal, $160,712, anthracite coal, $33,283; and fuel oil, $64,042.;

The non-ferrous metal products industry in Quebec afforded employment to 6,794 persons throughout the year and paid out $8,357,648 in salaries and wages.

Ontario.—The non-ferrous metal products industry in Canada is centred in Ontario. In 1924 there were 341 plants operating in the Dominion, of which 240 were located in Ontario; and of a total production for the industry valued at $93,223,373, Ontario accounted for $63,598,837.

By industries, electrical supplies held first place with 87 operating plants, a capital investment of $52,490,372 and a production valued at $40,733,382; the brass and copper industry was second with 54 establishments and an output worth $10,835,069; precious metal products held third place when the 68 plants yielded commodities worth $7,255,487; and the white metal trade, the aluminium industry and the miscellaneous group followed in the order named.

Including 2,886 salaried employees, the non-ferrous products group in Ontario gave employment to 14,348 persons throughout the year, while expenditures in salaries and wages amounted in all to $17 138,790.

Manitoba.—Manitoba had 2 plants in the brass and copper industry; 2 in the lead, tin and zinc group; 3 in the precious metal industry; 4 making electrical supplies; and 1 in the miscellaneous group. These 12 plants used $697,525 worth of raw materials in the production of $1,150,207 worth of non-ferrous metal products, and afforded employment to 148 persons throughout the year.

Alberta.—With 7 plants in this province, Alberta contributed only $372,605 to the total non-ferrous metal production in Canada. Employees in this industry numbered only 55 and the capital employed just exceeded the half-million dollar mark.

Alberta was represented by 3 firms producing electrical supplies, 3 making precious metal products, and 1 firm producing brass and copper goods.

British Columbia.—With a total production worth $504,763, British Columbia ranked fourth among the provinces in the production of non-ferrous metal goods. In all, there were 16 plants in this group: 6 in the brass industry, employed 39 persons and made $142,166 worth of commodities; 5 in the precious metal group, had a production worth $90,765; and there were 3 firms in the white metal industry, and 2 manufacturing electrical supplies.

(d) Prices

The index number for non-ferrous metals was 96·8 in 1923 and 96·3 in 1924. Prices tended upwards for the first three months of 1924, but with April there came a reaction which was due to the general slowing up of business and also, in the case of these metals, to the movements of French exchange. Speculators in several countries, especially in Germany, used the metal market as a medium for speculation in francs. The unexpected rise in the value of that currency, forced the liquidation of large quantities of metals, thus depressing prices. The market remained unsettled until August, after which the influence of improving conditions carried the index up to 101·5 in December as compared with 94·5 in January, 98·1 in March and 93·1 in July.

Antimony.—The average price of Chinese antimony 99 % was 7½c. in 1923 and 10½c. in 1924, due to the the shortage created by the civil war in China.

Copper.—The average price of American electrolytic copper at Montreal was $17.03 per cwt. in 1923 and $15.31 in 1924. Quieter trade conditions in the United States and lack of strength in European markets, caused the supply of copper to be in a weaker position than in 1923.* The improved European situation caused a rise at the end of the year, the price being $16.30 in December. Following the price of the raw material, copper sheets dropped from 22¼c. per pound in 1923 to 19⅔c. in 1924. Brass sheets 4' x 2' 14-20 gauge were 31c. per pound in 1923 and 28⅔c. in 1924. Solid bare copper wire fell from 20c. to 18¾ c. per pound.

Lead.—Pig lead prices were $7.15 per cwt. in 1923 and $8.08 in 1924. The supply of lead* has tended to be short in relation to demand, and although lead shared in the slump in non-ferrous metal prices commencing after March, it soon recovered and was in a very strong position at the end of the year. In January the price was $7.75 per cwt., $8.90 in March, $7.10 in May and $9.95 in December. Lead pipe rose from $12.90 per cwt. in 1923 to $13.91 in 1924.

Zinc.—Zinc prices* declined, American zinc (spelter) being $8.39 per cwt. in 1923 and $8.01 in 1924. The depression to which we have already referred and the fact of greatly increased production capacity developed during the war, combined with subnormal European conditions, have brought about low prices for this metal. It, too, showed some improvement at the end of the year.

Nickel.—Nickel ingots 98-5% were unchanged in 1924, viz., 25c. per pound. Higher prices will be in vogue in 1925, as it is claimed that new uses for nickel have succeeded in bringing up the demand to pre-war levels, when so much was used for armament making.

Silver.—Silver* was 65½c. per fine ounce in 1923 and 66¾c. in 1924. The rise was chiefly due to continental buying of silver for currency purposes.

Tin.—Tin ingots*, straits, were 47½ c. per pound at Toronto in 1923 and 53c. in 1924. Strong demand and a production which scarcely kept pace, were the causes. The increasing use of canned goods, gives rise to an enormous demand for tin-plate and the difficulty of augmenting supplies of pig tin makes for relative scarcity. This, in turn gives rise to speculative movements which cause price movements to be more extreme than the basic situation warrants.

Solder.—Solder 50-50 was 28c. per pound in 1923 and 31½c. in 1924.

*See special bulletins issued by the Bureau in February and March, 1925, on Post-War Copper Prices, Post-War Lead Prices, Post-War Zinc (Spelter) Prices, Post-War Silver Prices, and Post-War Tin Prices.

Table 3.—Principal Statistics Relative to the Manufacture of Non-Ferrous Metals in Canada, by Industries and by Provinces, 1923

Industry	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada*
ALUMINIUM AND ALUMINIUM WARE—								
Number of plants			1	10				11
Capital employed $								8,994,806
Salaried employees: Male								82
Female								24
Wage-earners: Male								838
Female								63
Total employees								1,007
Salaries and wages: Salaries $								195,705
Wages $								1,000,582
Total $								1,196,287
Cost of fuel and electricity $								542,350
Cost of materials $								3,192,546
Value of products $								7,017,830

*Where fewer than three firms in one province were engaged in the same industry, the data for these companies are not shown by provinces but they are included in Canada totals for each industry.

Table 3—Principal Statistics Relative to the Manufacture of Non-Ferrous Metals in Canada, by Industries and by Provinces, 1923—Continued

Industry	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada*
BRASS AND COPPER PRODUCTS:—								
Number of plants	1	1	14	55	3	1	6	81
Capital employed $			5,752,815	12,633,320	670,911		89,335	20,322,808
Salaried employees: Male			153	390	18		11	583
Female			21	106			1	129
Wage-earners: Male			713	2,052	50		35	3,043
Female			56	251				342
Total employees			943	2,799	68		47	4,097
Salaries and wages: Salaries $			299,823	936,021	33,106		17,765	1,307,027
Wages $			813,620	2,372,297	52,848		38,355	3,466,501
Total $			1,113,443	3,308,318	85,954		56,120	4,773,528
Cost of fuel and electricity $			122,918	365,440	16,733		8,478	536,789
Cost of materials $			1,721,882	4,737,960	503,605		71,446	7,548,898
Value of products $			3,844,755	11,178,496	781,459		174,512	16,793,595
LEAD, TIN AND ZINC PRODUCTS—								
Number of plants		1	6	8	2		3	20
Capital employed $			245,254	1,197,737			142,290	1,749,383
Salaried employees: Male			12	23			5	45
Female			4	8			2	19
Wage-earners: Male			9	89			10	117
Female				12				12
Total employees			25	132			17	193
Salaries and wages: Salaries $			29,120	58,344			13,100	115,946
Wages $			10,437	99,398			11,555	130,582
Total $			39,557	157,742			24,655	246,528
Cost of fuel and electricity $			3,320	15,501			2,816	24,277
Cost of materials $			431,139	876,509			104,297	1,556,716
Value of products $			561,679	1,264,456			169,710	2,181,273
PRECIOUS METAL PRODUCTS—								
Number of plants	1	1	19	66	3	2	5	97
Capital employed $			1,918,775	7,743,040	43,943		27,895	9,760,071
Salaried employees: Male			87	267	4		4	365
Female			40	132	2		2	177
Wage-earners: Male			441	1,165	20		29	1,666
Female			176	257	5		1	440
Total employees			744	1,821	31		36	2,648
Salaries and wages: Salaries $			188,248	834,130	8,088		7,136	1,045,082
Wages $			515,819	1,927,078	26,857		44,659	2,527,173
Total $			704,067	2,761,208	35,545		51,786	3,572,255
Cost of fuel and electricity $			8,169	79,775	327		298	88,911
Cost of materials $			995,070	2,904,998	13,946		22,086	3,950,186
Value of products $			2,169,976	7,689,976	53,468		114,706	10,072,672
ELECTRICAL APPARATUS AND SUPPLIES—								
Number of plants			13	84	4	4	3	108
Capital employed $			17,966,045	46,782,462	216,452	36,387	76,596	65,077,912
Salaried employees: Male			779	1,330	18	4	8	2,139
Female			231	482	1	1	2	717
Wage-earners: Male			1,756	6,149	35	12	26	7,978
Female			1,055	1,375	4			2,131
Total employees			3,821	9,336	58	17	36	13,268
Salaries and wages: Salaries $			1,814,478	3,145,165	35,855	8,020	19,896	5,023,114
Wages $			2,732,666	7,163,600	40,374	11,041	20,455	9,968,136
Total $			4,547,144	10,308,765	76,229	19,061	40,351	14,991,550
Cost of fuel and electricity $			341,865	600,210	2,507	4,165	6,240	954,987
Cost of materials $			7,512,791	18,589,321	98,187	23,202	33,860	26,257,361
Value of products $			14,824,932	36,171,561	232,738	52,970	78,399	51,360,400
MISCELLANEOUS NON-FERROUS METAL PRODUCTS—								
Number of plants			2	13	1			16
Capital employed $				610,943				739,457
Salaried employees: Male				27				32
Female				8				10
Wage-earners: Male				90				115
Female				39				39
Total employees				164				196
Salaries and wages: Salaries $				65,240				87,372
Wages $				136,847				164,184
Total $				202,087				251,856
Cost of fuel and electricity $				5,198				6,495
Cost of materials $				239,151				269,557
Value of products $				697,708				773,556

*Where fewer than three firms in one province were engaged in the same industry, the data for these companies are not shown by provinces but they are included in Canada totals for each industry.

Table 3—Principal Statistics Relative to the Manufacture of Non-Ferrous Metals in Canada, by Industries and by Provinces, 1923—Concluded

Industry	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada*
ALL INDUSTRIES—								
Number of plants	2	3	55	236	13	7	17	333
Capital employed $			30,573,191	73,399,420	1,066,656	711,319	336,116	106,644,467
Salaried employees: Male			1,068	2,089	44	14	28	3,246
Female			310	748	6	1	7	1,076
Wage earners: Male			3,501	9,823	111	31	100	13,757
Female			1,287	1,997	9		1	3,330
Total employees			6,167	14,657	170	46	136	21,409
Salaries and wages: Salaries $			2,423,186	5,165,220	93,919	24,332	57,897	7,774,546
Wages $			4,691,561	12,105,420	128,579	33,014	115,015	17,257,438
Total $			7,117,747	17,270,640	219,528	57,346	172,912	25,032,004
Cost of fuel and electricity $			971,463	1,114,518	22,099	11,401	17,832	2,153,809
Cost of materials $			13,228,741	28,002,603	749,387	242,173	231,689	42,775,264
Value of products $			26,551,232	58,911,718	1,233,992	353,910	537,325	88,199,326

Table 4.—Principal Statistics Relative to the Manufacture of Non-Ferrous Metals in Canada, by Industries and by Provinces, 1924

Industry	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada*
ALUMINIUM AND ALUMINIUM WARE—								
Number of plants			1	10				11
Capital employed $								8,936,025
Salaried employees: Male								79
Female								25
Wage-earners: Male								817
Female								77
Total employees								1,098
Salaries and wages: Salaries $								205,848
Wages $								1,155,926
Total $								1,362,774
Cost of fuel and electricity $								291,624
Cost of materials $								3,451,116
Value of products $								7,709,822
BRASS AND COPPER PRODUCTS—								
Number of plants	1	1	16	54	2	1	6	81
Capital employed $			5,725,460	10,926,067			91,679	18,594,443
Salaried employees: Male			140	338			8	519
Female			23	101				125
Wage-earners: Male			600	1,907			31	2,761
Female			52	262				342
Total employees			830	2,608			39	3,747
Salaries and wages: Salaries $			334,292	811,427			15,140	1,212,077
Wages $			781,941	2,347,171			39,052	3,392,216
Total $			1,116,233	3,158,598			54,192	4,601,293
Cost of fuel and electricity $			110,804	304,634			3,357	453,764
Cost of materials $			1,106,678	5,923,924			56,143	7,889,367
Value of products $			3,161,940	10,835,069			142,166	15,187,826
LEAD, TIN AND ZINC PRODUCTS—								
Number of plants		1	6	8	2		3	20
Capital employed $			560,073	2,287,148			145,313	3,229,833
Salaried employees: Male			13	55			2	76
Female			10	24			3	41
Wage-earners: Male			32	286			12	340
Female				23				23
Total employees			55	388			17	480
Salaries and wages: Salaries $			49,908	127,124			9,815	202,422
Wages $			34,419	296,897			13,583	355,054
Total $			84,327	424,021			23,398	557,476
Cost of fuel and electricity $			4,628	68,960			2,149	78,214
Cost of materials $			460,085	1,531,600			127,498	2,277,414
Value of products $			730,121	2,270,090			176,730	3,353,910

*Where fewer than three firms in one province were engaged in the same industry, the data for these companies are not shown by provinces but they are included in Canada totals for each industry.

Table 4.—Principal Statistics Relative to the Manufacture of Non-Ferrous Metals in Canada, by Industries and by Provinces, 1924—Concluded

Industry	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada*
PRECIOUS METAL PRODUCTS—								
Number of plants	1	1	23	68	3	3	5	104
Capital employed $			1,524,361	8,820,191	27,385	14,730	40,371	10,440,218
Salaried employees: Male			55	260	1	4	5	328
Female			39	138	1	1	1	182
Wage-earners: Male			416	1,113	11	9	32	1,587
Female			113	261			1	376
Total employees			623	1,772	13	14	39	2,473
Salaries and wages: Salaries $			145,955	831,951	3,354	7,406	9,947	1,003,993
Wages $			542,759	1,615,449	14,043	8,146	45,948	2,231,988
Total $			688,714	2,447,400	17,397	15,552	55,895	3,235,981
Cost of fuel and electricity $			5,722	82,187	208	196	373	89,041
Cost of materials $			922,535	2,971,197	11,453	6,025	23,384	3,941,706
Value of products $			2,011,070	7,255,487	44,026	26,531	90,765	9,449,284
ELECTRICAL APPARATUS AND SUPPLIES—								
Number of plants			13	87	4	3	2	109
Capital employed $			19,450,382	52,490,372	266,560	37,920		72,301,201
Salaried employees: Male			856	1,379	15	5		2,261
Female			276	501	2			779
Wage-earners: Male			2,308	5,696	42	10		8,076
Female			1,134	1,416	4			2,554
Total employees			4,574	8,992	63	15		13,670
Salaries and wages: Salaries $			1,950,342	3,315,210	42,186	8,700		5,329,878
Wages $			3,654,718	7,025,278	45,395	10,012		10,759,614
Total $			5,605,060	10,340,488	87,581	18,712		16,089,492
Cost of fuel and electricity $			343,168	535,589	3,011	2,053		881,808
Cost of materials $			7,134,794	17,065,907	126,713	18,447		24,370,996
Value of products $			15,300,028	40,733,382	292,647	60,306		56,490,165
MISCELLANEOUS NON-FERROUS METAL PRODUCTS—								
Number of plants			2	13	1			16
Capital employed $				733,685				853,248
Salaried employees: Male				33				38
Female				2				4
Wage-earners: Male				94				112
Female				48				48
Total employees				177				202
Salaries and wages: Salaries $				77,459				100,794
Wages				148,939				168,029
Total $				226,398				268,823
Cost of fuel and electricity $				4,826				5,382
Cost of materials $				297,792				322,001
Value of products $				692,129				741,066
ALL INDUSTRIES—								
Number of plants	2	3	61	240	12	7	16	341
Capital employed $	537,179	32,417,279	79,155,104	1,154,009	654,932	333,333		114,354,971
Salaried employees: Male	2	1,112	2,107	37	19	21		3,301
Female	2	362	779	6	1	4		1,156
Wage-earners: Male	158	4,010	9,386	100	35	95		13,793
Female	27	1,310	2,076	3		1		3,420
Total employees	189	6,791	14,348	148	55	121		21,670
Salaries and wages: Salaries $	4,105	2,587,497	5,286,354	88,555	35,291	48,342		8,056,012
Wages $	155,862	5,770,151	11,852,436	115,784	31,244	122,791		18,062,827
Total $	160,267	8,357,648	17,138,790	204,339	69,535	171,136		26,118,839
Cost of fuel and electricity $	14,699	707,942	1,041,058	20,662	9,014	6,866		1,805,153
Cost of materials $	247,781	12,116,891	28,415,178	697,525	205,538	232,160		42,255,600
Value of products $	427,888	27,138,813	63,598,837	1,150,207	372,605	504,763		93,223,373

*Where fewer than three firms in one province were engaged in the same industry, the data for these companies are not shown by provinces but they are included in the Canada totals for each industry.

Table 5—Capital Employed in the Manufacture of the Non-Ferrous Metals in Canada by Industries, 1923 and 1924

Industry	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, machinery and tools	Supplies and stock on hand	Cash, trading and operating accounts	Total	Lands, buildings, machinery and tools	Supplies and stock on hand	Cash, trading and operating accounts	Total
	$	$	$	$	$	$	$	$
Aluminium and Aluminium ware	5,026,031	1,406,247	2,502,528	8,894,806	5,500,633	1,975,881	1,459,511	8,936,025
Brass and Copper Products	7,719,091	4,589,933	8,013,784	20,322,808	8,528,305	4,702,560	5,363,578	18,594,443
Lead, Tin and Zinc Products	631,648	502,278	615,457	1,749,383	1,223,431	912,174	1,094,228	3,229,833
Precious Metal Products	4,252,337	3,567,498	1,940,236	9,760,071	4,424,378	3,458,061	2,557,779	10,440,218
Electrical Apparatus and Supplies	33,789,537	18,785,820	12,502,585	65,077,942	30,886,391	19,756,532	15,658,281	72,301,204
Miscellaneous Non-ferrous Metal Products	346,262	221,674	168,521	739,457	432,491	229,752	191,005	853,248
Total	**51,764,906**	**29,136,450**	**25,743,111**	**106,644,467**	**56,995,629**	**31,034,960**	**26,324,382**	**114,354,971**

Table 6.—Capital Employed in the Manufacture of the Non-Ferrous Metals in Canada by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, machinery and tools	Supplies and stock on hand	Cash, trading and operating accounts	Total	Lands, buildings, machinery and tools	Supplies and stock on hand	Cash, trading and operating accounts	Total
	$	$	$	$	$	$	$	$
Nova Scotia and New Brunswick	235,040	153,038	169,687	557,765	308,052	143,760	98,502	640,314
Quebec	16,469,960	8,169,514	5,933,711	30,573,191	17,557,871	9,365,627	5,403,781	32,117,279
Ontario	34,491,414	20,418,723	18,489,283	73,399,420	38,439,921	21,006,662	19,708,521	79,155,104
Manitoba	247,769	237,354	581,533	1,066,656	282,923	318,416	552,670	1,154,009
Alberta	194,730	70,306	446,283	711,319	200,520	73,664	380,748	654,932
British Columbia	125,987	87,515	122,614	336,116	116,342	126,831	90,160	333,333
Canada	**51,764,906**	**29,136,450**	**25,743,111**	**106,644,467**	**56,995,629**	**31,034,960**	**26,324,382**	**114,354,971**

Table 7.—Number of Wage-Earners Employed in the Manufacture of the Non-Ferrous Metals in Canada, by Months and by Industries, 1923.

Month	Industry						Total
	Aluminium and Aluminium Ware	Brass and Copper Products	Lead, Tin and Zinc Products	Precious Metal Products	Electrical Apparatus and Supplies	Miscellaneous Non-ferrous Metal Products	
January	784	3,069	121	2,124	9,197	127	15,422
February	835	3,219	121	2,100	9,553	134	15,962
March	855	3,474	132	2,214	10,069	133	16,877
April	818	3,624	138	2,103	10,303	128	17,114
May	905	3,624	131	2,035	10,499	138	17,332
June	904	3,622	134	2,031	10,553	145	17,389
July	954	3,485	136	1,998	10,372	161	17,086
August	915	3,385	132	2,001	10,570	171	17,174
September	908	3,411	123	2,106	10,719	171	17,438
October	951	3,334	127	2,155	10,962	168	17,697
November	1,015	3,229	123	2,177	10,946	166	17,656
December	959	3,113	121	2,165	11,046	170	17,574
Average	**901**	**3,385**	**129**	**2,106**	**10,412**	**154**	**17,087**

Table 8.—Number of Wage-Earners Employed in the Manufacture of the Non-Ferrous Metals in Canada, by Months and by Industries, 1924

Month	Industry						Total
	Aluminium and Aluminium Ware	Brass and Copper Products	Lead, Tin and Zinc Products	Precious Metal Products	Electrical Apparatus and Supplies	Miscellaneous Non-ferrous Metal Products	
January	936	2,954	368	1,971	10,538	157	16,924
February	945	3,081	376	1,952	10,618	157	17,129
March	962	3,233	364	1,956	10,785	150	17,450
April	1,031	3,283	368	1,953	10,714	150	17,499
May	1,002	3,353	363	1,906	10,564	150	17,338
June	998	3,297	355	1,858	10,325	145	16,978
July	998	3,229	365	1,865	10,046	149	16,652
August	995	3,134	366	1,917	10,016	150	16,578
September	997	3,008	342	1,964	10,183	160	16,654
October	1,026	2,938	370	2,034	10,719	184	17,271
November	1,008	2,887	357	2,062	11,121	186	17,621
December	1,022	2,847	363	2,022	11,405	185	17,844
Average	**994**	**3,103**	**363**	**1,963**	**10,630**	**160**	**17,213**

Table 9.—Number of Wage-Earners Working in the Month of Greatest Employment Classified According to the Number of Hours Worked per Day in the Non-Ferrous Metal Products Industry in Canada, by Industries and by Provinces, 1924.

Industry	Number of wage-earners working per day of				Average number of hours worked per man per week per working days of			
	8 hours or less	9 hours	10 hours	Over 10 hours	8 hours or less	9 hours	10 hours	Over 10 hours
(a) By Industries—								
Aluminium and Aluminium ware	427	384	216	43	46	51	54	57
Brass and Copper Products	556	2,039	719	39	42	50	55	74
Lead, Tin and Zinc Products	113	298	27	10	50	41	56	68
Precious Metal Products	1,080	837	100	82	43	49	51	61
Electrical Apparatus and Supplies	8,536	3,209	570	133	43	47	55	78
Miscellaneous Non-Ferrous Metal Products	72	96	32	.....	45	41	59	.....
All Industries	**10,784**	**6,863**	**1,664**	**307**	**43**	**48**	**54**	**71**
(b) By Provinces—								
Nova Scotia	7	3	.....	.....	44	50	.....	.....
New Brunswick	3	206	.....	.....	40	48	.....	.....
Quebec	3,867	1,557	292	73	43	50	55	74
Ontario	6,738	5,007	1,363	225	43	47	54	71
Manitoba	63	50	6	3	39	50	58	70
Alberta	14	30	1	1	45	49	60	78
British Columbia	92	10	2	5	47	51	57	64
Canada	**10,784**	**6,863**	**1,664**	**307**	**43**	**48**	**54**	**71**

Table 10.—Fuel and Electricity Used in the Manufacture of the Non-Ferrous Metals in Canada, by Kinds and by Industries, 1923.

Industry	Anthracite coal	Bituminous coal	Coke	Gasoline and fuel oil	Gas	Wood	Other fuel	Electricity used	Total value
	Tons	Tons	Tons	Gals.	M cu. ft.	Cords			
Aluminium and Aluminium Ware—									
Quantity	21	7,099	123	44,211	883	15	.....	.....	.....
Value	$ 342	$ 63,644	$ 1,626	$ 4,950	$ 960	$ 117	.....	$ 470,705	$ 542,350
Brass and Copper Products—									
Quantity	2,912	13,530	6,151	1,604,517	10,515	363	.....	.....	.....
Value	$ 31,382	$ 94,983	$ 83,539	$ 166,071	$ 12,944	$ 2,509	$ 492	$ 144,869	$ 536,789
Lead, Tin and Zinc Products—									
Quantity	49	1,788	189	11,925	8,869	2	.....	.....	.....
Value	$ 765	$ 14,898	$ 1,977	$ 2,912	$ 2,010	$ 20	$ 8	$ 1,687	$ 24,277
Precious Metal Products									
Quantity	346	5,874	70	40,637	8,676	37	.....	.....	.....
Value	$ 5,137	$ 46,603	$ 800	$ 4,575	$ 7,521	$ 313	$ 553	$ 23,409	$ 88,911
Electrical Apparatus and Supplies—									
Quantity	1,968	55,300	3,321	488,490	90,992	842	.....	.....	.....
Value	$ 19,849	$ 380,185	$ 45,392	$ 50,596	$ 89,477	$ 6,531	$ 10,337	$ 352,620	$ 954,987
Miscellaneous Non-Ferrous Metal Products—									
Quantity	81	254	.....	.....	522	1	.....	.....	.....
Value	$ 1,199	$ 2,049	.....	.....	$ 597	$ 9	.....	$ 2,641	$ 6,495
TOTAL—									
Quantity	**5,377**	**83,845**	**9,854**	**2,189,780**	**126,457**	**1,260**	.....	.....	.....
Value	**$ 58,674**	**$ 602,367**	**$ 133,334**	**$ 229,104**	**$ 113,515**	**$ 9,499**	**$ 11,390**	**$ 995,931**	**$2,153,809**

Table 11.—Fuel and Electricity Used in the Manufacture of the Non-Ferrous Metals in Canada, by Kinds and by Industries, 1924

Province	Anthracite coal	Bituminous coal	Coke	Gasoline and fuel oil	Gas	Wood	Other fuel	Electricity	Total value
	Tons	Tons	Tons	Gals.	M cu. ft.	Cords		K.W.H.	$
Aluminium and Aluminium Ware—									
Quantity	20	6,319	111	31,602	2,731	.....	.....	118,210,788	.....
Value	$ 312	$ 44,626	$ 757	3,598$	3,418	.....	$ 400	$ 240,913	$ 294,024
Brass and Copper Products—									
Quantity	3,913	11,756	3,367	1,448,317	8,423	349	.....	9,053,612	.....
Value	$ 41,050	$ 63,241	$ 39,058	$ 141,137	$ 10,908	$ 2,305	$ 5,710	$ 149,455	$ 453,764
Lead Tin and Zinc Products—									
Quantity	65	2,057	176	114,645	4,278	31	.....	449,598	.....
Value	$ 1,140	47,491	1,955	15,000	3,775	233	.....	8,620	78,214
Precious Metal Products—									
Quantity	500	5,545	66	43,672	13,027	85	.....	1,091,369	.....
Value	$ 5,771	$ 37,524	$ 591	$ 4,552	$ 9,523	$ 237	$ 518	$ 30,325	$ 89,041
Electrical Apparatus and Supplies—									
Quantity	1,971	57,818	2,324	927,496	91,727	646	.....	20,648,662	.....
Value	$ 23,342	$ 342,972	$ 24,542	$ 83,310	$ 91,301	$ 1,364	$ 2,628	$ 315,349	$ 884,808
Miscellaneous Non-Ferrous Metal Products—									
Quantity	20	836	.....	.....	399	6	.....	128,700	.....
Value	$ 310	$ 2,351	.....	.....	$ 423	$ 32	.....	$ 2,186	$ 5,302
TOTAL—									
Quantity	**6,489**	**83,831**	**6,044**	**2,565,732**	**120,585**	**1,117**	.....	**150,182,729**	.....
Value	**$ 71,925**	**$ 538,205**	**$ 67,803**	**$ 247,597**	**$ 119,348**	**$ 4,171**	**$ 9,256**	**$ 746,848**	**$1,805,153**

Table 12.—Fuel and Electricity Used in the Manufacture of the Non-Ferrous Metals in Canada, by Kinds and by Provinces, 1923

Province	Anthracite coal	Bituminous coal	Coke	Gasoline and fuel oil	Gas	Wood	Other fuel	Electricity used	Total value
	Tons	Tons	Tons	Gals.	M cu. ft.	Cord			
Nova Scotia and New Brunswick—									
Quantity	180	648	51	63,908					
Value	$ 2,379	$ 3,876	$ 714	$ 8,693			$ 326	$ 478	$ 16,466
Quebec—									
Quantity	3,020	28,413	1,149	448,082	22,653	110			
Value	$ 30,913	$ 215,300	$ 17,677	$ 46,832	$ 24,811	$ 718	$ 879	$ 634,333	$ 971,463
Ontario—									
Quantity	2,167	52,949	7,925	1,575,411	87,929	289			
Value	$ 25,177	$ 369,873	$ 103,699	$ 161,083	$ 86,070	$ 2,265	$ 10,185	$ 356,196	$1,114,548
Manitoba—									
Quantity	10	627	55	84,530	563	23			
Value	$ 205	$ 7,145	$ 1,194	$ 10,470	$ 640	$ 231		$ 2,214	$ 22,099
Alberta—									
Quantity		1,074	279	292	7,805	15			
Value		$ 5,056	$ 4,286	$ 86	$ 498	$ 77		$ 1,398	$ 11,401
British Columbia—									
Quantity		134	395	17,557	7,507	823			
Value		$ 1,112	$ 5,764	$ 1,940	$ 1,496	$ 6,208		$ 1,312	$ 17,832
CANADA—									
Quantity	**5,377**	**83,845**	**9,854**	**2,189,780**	**126,457**	**1,260**			
Value	**$ 58,674**	**$ 602,362**	**$ 133,334**	**$ 229,101**	**$ 113,515**	**$ 9,499**	**$ 11,390**	**$995,931**	**$2,153,809**

Table 13.—Fuel and Electricity Used in the Manufacture of the Non-Ferrous Metals in Canada, by Kinds and by Provinces, 1924

Province	Anthracite coal	Bituminous coal	Coke	Gasoline and fuel oil	Gas	Wood	Other fuel	Electricity used	Total value
	Tons	Tons	Tons	Gals.	M cu. ft.	Cord		K.W.H.	
Nova Scotia and New Brunswick—									
Quantity	85	707	50	37,655				237,061	
Value	$ 1,196	$ 4,473	$ 600	$ 4,254			$ 450	$ 5,638	$ 16,611
Quebec—									
Quantity	3,047	23,758	1,169	735,297	27,860	133		125,327,856	
Value	$ 33,283	$ 160,712	$ 13,401	$ 64,989	$ 24,025	$ 655	$ 824	$ 410,053	$ 704,942
Ontario—									
Quantity	3,343	58,705	4,426	1,695,356	90,369	888		24,399,355	
Value	$ 37,173	$ 366,378	$ 47,188	$ 166,306	$ 93,354	$ 2,830	$ 5,899	$ 324,930	$1,044,058
Manitoba—									
Quantity	14	540	57	83,063	250	53		112,435	
Value	$ 273	$ 5,537	938	$ 10,341	$ 459	$ 448		2,666	20,662
Alberta—									
Quantity		8	270	184	1,358	24		67,211	
Value	$	$ 40	$ 4,136	$ 54	$ 656	122	$ 2,083	$ 1,923	$ 9,014
British Columbia—									
Quantity		113	72	14,177	748	19		38,811	
Value	$	$ 1,065	$ 1,540	$ 1,653	$ 851	$ 116		$ 1,638	$ 6,866
CANADA—									
Quantity	**6,489**	**83,831**	**6,044**	**2,565,732**	**120,585**	**1,117**		**150,182,729**	
Value	**$ 71,925**	**$ 538,285**	**$ 67,803**	**$ 247,597**	**$ 119,348**	**4,171**	**$ 9,256**	**$ 746,848**	**$1,805,153**

Table 14.—Power Equipment in Use in the Manufacture of the Non-Ferrous Metals in Canada, by Classes and by Industries, 1923

Industry		Boilers	Steam engines and turbines	Gas engines	Oil and gasoline engines	Hydraulic turbines or water-wheels	Electric Motors	
							Operated by power owned	Operated by power purchased
Aluminium and Aluminium Ware	No.	4	2			11	85	67
	H.P.	500	65			52,325	1,366	1,550
Brass and Copper Products	No.	26	7	1		2	22	500
	H.P.	2,385	1,155	125		27	316	10,722
Lead, Tin and Zinc Products	No.	3						39
	H.P.	162						534
Precious Metals Products	No.	11	2				28	397
	H.P.	755	150				148	2,304
Electrical Apparatus and Supplies	No.	53	8	5		7	1,419	2,103
	H.P.	7,986	5,640	33		3,100	8,013	22,070
Miscellaneous Non-Ferrous Metal Products	No.							32
	H.P.							163
Total	**No.**	**97**	**19**	**6**		**20**	**1,554**	**3,138**
	H.P.	**11,788**	**7,010**	**158**		**55,452**	**9,843**	**37,343**

Table 15.—Power Equipment in Use in the Manufacture of the Non-Ferrous Metals in Canada, by Classes and by Industries, 1924

Industry		Boilers	Steam engines and turbines	Gas engines	Oil and gasoline engines	Hydraulic turbines or water-wheels	Electric Motors	
							Operated by power owned	Operated by power purchased
Aluminium and Aluminium Ware	No.	4	1			11	99	66
	H.P.	525	10			52,325	2,093	1,524
Brass and Copper Products	No.	37	7	1		1	32	537
	H.P.	2,854	1,188	125		25	568	12,911
Lead, Tin and Zinc Products	No.	4	1		1			70
	H.P.	182	20		25			525
Precious Metals Products	No.	21	4				17	442
	H.P.	1,127	210				102	2,595
Electrical Apparatus and Supplies	No.	76	8	5		7	1,659	2,298
	H.P.	10,587	6,210	33		3,100	11,326	24,530
Miscellaneous Non-Ferrous Metal Products	No.							25
	H.P.							148
Total	**No.**	**142**	**21**	**6**	**1**	**19**	**1,807**	**3,447**
	H.P.	**15,272**	**7,668**	**158**	**25**	**55,450**	**14,089**	**42,233**

Table 16.—Power Equipment in Use in the Manufacture of the Non-Ferrous Metals in Canada, by Classes and by Provinces, 1923

Province		Boilers	Steam engines and turbines	Gas engines	Oil and gasoline engines	Hydraulic turbines or water-wheels	Electric Motors	
							Operated by power owned	Operated by power purchased
Nova Scotia and New Brunswick	No.	3	2					17
	H.P.	280	175					193
Quebec	No.	14	7			13	859	458
	H.P.	3,770	5,350			52,352	6,415	3,529
Ontario	No.	77	9	6		7	689	2,578
	H.P.	7,545	1,385	158		3,100	3,412	33,009
Manitoba	No.	1					5	33
	H.P.	70					11	292
Alberta	No.	2	1					21
	H.P.	123	100					144
British Columbia	No.						1	31
	H.P.						5	176
Canada	**No.**	**97**	**19**	**6**		**20**	**1,554**	**3,138**
	H.P.	**11,788**	**7,010**	**158**		**55,452**	**9,843**	**37,343**

Table 17.—Power Equipment in Use in the Manufacture of the Non-Ferrous Metals in Canada, by Classes and by Provinces, 1924

Province		Boilers	Steam engines and turbines	Gas engines	Oil and gasoline engines	Hydraulic turbines or water-wheels	Electric Motors	
							Operated by power owned	Operated by power purchased
Nova Scotia and New Brunswick	No.	3	2	.....	1	.....	.....	17
	H.P.	205	175	.....	25	.....	.....	193
Quebec	No.	19	8	.....	.....	12	877	539
	H.P.	4,022	6,025	.....	.....	52,350	8,070	3,976
Ontario	No.	118	11	6	.....	7	922	2,805
	H.P.	10,855	1,468	158	.....	3,100	5,982	37,470
Manitoba	No.	1	.....	.....	.....	.....	.....	39
	H.P.	70	.....	.....	.....	.....	.....	327
Alberta	No.	1	.....	.....	.....	.....	3	20
	H.P.	120	.....	.....	.....	.....	12	134
British Columbia	No.	.....	.....	.....	.....	.....	5	27
	H.P.	.....	.....	.....	.....	.....	25	133
Canada	**No.**	**142**	**21**	**6**	**1**	**19**	**1,807**	**3,447**
	H.P.	**15,272**	**7,668**	**158**	**25**	**55,450**	**14,089**	**42,233**

Table 18.—Principal Imports into Canada for Consumption of Non-Ferrous Metals and their Products during the Fiscal Years ended March 31, 1924 and 1925, also Imports from the United Kingdom and the United States, 1924 and 1925.

Classification		Total Imports for Consumption Years ended March 31		Imports from United Kingdom Years ended March 31		Imports from United States Years ended March 31	
		1924	1925	1924	1925	1924	1925
ALUMINIUM AND ITS PRODUCTS							
Alumina	Cwt.	1,251,019	1,345,318	.....	22	1,251,019	1,345,296
	$	2,226,436	2,489,248	.....	21	2,226,436	2,489,227
Cryolite	Cwt.	15,780	12,830	27	.....	15,733	12,553
	$	118,027	79,369	970	.....	116,831	77,380
Ingots, blocks, bars, rods, sheets or plates	Lb.	700,269	587,687	559,229	372,567	139,920	215,120
	$	189,286	171,612	136,673	96,227	51,939	75,385
Leaf or foil	$	165,994	143,901	5,703	67,173	109,216	26,034
Tubing	Lb.	71,749	57,878	36,905	33	34,844	57,767
	$	31,699	29,818	10,168	75	21,531	29,715
Kitchen or household hollow-ware	$	488,752	360,804	9,761	11,206	425,685	305,009
Manufactures of n.o.p.	$	504,317	480,936	17,627	15,778	465,685	443,180
Total	$	3,724,511	3,755,688	180,902	190,480	3,417,323	3,445,910
BRASS AND ITS PRODUCTS							
Blocks, ingots or pigs	Cwt.	1,905	3,658	21	127	1,884	3,531
	$	25,590	45,114	495	2,155	25,095	42,959
Scrap	Cwt.	18,097	32,889	1,764	410	15,451	31,549
	$	183,489	299,017	19,954	3,597	158,372	289,951
Bars, rods, or coils	Cwt.	11,933	6,431	5,893	2,859	6,040	3,572
	$	217,726	103,221	89,756	40,197	127,970	63,024
Strips, sheets or plates, not polished, planished, or coated	Cwt.	12,339	7,176	1,648	1,152	10,691	6,024
	$	264,004	142,631	33,050	24,974	230,954	117,657
Tubing	Lb.	1,816,194	1,642,252	416,838	403,461	1,399,356	1,238,576
	$	483,984	388,937	98,759	85,865	385,225	303,035
Carburretors	$	338,515	220,991	100	78	337,328	218,672
Valves	$	222,417	156,595	11,608	2,647	208,521	152,244
Wire, plain	Lb.	517,180	362,089	20,168	2,258	496,841	358,118
	$	135,128	84,153	5,562	337	129,499	83,220
Wire, cloth or woven wire, n.o.p.	$	228,724	127,568	116,134	63,675	83,532	24,328
Other brass and its products, n.e.s.	$	2,281,391	1,966,688	190,880	231,528	2,021,585	1,628,290
Total	$	4,380,968	3,534,915	566,298	455,053	3,708,141	2,923,380

Table 18.—Principal Imports into Canada for Consumption of Non-Ferrous Metals and their Products during the Fiscal Years ended March 31, 1924 and 1925, also Imports from the United Kingdom and the United States, 1924 and 1925—Con.

Classification		Total Imports for Consumption Years ended March 31		Imports from United Kingdom Years ended March 31		Imports from United States Years ended March 31	
		1924	1925	1924	1925	1924	1925
Copper and its Products							
Blocks, pigs or ingots	Lb.	12,214,651	8,716 301	.....	.....	12.214,651	8,716,301
	$	1,703,283	1,185,658	.....	.....	1,703,283	1,185,658
Scrap	Cwt.	25,784	21,084	360	.....	24,515	19,929
	$	364,447	282,159	3,765	.....	353,471	271,578
Bars, rods, or coils	Cwt.	269,475	201,033	235	566	269,240	200,467
	$	4,221,259	2,857,614	5,257	10,274	4,216,002	2,847,340
Strips, sheets or plates polished, planished or coated	Cwt.	21,283	22,278	8,771	3,190	12,512	19,088
	$	494,319	441,593	209,174	66,968	285,145	374,625
Tubing	Lb.	1,666,522	1,496.049	213,963	91,132	1,452,559	1,403,123
	$	437,346	355,242	56,403	21,655	380,883	333,112
Wire	$	413,967	411,792	78,806	34,040	328,590	374,491
Other copper and its products, n.e.s.	$	447,638	429,231	35,734	23,818	408,475	403,132
Total	$	8,082,259	5,963,289	389,199	156,755	7,675,849	5,789,936
Lead and its Products							
Pig and block	Lb.	1,719,459	508,706	1,342,207	87,686	377,252	421,020
	$	100,222	44,512	68,660	6,147	31,562	38,365
Bars and sheets	Lb.	159,737	91,867	5,736	8,691	153,701	83,176
	$	14,296	10,715	436	802	13.828	9,913
Pipe	Lb.	50,866	49,654	16,001	33,288	19,109	5,166
	$	4,295	4,202	1,262	2,680	2,159	706
Tea	Lb.	231,139	196,648	226,100	193,776	5,039	2,872
	$	21,346	22,620	20,618	22,297	728	323
Other lead and its products, n.e.s.	$	224,153	246,132	82,124	101,551	82,109	73,571
Total	$	364,312	328,181	173,100	133,477	130.446	122,878
Nickel and its Products							
Bars, rods, strips, sheets and plates	Lb.	648,584	575,983	11,323	24,350	500,101	551,633
	$	148,870	113,452	2,989	4,459	108,848	108,993
Nickel, silver and German silver in bars, rods, strips, plates or anodes	Lb.	238,133	243,572	3,344	33,771	234,789	209,801
	$	67,006	60,731	1,090	11,680	65,916	49,051
Manufactures of German, Nevada and nickel silver, not plated	$	208,377	196,772	12,592	19,465	194,785	176,188
Other nickel and its products, n.e.s.	$	1,292,001	1,272,696	107,165	139,523	1,134,149	1,087,725
Total	$	1,716,254	1,643,651	123,836	175,127	1,503,698	1,421,957
Precious Metals and their Products							
Electro-plated ware and gilt ware, n.o.p.	$	519,053	635,784	355,241	440,539	154,015	169,514
Silver bullion in bars, blocks, ingots, drops, sheets or plates unmanufactured	$	724,271	741,097	1,317	161	722,954	740,936
Sterling or other silver ware, n.o.p.	$	220,368	212,658	156,638	134,264	57,856	68,166
Other precious metals and their products, n.e.s.	$	492,578	411,619	71,943	47,821	390,983	335,461
Total	$	1,956,270	2,001,158	585,139	622,785	1,325,808	1,314,077

Table 18.—Principal Imports into Canada for Consumption of Non-Ferrous Metals and their Products during the Fiscal Years ended March 31, 1924 and 1925, also Imports from the United Kingdom and the United States, 1924 and 1925—Con.

Classification		Total Imports for Consumption Years ended March 31		Imports from United Kingdom Years ended March 31		Imports from United States Years ended March 31	
		1924	1925	1924	1925	1924	1925
TIN AND ITS PRODUCTS							
Blocks, pigs and bars	Cwt.	39,837	43,535	19,901	15,171	11,760	14,916
	$	1,745,915	2,200,779	858,916	770,260	550,674	738,022
Tinfoil	Lb.	1,372,104	1,021,686	10,164	15,577	1,360,820	1,004,314
	$	383,328	345,539	7,790	8,139	374,849	336,767
Tubes, collapsible	$	25,345	15,298	7,278	3,058	18,014	12,081
Total	$	2,154,588	2,561,616	873,984	781,457	943,537	1,086,870
ZINC AND ITS PRODUCTS							
Spelter	Lb.	1,014,618	860,586	11,137	11,200	954,201	847,122
	$	77,327	57,825	841	692	72,604	56,939
Sheets and plates	Lb.	3,156,221	2,957,024	169,862	188,901	1,446,587	1,434,105
	$	273,856	263,457	14,493	14,222	136,083	144,077
Zinc and its products, n.e.s.	$	175,307	204,310	109	715	174,481	203,514
Total	$	526,490	525,592	15,443	15,629	383,168	404,530
OTHER NON-FERROUS METAL PRODUCTS							
Alloys	$	269,850	186,538	117,285	85,488	148,040	100,257
Clocks and watches	$	2,387,788	2,451,425	47,599	49,684	1,084,890	850,229
Electric apparatus, n.o.p.—							
Batteries, primary	$	40,064	23,872	754	1,787	38,899	21,311
Batteries, storage	No.	20,750	22,546	1,238	4,379	19,512	18,167
	$	764,854	923,701	221,062	334,138	543,792	589,529
Heating and cooking apparatus	$	159,386	118,106	3,666	671	154,120	117,349
Dynamos and generators	$	1,214,221	978,170	148,777	73,792	1,063,610	809,760
Fans	No.	7,069	5,112	214	.....	6,492	4,965
	$	69,797	48,401	723	.....	66,509	46,662
Fuses, fuse plugs and cut outs	$	200,458	162,922	437	395	199,468	162,248
Lamps, incandescent	No.	5,349,033	3,325,676	157,919	67,601	601,076	636,540
	$	689,407	386,906	21,953	6,305	106,830	92,973
Light fixtures and parts thereof	$	546,487	546,357	5,945	9,998	520,444	504,991
Meters	$	269,892	209,795	49,141	28,426	220,546	181,354
Motors	$	1,928,600	1,815,710	108,130	203,781	1,811,321	1,535,685
Rheostats, controllers, and other starting and controlling devices	$	425,614	298,520	19,158	36,556	400,259	261,496
Spark plugs, magnetos and other ignition devices	$	567,645	440,785	5,832	3,465	561,813	437,320
Switches, switchboards, circuit breakers and parts	$	1,059,296	948,740	42,733	37,664	999,038	908,544
Telegraph instruments	$	.....	154,804	.....	10,977	.....	143,744
Telegraph instruments including wireless apparatus	$	1,043,547	.....	108,418	.....	931,744	.....
Telephone instruments	$	483,282	303,281	59,727	27,345	422,391	275,936
Transformers	$	382,288	294,603	6,242	5,150	293,433	260,990
OTHER NON-FERROUS METALS							
Electric apparatus, n.o.p.—							
Wireless apparatus, n.o.p.	$	.....	2,499,687	.....	127,439	.....	2,354,721
Other electric apparatus	$	4,131,797	4,134,511	142,008	180,770	3,955,633	3,823,408
Total electric apparatus	$	13,976,636	14,288,871	944,706	1,088,659	12,289,850	12,528,021
Gas apparatus	$	217,421	171,639	4,860	4,517	211,751	163,627
Printing materials	$	311,280	288,884	24,920	19,703	284,309	266,834

Table 18.—Principal Imports into Canada for Consumption of Non-Ferrous Metals and their Products during the Fiscal Years ended March 31, 1924 and 1925, also Imports from the United Kingdom and the United States, 1924 and 1925—Con.

Classification		Total Imports for Consumption Years ended March 31		Imports from United Kingdom Years ended March 31		Imports from United States Years ended March 31	
		1924	1925	1924	1925	1924	1925
Miscellaneous Non-Ferrous Metal Products							
Manganese, oxide of	lb.	3,012,978	29,258,603	14,599	9,812	2,998,368	29,090,583
	$	65,290	427,695	711	487	64,577	290,751
Ores of metals, n.o.p.	Cwt.	359,071	254,107			359,071	253,435
	$	519,895	330,261		235	519,895	324,026
Lamps, side lights, head lights, and lanterns, n.o.p.	$	850,516	720,445	12,852	23,494	821,022	669,452
Non-ferrous metals and products, n.e.s.	$	1,928,200	1,931,702	148,672	207,413	1,691,814	1,601,058
Total	$	3,363,991	3,410,103	162,235	231,629	3,097,308	2,885,287
Total	$	**43,432,617**	**41,111,550**	**4,209,506**	**4,010,443**	**36,204,118**	**33,303,793**

Table 19.—Principal Exports of Canadian-Made Non-Ferrous Metals and their Products from Canada during the Fiscal Years Ended March 31, 1924 and 1925, also Exports to the United Kingdom and the United States, 1924 and 1925.

Classification		Total Exports of Canadian Produce (Mdse.) Years ended March 31		Exports to United Kingdom Years ended March 31		Exports to United States Years ended March 31	
		1924	1925	1924	1925	1924	1925
Aluminium and its Products—							
Bars, blocks, etc.	Cwt.	155,915	226,530	16,497	45,572	80,999	71,100
	$	3,225,479	5,135,366	361,336	1,030,616	1,639,483	1,582,973
Manufactures	$	996,133	775,181	11,637	36,216	58,710	73,528
Total	$	4,221,612	5,910,547	372,973	1,066,832	1,698,193	1,656,501
Brass and its Products—							
Old and scrap	Cwt.	57,127	83,132	564	8,804	56,563	66,227
	$	462,515	659,609	5,156	72,824	457,359	491,684
Valves	$	182,575	198,366	106,264	124,950	1,269	1,061
Other	$	47,427	58,174	16,738	22,789	13,083	10,686
Total	$	692,517	907,149	128,158	220,563	471,711	503,431
Copper and its Products—							
Fine, in ore, matte, regulus	Cwt.	449,652	533,740	117,854	139,363	331,708	394,377
	$	4,754,413	5,847,848	883,702	1,046,513	3,870,711	4,801,325
Pigs, bars, sheets and blister	Cwt.	466,697	445,438	179	3,160	466,447	442,058
	$	6,306,854	5,755,444	5,910	60,719	6,298,500	5,688,056
Old and scrap	Cwt.	12,813	42,755	240	863	12,186	41,447
	$	143,348	492,186	2,311	11,028	138,875	474,482
Wire, insulated	$	443,650	584,033		36,376	2,374	2,159
Other	$	251,780	43,166	638	179	163,434	16,590
Total	$	11,900,045	12,722,677	892,561	1,154,815	10,471,894	10,982,622
Lead and its Products—							
In ore	Cwt.	83,843	378,772		195,320	83,843	183,452
	$	563,560	2,456,430		1,482,754	563,560	973,676
Pig	Cwt.	614,679	1,148,329	186,784	677,079	10,001	12,067
	$	3,397,649	7,911,700	1,048,217	4,703,392	66,396	105,589
Total	$	3,961,209	10,368,130	1,048,217	6,186,146	629,866	1,079,265
Nickel and its Products	Cwt.	569,392	615,497	200,440	221,818	310,936	301,368
	$	9,388,511	10,174,245	3,163,372	3,509,557	5,109,591	4,672,714

Table 19.—Principal Exports of Canadian-Made Non-Ferrous Metals and their Products from Canada during the Fiscal Years Ended March 31, 1924 and 1925, also Exports to the United Kingdom and the United States, 1924 and 1925—Concluded

Classification		Total Exports of Canadian Produce (Mdse.) Years ended March 31		Exports to United Kingdom Years ended March 31		Exports to United States Years ended March 31	
		1924	1925	1924	1925	1924	1925
Precious Metals—							
Gold-bearing quartz, dust, etc.	$	17,384,090	28,793,333	1,000	60,651	17,383,028	28,732,682
Silver in ore, concentrates, etc.	Oz.	5,053,919	4,909,072	.....	293,592	4,890,032	4,584,335
	$	3,161,612	3,112,591	.....	190,005	3,057,126	2,902,528
Silver bullion	Oz.	12,894,347	13,675,661	4,050,117	4,887,811	4,472,852	6,230,974
	$	8,378,171	9,234,991	2,624,199	3,266,560	2,909,825	4,227,154
Other	$	381,064	395,821	3,365	3,483	377,699	392,338
Total	$	29,304,937	41,536,736	2,628,564	3,520,699	23,727,678	36,254,702
Zinc and its Products	$	2,553,733	5,344,060	711,005	68,407	.....	1,257,852
Miscellaneous—							
Electric apparatus	$	1,883,710	1,581,511	942,589	215,200	101,309	65,350
Cobalt	Lb.	257,480	156,929	87,154	47,959	148,374	100,759
	$	599,728	354,896	203,626	107,781	362,847	224,835
Other non-ferrous metals	$	1,405,169	1,470,837	155,170	206,927	858,848	637,130
Total	$	3,888,607	3,407,244	1,301,385	529,908	1,323,004	927,315
Total	$	**65,911,171**	**90,370,788**	**10,246,235**	**16,868,927**	**43,457,040**	**57,334,402**

Table 20.—Alphabetical List of Products Made in the Industries Classified under "Manufactures of the Non-Ferrous Metals in Canada, 1924"

Commodity	Industry Number (See list at end of table)	Unit	Quantity	Total selling value
				$
Aluminium and its products	1-3	.....	.....	7,803,889
Ammeters, voltmeters, wattmeters, watt-hour meters, etc., portable and switchboard type, including accompanying transformers	5	.....	.....	47,092
Babbitt metal	3	Lb.	3,086,741	869,007
Batteries:—				
Storage, for internal combustion engine	5	No.	205,069	2,690,627
Storage for all other purposes	5	.....	.....	188,947
Primary, dry cell type	5	No.	45,759,843	2,101,395
Any other type	5	.....	.....	136,922
Parts and supplies	5	.....	.....	65,130
Bells and gongs	2	.....	.....	42,046
Brass, water and steam fittings:—				
Bushings	2	.....	.....	55,274
Taps	2	No.	84,200	41,550
Valves	2	No.	381,578	758,932
Other fittings and pipe	2	.....	.....	1,588,379
Brewery and distillery supplies	2	.....	.....	174,303
Castings:—				
Alloys, white metal	3	Lb.	1,712,245	137,560
Brass and bronze	3	Lb.	578,495	149,338
Other	3-4	.....	.....	40,923
Castings and machinery fittings:—				
Brass	2	Lb.	944,158	3,707,929
Bronze	2	Lb.	11,897,857	
Copper	2	Lb.	1,083,141	
Other metal	2	Lb.	216,473	
Clocks	4	.....	.....	484,860
Conduit, interior, moulding and fittings for same	5	.....	.....	709,314
Cutlery and stainless steel	4	.....	.....	50,827
Cutlery, other not pluted	4	.....	.....	55,524
Dental supplies	4	.....	.....	105,879
Domestic and utility devices electric	5	.....	.....	276,668
Fans—				
Desk type	5	No.	1,012	30,400
Other types	5	No.	104	2,670
Furnaces, electro metallurgical, with accessories	5	.....	.....	26,320
Fuses and fuse wire	5	.....	.....	188,004
Generators, A.C. and D.C.	5	No. KW	195 519,792	4,893,448
Hardware, builders, casket and other	2-4	.....	.....	327,742
Heaters, water and air	5	No.	27,715	205,066
Hollow-ware and spinnings, brass and copper	2	.....	.....	164,944

Table 20.—Alphabetical List of Products Made in the Industries Classified under "Manufactures of the Non-Ferrous Metals in Canada, 1924"—Continued

Commodity	Industry Number (See list at end of table)	Unit	Quantity	Total selling value
				$
Hollow-ware and flatware, sterling silver	4			522,176
Ingots and bars:—				
Brass	2	Lb.	1,670	15,133
Other metals	2	Lb.	62,841	
Irons, flat, electric	5	No.	77,911	215,629
Jewelry	4			3,045,241
Lamps:—				
Incandescent, regular carbon and tungsten, vacuum	5	No.	7,243,248	1,538,025
Regular tungsten, gas filled for street lighting	5	No.	289,750	216,616
" " " all other classes	5	No.	1,917,846	1,058,604
Automobile, decorative and others, n.e.s.	5	No.	2,188,419	390,570
Lamps, and lamp burners	6			232,043
Lanterns and lantern burners	6			23,140
Lead:—				
Bars and ingots	3	Lb.	1,190,274	114,514
Pipe	3	Lb.	2,972,613	327,743
Sheet	3	Lb.	1,382,000	156,400
Traps and fittings	3	Lb.	500 000	76,500
Lightning arresters	5			98,583
Lighting fixtures	2-5			1,341,698
Lightning rods and supplies	2			96,627
Line material:—				
Light, power, telegraph and telephone	5			508,378
Line insulators, glass, porcelain, and composition	5			423,599
Machinery and parts (of brass or copper)	2			144,935
Mantles, incandescent gas	5	No.	81,231	33,439
Mantles, for lamps, etc.	6			57,712
Metals refined:—				
Copper	3	Lb.	73,908	10,396
Gold, including dental gold	4			623,568
Lead	3	Lb.	353,377	32,090
Platinum	4			70,776
Silver	4			47,202
Tin	3	Lb.	17,958	9,884
Zinc	3	Lb.	130,988	10,639
Meters, gas, water and electric	5	No.	125,695	1,513,660
Motors, A.C., Stationary, for power purposes, including control equipment	5	No. 4,697 H.P. 82,025		1,484,002
Fractional horse-power, for domestic and utility appliances	5	No. 21,110 H.P. 3,923		306,150
Parts and supplies for same	5			340,866
Motors, D.C., including parts and supplies for same	5			716,660
Panel boards and cabinets	5			236,295
Plated wares, electric silver:—				
(a) On Britannia metal—				
Hollow-ware	4			646,063
Flatware	4			305,528
Cutlery	4			138,696
(b) On nickel silver:—				
Hollow-ware	4			263,695
Flatware	4			837,521
Cutlery	4			491,788
Plates and sheets:—				
Brass	2	Lb.	4,414,214	1,837,432
Bronze	2	Lb.	313,987	
Copper	2	Lb.	2,415,389	
Other metals	2	Lb.	743,215	
Pneumatic apparatus, parts and supplies	5			1,515,302
Radio equipment, n.e.s.:—				
Condensers	5			78,622
Coils and couplers	5			15,445
Panels and parts	5			205,921
Rheostats and resistances	5			12,963
Transformers	5			80,229
Vacuum tubes	5			696,151
Apparatus or parts, n.e.s.	5			2,034,416
Rectifiers and parts	5			16,164
Rods:—				
Brass	2	Lb.	2,914,514	2,026,078
Bronze	2	Lb.	117,642	
Copper	2	Lb.	10,225,522	
Other	2	Lb.	65,358	
Scrap	3-5			201,046
Screens	6			48,629
Searchlights, projectors, focussing lamps and headlights	5-6			47,501
Sockets, receptacles, rosettes, cutouts, etc.	5			1,196,322
Solders:—				
2 and 1 wiping	3	Lb.	441,871	120,921
60-40 joint	3	Lb.	323,291	117,078
45-55 strictly	3	Lb.	781,056	240,851
50-50 guaranteed	3	Lb.	433,579	146,792
Stoves and ranges, radiators, and parts, n.e.s.	2-5-6			690,575

Table 20.—Alphabetical List of Products Made in the Industries Classified under "Manufactures of the Non-Ferrous Metals in Canada, 1924"—Concluded

Commodity	Industry Number (See list at end of table)	Unit	Quantity	Total selling value
				$
Switches, electric, of all kinds	5			395,506
Switchboards, light and power	5			1,898,456
Tanks	2			33,819
Transformers—				
Power and service types, 50 K.W. and over including oil, fuse boxes etc	5	No.	2,971	3,295,959
		KW	1,024,230	
Power and service types, under 50 K.W., including oil, fuse boxes, etc.	5	No.	3,467	434,304
		KW	41,100	
All other types, including feeder regulators, auto-transformers, etc., n.e.s.	5			302,839
Tubing, brass and copper	2-4			65,039
Type and type metal—				
Containing less than 90% lead	3	Lb.	1,048,652	182,701
Containing more than 90% lead	3	Lb.	332,774	96,004
Vacuum cleaners	2-5	No.	40,833	1,345,198
Varnish, insulating	5			25,000
Washers, floor polishers and other domestic small motor appliances, etc.	5			137,530
Watches	4			478,292
Watch cases	4			81,079
Weatherstrip—				
Brass	6	Ft.	17,616	792
Bronze	6	Ft.	67,144	2,202
Zinc and other	6			81,380
Welding apparatus, with control equipment and accessories	5	No.	6	18,688
Wire cloth, brass	2	Sq. ft.	1,329,918	685,663
Wire, gold or alloy filled	4			10,150
Wires and cables—				
Copper, bare	5			2,719,014
Copper, insulated	5			7,176,673
Wiring materials and sundries, n.e.s.	5			272,173
Other electrical apparatus and supplies not reported elsewhere	5			1,312,375
Receipts for custom work and repairs	2-4-5-6			1,595,343
*Products of 1 or 2 firms				7,876,004
All other products				4,521,062
Total				**93,223,373**

*Products of 1 or 2 firms includes all telephone materials, spark plugs, traction and hoisting engines, railway goods, baking and enamelling ovens, motor generator sets, carbon and other products

KEY TO THE NUMBERED INDUSTRIES.

1.—Aluminium and Aluminium Ware.
2.—Brass and Copper Products.
3.—Lead, Tin and Zinc Products.
4.—Precious Metals Products.
5.—Electrical Apparatus and Supplies.
6.—Miscellaneous Non-Ferrous Metal Products.

Table 21.—Index Numbers of Prices for Non-Ferrous Metal Products 1914 and 1920-1924

(Average of 1913 Prices=100)

	Commodity	1914	1920	1921	1922	1923	1924
1	Aluminium	77·7	138·3	108·4	81·6	96·3	103·0
2	Antimony	113·3	112·7	69·5	72·2	99·6	127·9
3	Brass sheets, 4' x 2', 14-20 gauge	162·5	220·8	175·8	147·5	129·2	119·3
	Copper and Its Products	86·8	142·3	103·5	101·1	108·8	98·9
4	Electrolytic copper, American	86·0	137·4	103·9	102·0	108·3	97·4
5	Copper sheet, base	87·5	133·1	96·1	94·6	104·0	92·0
6	Electrolytic copper wire bars, imported	85·8	121·7	82·5	87·7	94·0	85·0
7	Solid bare copper wire	87·8	154·3	106·5	102·6	111·7	104·5
	Lead and Its Products	98·0	196·1	130·0	139·4	159·7	179·3
8	Lead, domestic	95·9	190·0	122·9	133·2	153·2	173·1
9	Lead pipe	116·2	248·7	191·0	192·8	216·1	233·0
	Nickel Ingots	100·0	92·1	78·9	78·9	65·8	65·8
10	Nickel ingots, 96-98 per cent	100·0	92·1	78·9	78·9	65·8	65·8
	Silver	94·7	175·9	106·4	114·1	109·5	111·9
11	Silver, fine	94·7	175·9	106·4	114·1	109·5	111·9
	Tin Ingots	81·6	130·5	81·1	78·1	102·1	114·6
12	Tin ingots, Straits	81·6	130·5	81·1	78·1	102·1	114·6
	Zinc and Its Products	93·2	176·8	120·7	128·2	145·5	139·0
13	Spelter, American	91·4	175·0	117·7	127·6	144·8	138·2
14	Zinc, sheets	113·9	196·5	154·0	135·4	153·4	149·0
	Solder	82·6	133·3	82·4	81·8	102·0	114·4
15	Solder, 50-50	82·6	133·3	82·4	81·8	102·0	114·4
	Index Number of Non-Ferrous Metals and Their Products	**86·2**	**137·7**	**98·6**	**98·9**	**96·8**	**96·3**

CHAPTER TWO

ALUMINIUM AND ALUMINIUM WARE

The aluminium industry in Canada dates from 1903 when the first plant was established at Shawinigan Falls, Quebec, for the commercial 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 favour as a material for kitchen utensils and in this connection it has had an increasing popularity. Aluminium can be forged, rolled or drawn into tubes and fine wire. It can be welded by means of the oxyacetylene torch together with a suitable flux, and large quantities of brewing vessels, stills, condenser coils, etc., are made by bending it into shape and welding the joints. Large quantities of aluminium wire are now used instead of copper in the construction of cables and long distance transmission lines. In the form of castings, aluminium is used for many purposes where strength and lightness are required, as in motorcar construction, aeroplane parts etc., but for such purposes, alloys containing small proportions of copper, zinc, nickel or magnesium are more generally used. Aluminium also finds extensive use in the rubber industry, in the preparation of pigments and dyes, in the paint industry, in the manufacture of explosives, and is replacing zinc as a precipitant of precious metals from their cyanide solutions.

Aluminium is extracted from its ores by the electrolysis of a solution of alumina in a bath of molten fluoride. The resulting metal is cast into ingots which are remelted in the various fabricating plants, and moulded into slabs which are then rolled into plates; these form the raw material of the kitchen utensil trade.

Of the 11 factories producing aluminium and aluminium ware in Canada during 1924, ten were situated in Ontario and 1 in Quebec, the latter plant being the only one smelting bauxite ores for the production of ingots and bars. Maufacture of kitchen utensils and other fabricated wares, was carried on by the factories located in Ontario. The same plants were in operation in 1923.

Table 22.—Summary Statistics of the Aluminium Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries	Wages	Cost of *fuel and electricity	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$	$	$
1920	8	8,579,197	1,120	332,715	1,180,670	80,675	3,164,751	9,445,614	6,280,863
1921	8	8,131,088	481	182,787	426,383	58,530	1,704,432	3,633,616	1,929,184
1922	9	7,632,722	707	175,602	642,262	51,663	1,997,488	3,851,025	1,854,437
1923	11	8,991,806	1,007	195,705	1,000,582	542,350	3,162,516	7,017,830	3,855,314
1924	11	8,936,025	1,098	206,848	1,155,926	294,024	3,451,110	7,700,822	4,249,712

*Electricity not included in 1920, 1921 and 1922.

Capital employed.—Capital employed in the aluminium industry totalled $8,936,025 of which $5,500,633 was invested in lands, buildings and plant equipment, $1,975,881 in materials on hand and stocks in process, and the remainder in cash and open accounts. Lands, plant and equipment increased in value by nearly half a million dollars over 1923, as did also the value of materials on hand, but the value of open accounts declined a million dollars thus bringing the total capital to about the same sum as in the preceding year.

Table 23.—Capital employed in the Aluminium Industry in Canada by Classes, 1923 and 1924

	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating account	Total	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating account	Total
	$	$	$	$	$	$	$	$
Canada*	5,026,031	1,466,247	2,502,528	8,994,806	5,500,633	1,975,881	1,459,511	8,936,025

* Includes figures for 10 firms in Ontario and 1 in Quebec.

Employment.—As reflected by employment records, the aluminium industry showed greater activity in 1924, there being an average of 994 wage-earners on the roll during the year as compared with 901 in 1923. Gradual improvement characterized the industry throughout 1924. The number on the payroll in January was 936; this advanced gradually to 962 in March, jumped to 1,031 in the following month, and then fell to 1,002 in May at which point it remained constant until October when it rose to 1,026; at the close of the year the number on the roll stood at 1,022. Wages paid amounted to $1,155,926 while 104 salaried employees earned $206,848 making a total distribution of $1,362,774 for wages and salaries.

Table 24.—Employment, Salaries and Wages Paid in the Aluminium Industry in Canada, 1923 and 1924

	1923			1924		
	Male	Female	Total	Male	Female	Total
(a) Number of employees:						
Salaried employees	82	24	106	79	25	104
Wage-earners, by months—						
January	729	55	784	868	68	936
February	774	61	835	874	71	945
March	797	58	855	886	76	962
April	762	56	818	956	75	1,031
May	841	64	905	927	75	1,002
June	846	58	904	925	73	998
July	897	57	954	925	73	998
August	861	54	915	920	75	995
September	853	55	908	918	79	997
October	870	81	951	936	90	1,026
November	932	83	1,015	925	83	1,008
December	889	70	959	939	83	1,022
Average	838	63	901	917	77	994
Total employees	920	87	1,007	996	102	1,098
(b) Salaries and wages—						
Salaries $			195,705			206,848
Wages $			1,000,582			1,155,926
Total $			1,196,287			1,362,774
(c) Average yearly earnings of each wage-earner $			1,111			1,163
(d) Average number of days on which plants in this industry operated during the year			261			255
(e) Labour Turnover:						
Total number of different wage-earners employed during the year						1,911
Average number of wage-earners employed within the year			901			994
Difference						917
Apparent labour turnover (percent))						91

Table 25.—Fuel and Electricity Used in the Aluminium Industry in Canada, 1923 and 1924

Kind	Unit of measure	1923		1924	
		Quantity	Value	Quantity	Value
		No.	$	No.	$
Anthracite coal	Short ton	21	342	20	312
Bituminous coal	"	7,099	63,644	6,319	44,626
Coke	"	123	1,626	111	757
Fuel oil	Gallon	42,867	4,317	30,521	3,155
Gasoline	"	1,344	633	1,081	443
Gas	M. cu. ft.	883	966	2,731	3,418
Wood	Cord	15	117	.....	.....
Other fuel	.....	.....	.....	.....	400
Electric power	K.W.H.	288,503,191	470,705	118,210,788	240,913
Total	.....	.....	542,350	.....	294,024

Table 26.—Power Employed in the Aluminium Industry in Canada, 1923 and 1924

Description	1923		1924	
	Number of units	Total h.p. according to manufacturers' rating	Number of units	Total h.p. according to manufacturers' rating
Boilers	4	500	4	525
Engines—				
(a) Steam engines and turbines	2	65	1	10
Hydraulic turbines and water wheels	11	52,325	11	52,325
Electric motors—				
(a) Operated by purchased power	67	1,550	165	3,617
(b) Operated by power generated by the establishment	85	1,366	.....	.....

Materials used.—Bauxite ores, carbon electrodes, aluminium sheets and partly fabricated aluminium were the more important of the materials used in the industry. The total cost of materials delivered at the works amounted to $3,454,116, as compared with a total of $3,192,546 in 1923.

Products.—Including aluminium pig, aluminium ingot, kitchen utensils and all fabricated products, the total production of aluminium in Canada amounted in value to $7,700,822. As materials cost $3,454,116, the difference between this figure and the sales value of the products just mentioned, amounted to $4,246,706; this represented the value added by manufacturing processes. As only 1 company produced aluminium metal from its ores, but little data can be given without revealing that company's activities. For this reason tables showing details of materials used and products made, are omitted.

The following information pertaining to aluminium has been extracted from the Bureau's *Annual Report on the Mineral Production of Canada, 1924*.

Aluminium.—Imports of alumina into Canada totalled $2,375,346, in value while imports of aluminium ingots, blooms, bars and manufactured articles brought the total value of the imports in 1924 to $3,609,486. Exports of aluminium in the form of ingots, bars, etc. were valued at $3,990,857 while manufactured aluminium commodities exported were valued at only $767,430.

Table 27.—Imports of Alumina and Aluminium into Canada and Exports of Aluminium during 1922, 1923 and 1924

	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$
IMPORTS—						
Alumina	42,617,700	938,181	131,773,700	2,190,091	128,695,000	2,375,346
Aluminium—						
Ingots, blooms, bars	1,199,718	251,435	756,981	194,357	653,656	183,110
Tubing	34,157	16,594	73,103	30,770	47,247	27,064
Manufactures	.....	315,317	.....	468,518	.....	485,037
Lead foil	.....	215,944	.....	151,023	.....	135,316
Household and hollow-ware	.....	544,784	.....	544,046	.....	403,613
Total	.....	**2,282,255**	.....	**3,578,895**	.....	**3,609,486**
EXPORTS—						
Aluminium—						
Ingots, bars, etc	9,614,200	1,637,147	17,585,400	3,380,198	18,146,700	3,990,857
Manufactures	.....	451,587	.....	797,635	.....	767,430
Total	.....	**2,088,734**	.....	**4,177,833**	.....	**4,758,287**

The price of ingot aluminium on the New York market averaged 28·17 cents per pound for 1924, as against an average of 25·98 cents per pound in the previous year.

Table 28.—Monthly Average Prices of Ingot Aluminium, 1922, 1923 and 1924

(At New York in cents per pound)

Month	1922	1923	1924
January	17·74	23·00	28·00
February	17·33	23·37	28·00
March	17·52	25·12	28·00
April	18·07	27·00	28·50
May	17·92	27·00	28·50
June	17·87	27·00	28·50
July	17·87	26·50	28·50
August	17·87	26·50	28·00
September	18·26	26·30	28·00
October	20·32	26·50	28·00
November	20·87	26·50	28·00
December	22·52	27·00	28·00
Average	**18·68**	**25·98**	**28·17**

Table 29.—World's Production of Aluminium, 1913, 1920-1924

(From "*The Mineral Industry*, 1924")

(Short tons)

Country	1913	1920	1921	1922	1923	1924
Austria	5,510	2,204	2,204	4,408	4,408	3,306
Canada	6,519	11,020	6,612	9,918	18,183	17,632
France	14,880	13,224	11,020	13,224	13,224	20,387
Germany	882	11,020	11,020	13,224	14,326	14,326
Great Britain	11,020	8,816	5,510	10,469	9,918	7,714
Italy	963	1,364	820	694	1,653	2,204
Norway	2,755	5,510	4,408	6,612	15,428	24,241
Switzerland	11,020	13,224	11,020	13,224	13,224	20,938
United States	32,509	99,180	31,683	57,304	106,894	93,670
Total	**86,058**	**165,562**	**84,297**	**129,077**	**197,258**	**204,421**

CHAPTER THREE

BRASS AND COPPER PRODUCTS

Copper and its alloys, brass and bronze, are of great industrial importance. Copper, itself, in an unalloyed condition, has a wide field of usefulness because of its strength, ductility, and high conductivity for heat and electricity. Pure copper has a wide application in the electrical industry; and for engineering purposes, it is rolled or drawn into sheets, tubes, bars and wires which are put to multitudinous uses. There is no method of hardening copper, save by working the metal or by alloying it with another element. Its alloys, especially those with zinc (brasses) and those with tin (bronzes), are of great importance and have numerous uses for engineering and other purposes. Ordinary brass contains about two parts of copper to one of zinc and the usefulness for certain purposes is often improved by the addition of small proportions of other metals such as lead, tin, manganese, aluminium or nickel. Bronze is an alloy of copper containing ten per cent or more of tin, and may be improved, also, for certain purposes, by the addition of phosphorus or aluminium. These alloys find extensive use as bearing metals, machine parts and fittings, water and steam fittings, electrical fixtures, ornamental work, and in the form of tubes, plates and sheets meet a variety of industrial uses.

The brass and copper products industry in Canada in 1924 covered the operations of 81 establishments. These factories were engaged mainly in the rolling and casting of copper and brass, and in the fabrication of brass and copper materials. The industry was represented by 54 plants in Ontario, 16 in Quebec, 6 in British Columbia, 2 in Manitoba, and 1 in each of the provinces of Nova Scotia, New Brunswick, and Alberta. In the previous year, 1923, the same number of firms reported, but 1 in Ontario did not operate during 1924, while 1 in Quebec renewed operations.

Table 30.—Summary Statistics of the Brass and Copper Products Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries	Wages	Cost of *fuel and electricity	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$	$	$
1920	79	19,514,502	4,461	1,103,793	4,329,502	2,162,206	9,896,407	19,516,187	9,629,780
1921	81	18,122,034	3,134	1,237,272	2,606,783	1,756,669	4,184,674	10,477,206	6,292,532
1922	83	17,608,876	3,457	1,225,484	2,854,341	1,148,641	5,106,224	12,253,691	7,147,467
1923	81	20,322,808	4,097	1,307,027	3,466,501	2,153,809	7,548,898	16,793,595	9,244,697
1924	81	18,594,443	3,747	1,212,077	3,392,216	453,764	7,880,367	15,487,826	7,598,459

*Electricity not included in 1920, 1921 and 1922.

Capital employed.—Capital invested in plant and equipment in 1924 rose to $8,528,305 or nearly a million dollars above the figure for 1923; the item of materials on hand and in process, at $4,702,560 was slightly above the previous year; but the value of open accounts as represented by cash, trading and operating accounts declined by nearly 3 million dollars to $5,363,578. The total capital employed was reported at $18,594,443 which was 8 per cent less than in 1923.

Table 31.—Capital Employed in the Brass and Copper Products Industry in Canada, by Classes and by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating accounts	Total	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading, and operating accounts	Total
	$	$	$	$	$	$	$	$
Quebec	2,309,215	1,023,842	2,419,758	5,752,815	2,476,942	1,084,979	2,163,545	5,725,466
Ontario	4,831,873	3,279,567	4,521,880	12,633,320	5,304,410	3,273,286	2,348,371	10,926,067
Manitoba	146,237	80,291	444,383	670,911	.....	.....	.....	.....
British Columbia	47,845	7,498	33,992	89,335	55,940	27,707	8,032	91,679
Canada*	**7,719,091**	**4,589,933**	**8,013,784**	**20,322,808**	**8,528,305**	**4,702,560**	**5,363,578**	**18,594,443**

* Includes figures for 1 firm in Nova Scotia, 1 in New Brunswick, 2 in Manitoba, and 1 in Alberta.

Employment.—Monthly employment figures for the brass and copper industry indicated slightly less activity during 1924; in that year there were only 3,747 persons employed as against 4,097 in 1923. Eash year the industry shows a slight seasonal trend. As indicated by the number of wage-earners on the roll there was a steady growth for the first five months of the year, and then a gradual decline for the remainder of the year. In 1924, there were 2,954 wage-earners on the roll in January; by May the number had risen to 3,353, then the fall was steady to 2,847 at the end of the year. The average for the year stood at 3,103, which together with the 644 salaried employees, brought the total to 3,747. Wages and salaries amounted to $4,604,293.

Table 32.—Employment, Salaries and Wages Paid in the Brass and Copper Products Industry in Canada, 1923 and 1924

	1923			1924		
	Male	Female	Total	Male	Female	Total
(a) Number of employees:						
Salaried employees	583	129	712	519	125	644
Wage-earners, by months:						
January	2,769	300	3,069	2,646	308	2,954
February	2,891	328	3,219	2,766	315	3,081
March	3,132	342	3,474	2,896	337	3,233
April	3,275	349	3,624	2,928	355	3,283
May	3,263	361	3,624	2,992	361	3,353
June	3,245	377	3,622	2,936	361	3,297
July	3,106	359	3,465	2,862	367	3,229
August	3,030	355	3,385	2,759	375	3,134
September	3,055	356	3,411	2,656	352	3,008
October	2,998	336	3,334	2,604	334	2,938
November	2,903	326	3,229	2,571	316	2,887
December	2,785	328	3,113	2,543	304	2,847
Average	3,043	342	3,385	2,761	342	3,103
Total employees	**3,626**	**471**	**4,097**	**3,280**	**467**	**3,747**
(b) Salaries and wages:						
Salaries $			1,307,027			1,212,077
Wages $			3,466,501			3,392,216
Total $			4,773,528			4,604,293
(c) Average yearly earnings of each wage-earner $			1,024			1,093
(d) Average number of days on which plants in this industry operated during the year			285			283
(e) Labour turnover:						
Total number of different wage-earners employed during the year						7,777
Average number of wage-earners employed within the year			3,385			3,103
Difference						4,674
Apparent labour turnover (per cent)						151

Table 33.—Fuel and Electricity Used in the Brass and Copper Products Industry in Canada, 1923 and 1924

Kind	Unit of measure	1923		1924	
		Quantity	Value	Quantity	Value
		No.	$	No.	$
Anthracite coal	Short ton	2,912	31,382	3,913	41,050
Bituminous coal	"	13,224	92,432	11,756	63,241
Lignite coal	"	306	2,551	336	2,083
Coke	"	6,151	83,539	3,367	39,958
Fuel oil	Gallon	1,597,061	164,024	1,445,461	140,074
Gasoline	"	7,456	2,047	2,856	1,063
Gas	M. cu. ft.	16,515	12,944	8,423	10,908
Wood	Cord	363	2,509	349	2,305
Other fuel			492		1,627
Electric power	K.W.H.		144,869	9,053,612	149,455
Total			**536,789**		**453,764**

Table 34.—Power Employed in the Brass and Copper Products Industry in Canada, 1923 and 1924

Description	1923		1924	
	Number of units	Total h.p. according to manufacturers' rating	Number of units	Total h.p. according to manufacturers' rating
Boilers	26	2,385	37	2,851
Engines—				
(a) Steam engines and turbines	7	1,155	7	1,188
(b) Gas	1	125	1	125
Hydraulic turbines or water wheels	2	27	1	25
Electric motors—				
(a) Operated by purchased power	22	316	537	12,911
(b) Operated by power generated by the establishment	500	10,722	32	568

Materials used.—Firms manufacturing brass and copper products used 14 million pounds of ingots and bars, 13 million pounds of rods, 10·5 million pounds of scrap, 6·7 million pounds of castings, and 1·7 million pounds of plates and sheets of brass, bronze, copper and other metals. These items, together with tubing and wire of the same metals, iron and steel in its different forms, and various manufactured articles used, reached a total cost of $7,889,367 as compared with $7,548,898 in 1923.

Table 35.—Materials Used in the Brass and Copper Products Industry in Canada, 1923 and 1924

Materials used	Unit of measure	1923		1924	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
*Castings—					
Brass	lb.	.....	.....	75,547	
Bronze	lb.	.....	.....	145,649	906,841
Copper	lb.	.....	.....	4,431,538	
Other	lb.	.....	.....	2,112,845	
Ingots and Bars—					
Brass	lb.	5,324,630		2,525,991	
Bronze	lb.	9,535,809	5,065,718	7,334,464	1,984,274
Copper	lb.	13,590,206		1,746,328	
Other	lb.	5,244,574		2,898,281	
Plates and Sheets—					
Brass	lb.	432,014		793,897	
Bronze	lb.	31,005	262,898	24,498	353,793
Copper	lb.	345,909		758,950	
Other	lb.	141,839		183,868	
Rods—					
Brass	lb.	859,002		1,339,512	
Bronze	lb.	2,845	353,889	13,510	1,823,089
Copper	lb.	551,059		11,517,197	
Other	lb.	332,735		129,052	
Scrap—					
Brass	lb.	1,680,897		6,082,253	
Bronze	lb.	166,494	347,869	372,787	1,239,054
Copper	lb.	670,536		3,666,436	
Other	lb.	88,845		473,365	
Tubing—					
Brass	lb.	470,876		597,032	
Bronze	lb.	239	160,732	354	215,605
Copper	lb.	95,537		168,365	
Other	lb.	7,594		10,172	
Wire—					
Brass	lb.	407,363		382,205	
Bronze	lb.	136,076	351,100	138,584	265,440
Copper	lb.	268,190		273,998	
Other	lb.	.....		7,126	
Iron and Steel—					
Pig iron	lb.	2,227,914	36,059	2,311,680	31,482
Scrap	lb.	4,210,566	65,293	2,683,521	36,129
Iron castings	lb.	423,743	37,906	492,597	36,421
Steel castings	lb.	38,745	4,010	134,139	6,228
Sheets and plates	lb.	252,329	32,516	238,180	20,051
Other forms	lb.	182,143	20,423	.....	132,806

Table 35.—Materials Used in the Brass and Copper Products Industry in Canada, 1923 and 1924—Concluded

Materials used	Unit of measure	1923		1924	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Manufactured Articles—					
Bolts, nuts and rivets			12,119		22,531
Screws			9,059		
Machines or parts			7,170		
Switches and plugs			20,333		
Foundry facings	lb.		57,974	113,375	4,598
Paints, varnishes and lacquers			8,665		
Plating and polishing supplies			60,917		44,929
Leather	lb.		3,570		
Rubber			20,269		
Other manufactured articles			278,515		203,014
Lumber	Ft. b. m.	524,491	38,791	437,000	35,508
Moulding and other sands	lb.	4,129,988	10,781	4,909,851	13,587
All other materials			282,292		513,987
Total			**7,548,898**		**7,889,367**

*Not separately itemized in 1923.

Products.—Production in the brass and copper industry in 1924 declined in value to $15,487,826 or 8 per cent below the output value of 1923. Castings and machinery fittings dropped half a million dollars in value, and water and steam fittings of brass declined by nearly a million dollars. The outputs of brass tubing, brass, bronze and copper rods, brass and copper sheets, and of copper castings and machinery fittings were above the corresponding productions in 1923. Builders' hardware, electric fixtures and wire cloth were also products of importance in this industry.

Table 36.—Products of the Brass and Copper Products Industry in Canada, 1923 and 1924

Product	Unit of measure	1923		1924	
		Quantity	Selling value	Quantity	Selling value
			$		$
Ingots and Bars—					
Brass	lb.	2,050		1,670	
Bronze	lb.	800	110,566		15,133
Copper	lb.	491,590			
Other	lb.	18,071		62,841	
Plates and Sheets—					
Brass	lb.	4,210,528		4,414,214	
Bronze	lb.	318,383	1,903,142	313,987	1,837,432
Copper	lb.	2,242,857		2,415,389	
Other	lb.	449,115		743,215	
Rods—					
Brass	lb.	2,732,697		2,914,514	
Bronze	lb.	107,633	1,895,461	117,642	2,026,078
Copper	lb.	8,138,150		10,225,522	
Other	lb.	193,820		65,358	
Tubing, Seamless or Brazed—					
Brass	lb.	39,500	30,097	178,591	41,520
Copper	lb.	27,419		2,144	
Wire—					
Brass	lb.	1,320			
Copper	lb.	23,050	27,810		
Other	lb.	74,343			
Castings and Machinery Fittings—					
Brass	lb.	1,312,223		944,158	
Bronze	lb.	15,468,035	4,369,169	11,897,857	3,707,929
Copper	lb.	236,542		1,083,141	
Mixed	lb.	873,165		216,473	
Aluminium ware			345		
Babbitt metal, etc			26,259		
Bells and gongs			37,926		42,046
Brass and copper hollow-ware and spinnings			503,984		164,944
Brass, Water and Steam Fittings—					
Bushings			334,778		55,274
Taps			334,883	84,200	41,550
Valves and cocks	No.		746,698	381,578	758,932
Other fittings and parts			2,213,626		1,588,379

Table 36.—Products of the Brass and Copper Products Industry in Canada, 1923 and 1924—Concluded

Product	Unit of measure	1923		1924	
		Quantity	Selling value	Quantity	Selling value
			$		$
Builders' hardware			110,593		306,169
Electric fixtures			361,781		421,515
Iron wire work			28,626		
Lightning rods and supplies			151,675		97,627
Machinery and parts			387,635		144,935
Tanks			187,309		33,810
Wire cloth	sq. ft.	1,373,907	747,642	1,329,918	685,663
Brass and copper products, n.e.s.			6,310		
Amount received for custom and repair work			223,963		295,868
*All other products including products of 1 or 2 firms			2,053,326		3,223,022
Total			**16,793,595**		**15,487,826**

* Includes plain brass wire, railway goods, vacuum cleaners, iron valves, architectural iron work, auto accessories, wrought iron pipe, distilling apparatus, fire extinguishers, brewery supplies, fire department supplies, brass and copper pipe, stove parts and radiators, and various other products.

The following information has been abstracted from the "*Annual Report on the Mineral Production of Canada, 1924*", issued by the Dominion Bureau of Statistics.

Copper.—Production of copper from Canadian ores (either in Canadian or foreign smelters) during 1924 amounted to 104,457,447 pounds which at the average New York price of 13·024 cents per pound amounted in value to $13,604,538 as against 86,881,537 pounds valued at $12,529,186 or an average price of 14·421 cents per pound in the preceding year. The increase amounted to 20·2 per cent in quantity and 8·5 per cent in total value.

Table 37.—Production of Copper from Canadian Ores, by Provinces, 1923 and 1924

Province	1923			1924		
	Pounds	Value	Per cent	Pounds	Value	Per cent
		$			$	
Quebec				1,893,008	246,546	1·8
Ontario	31,656,800	4,565,227	36·5	37,113,193	4,833,622	35·5
British Columbia	55,224,737	7,963,959	63·5	65,451,246	8,524,370	62·7
Canada	**86,881,537**	**12,529,186**	**100·0**	**104,457,447**	**13,604,538**	**100·0**

Imports into Canada of copper in its various forms declined nearly 25 per cent in value to $6,338,078 in 1924 from $8,327,919 in the preceding year. Slight declines were general in all imported articles but the drop was particularly noticeable in copper in the form of bars or rods imported for use only in the manufacture of electric cables, trolleys, etc.; in 1924 only 14,250,000 pounds of copper for this purpose were imported as compared with 27,493,200 pounds in 1923.

Exports of copper in the same time rose in value to $12,598,884 from $10,104,714 in 1923.

Table 38.—Imports into Canada and Exports of Copper, 1923 and 1924

—	1923		1924	
	Pounds	Value	Pounds	Value
		$		$
Imports—				
Copper, in bars or rods, when imported by manufacturers of trolley, telegraph and telephone wires, electric wires and electric cables, for use only in the manufacture of such articles in their own factories	27,493,200	4,354,715	14,250,000	1,982,922
Copper in bars or rods, in coil or otherwise, in lengths of not less than 6 feet, unmanufactured	1,463,800	284,484	757,000	143,322
Copper in blocks, pigs or ingots	8,167,041	1,215,349	12,083,131	1,591,958
Copper, old and scrap	3,046,400	432,362	1,896,200	246,632
Copper ore and concentrates	500	259	.....	.....
Copper in strips, sheets or plates, not polished, planished or coated	2,389,300	551,166	1,861,900	380,431
Copper tubing in lengths of not less than 6 feet, and not polished, bent or otherwise manufactured	1,539,791	415,133	1,509,734	354,741
Copper wire, plain, tinned or plated	213,174	55,478	242,870	71,899
Copper wire cloth, or woven wire of copper	.....	19,858	.....	7,462
Copper wire, single or several, covered with cotton, linen, silk, rubber or other material, including cable so covered	.....	390,566	.....	296,221
Copper, all other manufactures of, n.o.p.	.....	429,327	.....	420,611
Anodes of nickel, zinc, copper, silver or gold	.....	1,504	.....	5,288
Copper, sub-acetate of, or verdigris, dry	3,782	860	683	201
Copper, sulphate of (blue vitriol)	3,374,871	176,858	2,866,760	142,994
Copper bars for use in the manufacture of rods to be used in the manufacture of electrical conductors, and copper rods for such manufacture, units not exceeding the area of 7/0 gauge conductor	.....	.....	5,114,600	682,369
Copper, sulphate, of, dehydrated, for agricultural or spraying purposes	.....	.....	243,088	11,027
Total	.....	**8,327,919**	.....	**6,338,078**
Exports—				
Copper, fine, contained in ore, matte, regulus, etc.	34,548,000	3,607,031	49,545,800	5,346,489
Copper, blister	39,968,000	5,556,698	47,935,700	6,008,409
Copper, old and scrap	1,575,000	187,302	2,198,100	226,993
Copper, pig	.....	.....	2,405,800	284,780
Copper in bars, rods, strips, sheets, plates and tubing	826,000	104,028	170,400	39,500
Copper wire and cable	.....	387,359	.....	636,597
Copper mfrs., n.o.p.	.....	262,296	.....	56,116
Total	.....	**10,104,714**	.....	**12,598,884**

According to the New York *Engineering and Mining Journal-Press*, the average price of copper for 1924 was 13·024 cents per pound as against 14·421 cents per pound in 1923.

Table 39.—Monthly Average Prices of Copper, New York and London, 1923 and 1924

(From the *Engineering and Mining Journal-Press*.)

Month	Electrolytic Copper			
	New York in cents per pounds		London, £ Sterling per ton of 2,240 pounds	
	1923	1924	1923	1924
January	14·510	12·401	71·409	67·193
February	15·355	12·708	74·500	68·167
March	16·832	13·515	81·464	72·087
April	16·663	13·206	81·331	70·150
May	15·440	12·772	76·568	67·648
June	14·663	12·327	73·238	66·313
July	14·321	12·390	72·364	65·815
August	13·822	13·221	70·000	67·800
September	13·323	12·917	68·275	67·125
October	12·574	12·933	64·250	66·620
November	12·727	13·635	66·477	68·063
December	12·823	14·260	67·611	69·762
Average	**14·421**	**13·024**	**72·291**	**68·062**

Brass.—Imports of brass and brass products into Canada in 1924 were valued at $3,643,166 as compared with $4,437,138 in 1923.

Exports of brass consisted largely of scrap which amounted in value to $429,704 in 1924. Brass valves worth $177,883 and other products brought the total value of exports for the year to $663,558 as compared with $803,725 in the preceding year.

Table 40.—Imports into Canada and Exports of Brass andBrass Products, 1923 and 1924

	1923		1924	
	Pounds	Value	Pounds	Value
		$		$
IMPORTS				
Brass and Brass Products—				
Brass, in blocks, pigs and ingots (30% Zn.)	125,500	17,418	343,200	38,291
Brass, old and scrap (30% Zn.)	1,724,600	177,198	3,002,400	272,307
Brass, tubing (30% Zn.)	1,714,819	474,279	1,699,613	396,074
Brass, plain wire (30% Zn.)	495,444	132,635	424,525	99,332
Brass, bars and rods	1,260,700	235,003	727,800	115,231
Brass, strips, sheets or plates	1,588,100	330,014	815,100	162,493
Brass, wire cloth, n.o.p.	.....	246,126	.....	154,796
Brass, cup for manufacture of shells	.....	125,417	.....	119,993
Brass, cups for electric batteries	.....	5,097	.....	12,870
Brass, hand-pumps	.....	21,394	.....	16,970
Brass, nails, tacks, etc.	.....	2,248	.....	3,467
Brass and copper rivets, burrs and washers	.....	24,203	.....	26,634
Brass, valves	.....	226,485	.....	159,187
Brass, other manufactures, n.o.p.	.....	2,075,433	.....	1,828,039
Carburetors of brass	.....	344,188	.....	237,482
Total	.....	**4,437,138**	.....	**3,643,166**
EXPORTS				
Brass—				
Old and scrap	6,760,100	563,730	6,000,200	429,704
Rods, sheets and tubing	1,000	302	5,800	1,134
Valves	.....	190,060	.....	177,883
Mfrs. of brass, n.o.p.	.....	49,633	.....	54,837
Total	.....	**803,725**	.....	**663,558**

CHAPTER FOUR

LEAD, TIN AND ZINC PRODUCTS

Lead, tin and zinc products manufactured in Canada include babbitt metal, brass, bronze and aluminium castings, lead bar and pipe, solders, type metals, and refined non-ferrous metals such as lead, zinc, tin etc., produced from scrap metal.

Babbitt metal is a copper-tin-antimony alloy and is used estensively for bearings in all classes of machinery. Bearing metals consist of a hard and a soft constituent, the function of the former being to resist wear and to provide a surface with a low co-efficient of friction, and that of the latter to allow of a uniform distribution of the load and so prevent local heating and seizing. The metals most frequently employed in alloys for this purpose are tin, copper, lead and antimony.

Tin-lead alloys are greatly used for solders. Plumber's solder contains about two parts of lead to one of tin; it has a range of solidification or pasty stage of about 70° C which allows the plumber to make his well-known wiped joint. Solders of other compositions are also used extensively.

For type metal the alloy must be easily fusible, homogeneous when cast, hard enough to resist the pressure of printing, but soft enough to be easily cut with a graver, and it should expand on solidifying so as to take up the finest designs of the mold. These conditions are best fulfilled by the lead-antimony alloys. Plates for engraving are made from similar mixtures.

In Canada, there were 20 firms manufacturing white metal alloys as a major product during 1924. These plants were distributed as follows: 8 in Ontario; 6 in Quebec; 3 in British Columbia; 2 in Manitoba and 1 in New Brunswick. The same 20 plants operated in 1923 but production in that year was lower by nearly 30 per cent.

Table 41.—Summary Statistics of the Lead, Tin and Zinc Products Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries	Wages	Cost of fuel and *electricity	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$	$	$
1920	18	3,337,039	506	266,158	385,302	66,596	2,901,174	4,574,165	1,672,991
1921	19	3,180,149	501	181,699	304,195	33,937	1,651,642	2,886,415	1,241,773
1922	19	3,213,867	534	200,765	467,737	46,157	2,048,431	3,118,445	1,070,014
1923	20	1,749,383	193	115,946	130,582	24,277	1,556,716	2,181,270	624,554
1924	20	3,229,833	480	202,422	355,054	78,214	2,277,414	3,353,910	1,076,496

*Electricity not included in 1920, 1921 and 1922.

Capital employed.—Capital employed in the white metal industry in 1924 was nearly double that of the previous year and amounted to $3,229,833. The investment in plant and equipment rose to $1,223,431 from $631,648 in 1923; materials on hand and in process increased in value to $912,174 from $520,278; and the cash and trading accounts rose to $1,094,228 from $615,457 in the previous year. Ontario plants accounted for about two-thirds of the total capital employed in the industry.

Table 42.—Capital Employed in the Lead, Tin and Zinc Products Industry in Canada, by Classes and by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, fixtures, machinery and tools	Materials on hand and stocks in process	Cash, trading and operating account	Total	Lands, buildings, fixtures, machinery and tools	Materials on hand and stocks in process	Cash, trading and operating account	Total
	$	$	$	$	$	$	$	$
Quebec	112,056	56,059	77,139	245,254	243,735	169,301	147,037	560,073
Ontario	401,270	352,701	443,766	1,197,737	876,098	598,706	812,344	2,287,148
British Columbia	42,878	48,321	51,091	142,290	27,098	52,973	65,242	145,313
Canada*	**631,648**	**502,278**	**615,457**	**1,749,383**	**1,223,431**	**912,174**	**1,094,228**	**3,229,833**

*Includes figures for 1 firm in New Brunswick and 2 in Manitoba.

Employment.—The general recovery of the white metal industry from the slump of 1923 was reflected in the employment records. Salaried employees numbered 117 in 1924 as compared with 64 in the previous year, and the number of wage-earners was almost trebled at 363 as against 129 in 1923. Expenditures for salaries increased to $202,422 from $115,946, and wages rose to $355,054 from $130,582 in 1923.

Monthly figures indicated that employment in this industry was very steady throughout the year, there being but little difference between the maximum of 370 in October and the minimum of 342 reached in the preceding month.

Table 43.—Employment, Salaries and Wages Paid in the Lead, Tin, and Zinc Products Industry in Canada, 1923 and 1924

	1923			1924		
	Male	Female	Total	Male	Female	Total
(a) Number of employees:						
Salaried employees	45	19	64	76	41	117
Wage-earners, by months—						
January	111	10	121	345	23	368
February	110	11	121	352	24	376
March	120	12	132	339	25	364
April	126	12	138	344	24	368
May	120	11	131	341	22	363
June	123	11	134	334	21	355
July	124	12	136	343	22	365
August	120	12	132	343	23	366
September	111	12	123	319	23	342
October	114	13	127	346	24	370
November	112	11	123	332	25	357
December	109	12	121	338	25	363
Average	117	12	129	340	23	363
Total employees	**162**	**31**	**193**	**416**	**64**	**480**
(b) Salaries and wages—						
Salaries $			115,946			202,422
Wages $			130,582			355,054
Total $			**246,528**			**557,476**
(c) Average yearly earnings of each wage earner $			1,612			978
(d) Average number of days on which plants in this industry operated during the year			288			266
(e) Labour turnover:—						
Total number of different wage-earners employed during the year						528
Average number of wage-earners employed within the year			129			363
Difference						165
Apparent labour turnover (per cent)						45

Table 44.—Fuel and Electricity Used in the Lead, Tin and Zinc Products Industry in Canada, 1923 and 1924

Kind	Unit of measure	1923		1924	
		Quantity	Value	Quantity	Value
		No.	$	No.	$
Anthracite coal	Short ton.	49	765	65	1,140
Bituminous coal	"	1,788	14,898	2,057	47,491
Coke	"	189	1,977	176	1,955
Fuel oil	Gallon	5,625	517	93,687	9,608
Gasoline	"	6,300	2,395	20,708	5,302
Gas	M. cu. ft.	8,869	2,010	4,278	3,775
Wood	Cord	2	20	31	233
Other fuel				8	
Electric power	k.w.h.	71,890	1,687	449,598	8,620
Total			**24,277**		**78,214**

Table 45.—Power Employed in the Lead, Tin and Zinc Products Industry in Canada, 1923 and 1924

Description	1923		1924	
	Number of units	Total h.p. according to manufacturers' rating	Number of units	Total h.p. according to manufacturers' rating
Boilers	3	162	4	182
Engines—				
(a) Steam			1	20
(b) Oil and gasoline			1	25
Electric motors—				
(a) Operated by purchased power	39	534	79	525

Materials used.—Materials used in the manufacture of white metal products cost $2,277,414 in 1924 as compared with $1,556,716 in 1923. A general advance was noted in the use of almost every commodity. Over 7 million pounds of pig lead were used as compared with 4 million pounds in 1923; consumption of tin rose half a million pounds; antimony regulus showed an appreciable gain although importations from England and United States for this purpose dropped off a little, and all kinds of scrap metals were used in larger quantities than in the preceding year. There was a noticeable decline in the consumption of lead and tin alloys.

Table 46.—Materials Used in the Lead, Tin and Zinc Products Industry in Canada, 1923 and 1924

Materials used	Unit of measure	1923		1924	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Antimony regulus—					
From England	lb.	126,153	8,982	110,387	9,875
" United States	lb.	178,974	10,106	98,362	8,137
" Other Countries	lb.	40,070	3,238	237,290	19,773
Lead, pig—					
From England	lb.	209,890	12,891	1,681,423	2,580
" United States	lb.	56,000	4,199	1,033,188	89,275
" Canada	lb.	3,703,231	273,476	4,614,845	401,255
Lead and tin alloys	lb.	2,730,042	170,148	931,803	87,976
Phosphorus	lb.	810	324	125	41
Spelter	lb.	87,491	7,464	104,324	8,754
Tin—					
Pig, Straits	lb.	612,971	275,884	1,005,097	534,712
Pig, other brands	lb.	762,699	317,471	866,877	413,729
Block	lb.			5,226	2,006
Other metal, scrap, etc.—					
Alloys of white metal	lb.	53,891	4,416	1,372,698	171,737
Aluminium	lb.	20,263	7,903	182,001	36,501
Brass	lb.	54,655	16,412	375,738	36,183
Copper	lb.	1,157	209	718,209	83,218
Nickel	lb.	74,638	18,660	524,995	47,076
Lead	lb.	2,203,163	166,079	2,194,711	138,449
Zinc	lb.	545,071	28,624	434,786	27,632
Unspecified	lb.	2,217,861	157,474	1,626,126	88,001
Shipping containers, of all kinds			8,252		25,759
All other materials			64,504		44,745
Total			**1,556,716**		**2,277,414**

Products.—Production of white metals and their alloys rose in value to $3,353,910 in 1924, from $2,181,273 in 1923 and marked the highest point attained since the peak year of 1920 when enhanced prices partially accounted for the high value of output. From the standpoint of quantity of production, 1924 was probably the best year on record. Production of lead products of all kinds was more than doubled and reached a total value of $673,000; increased outputs of lead pipe and sheet lead were particularly striking; solders, babbitt metal and refined metals of all kinds also showed substantial increases. The value of the output of type and type metal was higher than in 1923 although quantity production was somewhat lower than was reported in that year.

Table 47.—Products of the Lead, Tin and Zinc Products Industry in Canada, 1923 and 1924

Product	Unit of measure	1923		1924	
		Quantity	Selling value	Quantity	Selling value
			$		$
Babbitt metal	lb.	3,558,324	735,428	3,086,741	869,007
Castings—					
Alloys, white metal	lb.			1,712,245	137,560
Aluminium	lb.	1,595	1,196	47,618	56,623
Brass and bronze	lb.	454,545	81,873	578,495	149,338
Other	lb.	1,408,021	107,908	65,917	29,003
Lead—					
Bars and Ingots	lb.	1,715,867	140,595	1,190,274	114,514
Pipe	lb.	1,277,809	157,045	2,972,613	327,743
Sheet	lb.	60,000	6,600	1,382,000	156,400
Traps and fittings	lb.			500,000	76,500
Solders—					
2 and 1 wiping	lb.	411,762	96,903	441,871	120,921
60-40 joint	lb.	134,318	35,147	323,291	117,078
45-55 strictly	lb.	550,313	149,951	781,056	240,851
50-50 guaranteed	lb.	526,084	149,406	433,579	146,792
Refined metals—					
Aluminium	lb.		29,963	202,754	46,444
Copper	lb.			73,908	10,396
Lead	lb.		226	353,377	32,090
Tin	lb.	53,496	24,315	17,958	9,884
Zinc	lb.	390,839	31,336	130,988	10,639
Scrap sold			1,276		88,527
Type and type metal—					
Containing less than 90 per cent lead	lb.	1,228,046	156,902	1,048,652	182,701
Containing more than 90 per cent lead	lb.	514,134	44,421	332,774	96,004
All other products including products of 1 or 2 firms*			230,782		334,895
Total			**2,181,273**		**3,353,918**

* Includes collapsible tubes, packing metal, phosphor tin and other products.

The following excerpts have been taken from the *Annual Report on the Mineral Production of Canada*, 1924 and have been included here as of interest to manufacturers of non-ferrous metal products.

Lead.—Production of lead from Canadian ores in 1924 amounted to 175,485,499 pounds (87,742·8 tons) which at the average market price at Montreal for the year of 8·104 cents per pound was valued at $14,221,345 as against 111,234,466 pounds (55,617·2 tons) valued at $7,985,522 in 1923 when the average price was 7·179 cents per pound. The increase amounted to 57·7 per cent in quantity and 78 per cent in value.

Table 48.—Refined Lead Produced in Canada,* 1904-1924

Year	Pounds of refined lead produced	Year	Pounds of refined lead produced	Year	Pounds of refined lead produced
1904	7,519,440	1911	23,525,050	1918	31,571,112
1905	15,804,509	1912	35,893,190	1919	34,330,920
1906	20,471,314	1913	37,923,043	1920	28,720,030
1907	26,607,461	1914	36,443,706	1921	60,949,793
1908	36,549,274	1915	43,518,618	1922	81,412,716
1909	41,883,614	1916	33,087,474	1923	101,096,312
1910	32,987,508	1917	32,115,114	1924	130,471,208

*Includes the electrolytic lead produced from Canadian and foreign ores at Trail, B.C., and also the pig lead from Galetta, Ont.

Imports into Canada of lead and lead manufactures during 1924 were greater than in 1923 in only three commodities, namely acetate and nitrate of lead, dry white lead, and white lead ground in oil. The value of the products imported was less than in 1923 by approximately $140,000. On the other hand, exports increased to more than double the 1923 figures; pig lead and lead in ore exported, amounted in value to $7,650,970.

Table 49.—Imports into Canada and Exports of Lead, 1923 and 1924

—	1923		1924	
	Pounds	Value	Pounds	Value
		$		$
IMPORTS—				
Old and scrap, pig and block	2,751,455	145,094	693,244	50,847
Bars and sheets	407,840	31,321	115,836	12,682
Litharge	1,672,100	160,928	956,700	89,731
Acetate and nitrate of lead	179,881	17,727	207,364	19,115
Other manufactures	.....	199,793	.....	234,372
Pipe lead	85,351	6,568	48,961	4,183
Shots and bullets	10,705	1,255	10,529	1,324
Tea lead	215,345	19,622	203,324	22,080
Lead pigments—				
Dry white lead	49,579	4,273	193,843	17,778
White lead, ground in oil	117,034	9,518	205,824	19,050
Dry red lead and orange mineral	867,759	76,510	704,282	64,719
Total	.....	**672,609**	.....	**535,881**
EXPORTS—				
Lead in ore	7,948,100	545,937	13,152,400	784,750
Pig lead	47,144,500	2,496,207	108,709,600	6,866,220
Total	**55,092,600**	**3,032,141**	**121,862,000**	**7,650,970**

The price of lead advanced considerably during 1924 and averaged 8·104 cents per pound at Montreal. High prices for lead have resulted from the increased use of the metal in the automobile and other allied industries which have been growing steadily.

Table 50.—Monthly Average Prices of Lead in Montreal, New York and London, 1923 and 1924

Month	*(a)* Montreal cents per pound		*(b)* New York cents per pound		*(b)* London in £ Sterling per ton of 2,240 pounds	
	1923	1924	1923	1924	1923	1924
					£ s. d.	£ s. d.
January	7·245	7·84	7·633	7·972	27 2 4	31 10 7
February	7·503	8·28	8·050	8·554	28 10 4	34 11 9
March	7·798	8·79	8·252	9·014	28 16 3	37 3 3
April	7·243	7·82	8·101	8·263	26 19 1	32 16 5
May	6·841	7·04	7·306	7·269	25 12 3	29 8 6
June	6·760	7·32	7·146	7·020	25 8 7	32 2 9
July	6·480	7·49	6·237	7·117	24 3 9	32 18 4
August	6·593	7·64	6·582	7·827	24 4 5	32 14 7
September	6·805	7·74	6·856	8·000	25 13 9	33 0 5
October	7·205	8·23	6·831	8·235	27 16 3	35 14 4
November	7·682	9·20	8·846	8·689	30 7 0	39 8 6
December	7·870	9·86	7·369	9·207	31 0 10	41 11 8
Average	**7·179**	**8·10**	**7·267**	**8·097**	**27 2 11**	**34 8 5**

(a) Prices furnished by Consolidated Mining and Smelting Co. of Canada, Trail, B.C.
(b) Quoted from "*Engineering and Mining Journal-Press*."

Tin.—Tin ores have not yet been found in sufficient quantities in Canada to be of economic importance. Ores of tin were formerly imported from South America and reduced by the Electro Tin Products Co. of Brantford, Ontario, but this plant is not now in operation.

Imports of tin during 1924 were valued at $3,043,229. Slight increases were noticeable in all commodities listed.

Table 51.—**Imports of Tin into Canada, 1923 and 1924**

Item	1923		1924	
	Pounds	Value	Pounds	Value
		$		$
Tin in blocks, pigs and bars	4,220,100	1,746,720	4,003,600	1,971,035
Tin foil	1,296,143	377,073	1,318,168	402,370
Strip waste	12,577	370	49,973	74
Collapsible tubes	.....	18,880	.....	19,844
Tinware, etc. (a)	.....	536,488	.....	626,846
Tin, crystals	.....	(b)	.....	(b)
Bichloride of tin	138,238	19,790	90,749	23,069
Total	.....	**2,699,321**	.....	**3,043,239**

(a) Tinware, plain, japanned or lithographed, and all manufactures of tin, n.e.s.
(b) Included with "bichloride of tin."

Zinc.—The production of zinc from Canadian ores during 1924 totalled 98,909,077 pounds which at the average St. Louis price for the year of 6·344 cents per pound was worth $6,274,791 as against 60,416,240 pounds valued at $3,991,701 in 1923 at 6·607 cents per pound. The increase amounted to 63·7 per cent in quantity and 57·1 per cent in value.

Table 52.—Production of Zinc in Canada, 1911-1924

Year	*Pounds	Total value	Average price per pound
		$	Cents
1911	1,877,479	108,105	5·758
1912	4,283,760	297,421	6·943
1913	5,640,105	318,558	5·648
1914	7,246,063	377,737	5·213
1915	9,771,651	1,292,789	13·230
1916	23,364,760	2,991,623	12·804
1917	29,668,764	2,640,817	8·901
1918	35,083,175	2,862,436	8·159
1919	32,194,707	2,362,448	7·338
1920	39,863,912	3,057,961	7·671
1921	53,089,356	2,471,310	4·655
1922	56,290,000	3,217,536	5·716
1923	60,416,240	3,991,701	6·607
1924	98,909,077	6,274,791	6·344

*Estimated smelter recoveries, including for years 1916 to 1922 the actual zinc recovered at Trail, B.C.

In 1920, imports of zinc and zinc products into Canada reached a total value of $2,555,166; in the following year the value dropped to $1,309,272 but in 1922 it rose again to $1,839,373. In each of the past two years the value of zinc and its products imported has shown a decrease; in 1923, the value was $1,716,741 and in 1924 it stood at $1,656,088. Exports of zinc ore during 1924 showed a large increase over the previous year, but the exports of spelter remained practically the same as in 1923.

Table 53.—Imports into Canada and Exports of Zinc, 1923 and 1924

Item	1923		1924	
	Pounds	Value	Pounds	Value
		$		$
IMPORTS				
Zinc and Zinc Products—				
Zinc, in blocks, pigs and sheets	3,201,082	288,128	3,073,644	259,847
Zinc, as spelter	685,356	54,408	1,230,251	84,486
Zinc white (80% Zn.)	18,976,437	1,206,560	16,264,059	1,063,370
Zinc dust (90% Zn.)	394,378	41,167	359,219	30,668
Zinc, sulphate and chloride of (44% Zn.)	601,630	21,991	941,039	41,153
Zinc, manufactures of	.....	104,487	.....	176,564
Total	.....	**1,716,741**	.....	**1,656,088**
EXPORT				
Zinc—	Tons	$	Tons	$
Ore	531	5,310	63,031	1,626,031
Spelter	19,258	2,513,763	20,016	2,519,755
Total	.....	**2,519,073**	.....	**4,145,786**

Table 54.—Monthly Average Prices of Zinc (Spelter), 1923 and 1924

Month	(a) Montreal (In cents per pound)		(b) St. Louis (In cents per pound)		Ordinary Brands, in London, (Per long ton)					
	1923	1924	1923	1924	1923			1924		
					£	s.	d.	£	s.	d.
January	8·544	8·024	6·815	6·426	35	14	8	34	15	3
February	8·840	8·38	7·152	6·756	35	12	3	36	10	4
March	9·412	8·162	7·706	6·488	36	14	5	35	5	11
April	8·879	7·72	7·197	6·121	34	5	6	32	11	9
May	8·013	7·33	6·625	5·793	31	1	2	30	12	11
June	7·650	7·30	6·031	5·792	29	10	11	31	15	9
July	7·740	7·40	6·089	5·898	29	6	8	32	3	10
August	8·086	7·64	6·325	6·175	32	7	8	32	10	10
September	8·190	7·65	6·438	6·181	33	9	4	32	18	6
October	7·992	7·79	6·293	6·324	32	19	11	33	10	3
November	8·014	8·25	6·347	6·796	32	18	11	35	0	5
December	7·850	8·84	6·260	7·374	32	12	2	36	18	8
Average	**8·267**	**7·873**	**6·667**	**6·344**	**33**	**1**	**2**	**33**	**14**	**7**

(a) Supplied by Consolidated Mining and Smelting Co. of Canada, Trail, B.C.

(b) Quoted from the *"Engineering and Mining Journal-Press."*

CHAPTER FIVE

PRECIOUS METAL PRODUCTS

The precious metal products industry in Canada includes all firms engaged in the manufacture of silverware, the production of dental supplies, the manufacture of jewelry, clocks and watches, and other articles of gold, silver or platinum. Manufacturing jewelers come within this scope but the many jewelry shops that conduct a repair business only, are not included in this review.

As thus defined, the industry covered the operations of 104 establishments in 1924 and the total output amounted in value to $9,449 284. There were thus 7 more firms included in this group than in 1923 but production was down half a million dollars from that year.

Dental supplies and refined metals including dental gold were the principal products of 12 plants in Ontario, 3 in Quebec 1 in Alberta, and 1 in New Brunswick. The total production of these firms amounted to $970,181 and raw materials, chiefly gold, cost $631,609.

Silverware, including electro-silver plated ware of all kinds, sterling silver, hollow-ware and flat-ware, stainless steel cutlery and various other such commodities were produced as a major product by 11 different firms in Ontario and by 1 concern in Quebec. Production was valued at $3,216,858.

By far the larger number of firms in this industry were manufacturers of jewelry, clocks and watches. These articles constituted the major product of 1 firm in Nova Scotia, 19 in Quebec, 45 in Ontario, 3 in Manitoba, 2 in Alberta, and 5 in British Columbia. The output of these firms had a total selling value of $5,262,245.

Table 55.—Summary Statistics of the Precious Metal Products Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries	Wages	Cost of fuel and *electricity	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$	$	$
1920	105	8,582,063	2,716	297,476	2,276,428	38,920	5,004,922	11,079,293	6,074,371
1921	148	10,371,208	3,021	1,138,001	2,643,625	64,854	4,206,957	9,941,635	5,734,678
1922	97	10,653,458	2,725	1,080,497	2,384,116	69,975	3,926,116	9,815,697	5,889,581
1923	97	9,760,071	2,643	1,045,082	2,527,173	88,941	3,950,186	10,072,672	6,122,486
1924	104	10,440,218	2,473	1,003,993	2,231,988	89,041	3,941,706	9,449,284	5,507,578

*Electricity not included in 1920, 1921 and 1922.

Capital employed.—Capital employed in the manufactures of the precious metals as represented by the value of lands, plants and equipment, cost of materials on hand and in process and the sum of the cash and trading balances, was $10,440,218 as compared with $9,760,071 in 1923. The increase was mostly in the value of the cash and trading accounts, but the value of lands and equipment was also greater than in the previous year.

Table 56.—Capital Employed in the Precious Metal Products Industry in Canada, by Classes and by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating accounts	Total	Lands, buildings, fixtures, machinery and tools	Materials on hand and stocks in process	Cash, trading and operating accounts	Total
	$	$	$	$	$	$	$	$
Quebec	788,651	864,223	265,901	1,918,775	712,541	572,840	238,980	1,524,361
Ontario	3,427,805	2,658,678	1,656,497	7,743,040	3,675,475	2,846,203	2,298,513	8,820,191
Manitoba	8,833	32,981	2,129	43,943	10,080	12,449	4,856	27,385
British Columbia	14,299	6,830	6,766	27,895	13,304	18,432	8,635	40,371
***Canada**	**4,252,337**	**3,567,498**	**1,940,236**	**9,760,071**	**4,424,378**	**3,458,061**	**2,557,779**	**10,440,218**

*Includes figures for 1 firm in Nova Scotia, 1 in New Brunswick, and 3 in Alberta.

Employment.—The average number of employees was 2,473 including 510 salaried employees and 1,963 wage-earners; in 1923, there were 542 salaried employees and 2,106 wage-earners. There was considerable fluctuation in the number of wage-earners on the rolls during the year. The year opened with 1,971 names on the pay-roll but from this average the number gradually declined until a minimum of 1,858 was reached in June; from this point, business gradually improved and increasing numbers of persons were employed until in November the maximum of 2,062 was reached. The average for the year stood at 1,963. Wages paid totalled $2,231,988 which together with over a million dollars paid out for salaries brought the total expenditures for salaries and wages to $3,235,981.

Table 57.—Employment, Salaries and Wages in the Precious Metal Products Industry in Canada, 1923 and 1924

	1923			1924		
	Male	Female	Total	Male	Female	Total
(a) Number of employees:						
Salaried employees	365	177	542	328	182	510
Wage-earners, by months						
January	1,705	419	2,124	1,589	382	1,971
February	1,694	406	2,130	1,569	383	1,952
March	1,686	528	2,214	1,579	377	1,956
April	1,673	430	2,103	1,579	374	1,953
May	1,633	402	2,035	1,541	365	1,906
June	1,624	407	2,031	1,511	347	1,858
July	1,588	410	1,998	1,517	348	1,865
August	1,568	433	2,001	1,570	347	1,917
September	1,627	479	2,106	1,592	372	1,964
October	1,679	476	2,155	1,650	384	2,034
November	1,601	486	2,177	1,667	395	2,062
December	1,691	474	2,165	1,637	385	2,022
Average	1,666	449	2,106	1,587	376	1,963
Total employees	2,031	617	2,648	1,915	558	2,473
(b) Salaries and wages						
Salaries $			1,045,082			1,003,993
Wages $			2,527,173			2,231,988
Total $			3,572,255			3,235,981
(c) Average yearly earnings of each wage-earner $			1,200			1,648
(d) Average number of days on which plants in this industry operated during the year			293			293
(e) Labour turnover:						
Total number of different wage-earners employed during the year						3,416
Average number of wage-earners employed within the year			2,106			1,963
Difference						1,453
Apparent labour turnover, (per cent)						74

Table 58.—Fuel and Electricity Used in the Precious Metal Products Industry in Canada, 1923 and 1924

Kind	Unit of measure	1923		1924	
		Quantity	Value	Quantity	Value
		No.	$	No.	$
Anthracite coal	Short ton	346	5,137	500	5,771
Bituminous coal	"	5,874	46,603	5,545	37,524
Coke	"	70	800	66	591
Fuel oil	Gallon	37,894	3,773	42,635	4,320
Gasoline	"	2,743	802	1,037	232
Gas	M. cu. ft.	8,676	7,521	13,027	9,523
Wood	Cord	37	313	85	237
Other fuel			553		518
Electric power	K.W.H.	1,207,378	23,409	1,691,369	30,325
Total			88,911		89,041

Table 59.—Power Employed in the Precious Metal Products Industry in Canada, 1923 and 1924

Description	1923		1924	
	Number of units	Total h.p. according to manufacturers' rating	Number of units	Total h.p. according to manufacturers' rating
Boilers	11	755	21	1,127
Steam engines	2	150	4	240
Electric Motors—				
(a) Operated by purchased power	397	2,304	442	2,595
(b) Operated by power generated by the establishment	28	148	17	102

Materials used.—Materials used have been arranged under the three sections of this industry. Gold costing over a half a million dollars in 1924 was the chief item on the list of materials used, in the manufacture of dental supplies; precious metals and precious stones, together worth nearly 1·5 million dollars, were the more costly materials used in the jewellery section which consumed commodities worth $2,374,872 in all; while silver metal and nickel-silver base metal accounted for the larger part of the cost of materials used in the manufacture of silverware. Materials used in the industry cost $3,941,706 or almost the same as in the preceding year.

Table 60.—Materials Used in the Precious Metal Products Industry in Canada, 1923 and 1924

Materials used	Total cost at works	
	1923	1924
DENTAL SUPPLIES SECTION, INCLUDING REFINING OF SCRAP	$	$
Precious Metals—		
Gold	534,679	528,044
Silver	12,232	34,508
Platinum	14,585	13,922
Other metals	31,864	29,856
Jewelers' waste and scrap	16,485	1,152
Dental sundries	6,723	12,238
Solder	602	169
Rouge and other polishes	8	29
Other materials	231	11,691
Total	617,409	631,609
JEWELRY, CLOCKS AND WATCHES SECTION		
Precious Metals—		
Gold	696,521	563,391
Silver	207,537	208,252
Platinum	160,492	115,241
Base metals and alloys	101,189	144,428
Solder	7,352	2,011
Precious stones	660,700	626,065
Jewelers' findings	55,913	69,920
Crystals	21,838	26,794
Clock and watch springs	33,924	25,966
Jewels for watch movements	10,280	15,931
Wheels and other watch parts	233,563	52,554
Rouge and other polishes	8,318	4,095
Boxes, packing materials, etc	30,271	41,216
All other materials	171,765	478,972
Total	2,399,663	2,374,872
SILVERWARE SECTION		
Precious metals—		
Gold	35,207	4,832
Silver	218,847	213,344
Platinum	2,300	.....
Base metals and alloys—		
Britannia metal, including blanks for plating	38,920	86,431
Nickel-silver, including blanks for plating	143,420	231,324
Cutlery steel	14,230	8,507
Cutlery steel, stainless	4,487	14,011
Brass and copper	4,138	3,808
Tin	45,807	31,694
Solder	3,718	2,336
Other base metals and alloys	20,623	22,732
Other materials—		
Celluloid	6,876	3,306
Glassware and liners	15,508	39,906
Rouge and other polishes	3,507	13,163
Paper, boxes and packing materials	57,702	66,041
All other materials	317,824	193,700
Total	933,114	935,225
Total	**3,950,186**	**3,941,706**

Products.—Products have also been shown for each section of the iudustry. Refined gold, including dental gold, accounted for two-thirds of the entire production in the dental supplies section, which, amounted to $970,181 in 1924. The output of refined gold in the precious metals industry was considerably lower than in 1923, but silver, platinum, sundry dental supplies and gold leaf, showed substantial gains. Production of jewelry declined nearly half a million dollars in value to $3,039,241 which together with clocks, watches, etc. worth 2 million dollars made a total output value of $5,262,245 for this group. Silver-plated hollow-ware, flat-ware, and cutlery on Britannia metal base showed improvement over 1923, as also did flatware plated on nickel-silver base. On the other hand, hollow-ware and cutlery plated on nickel-silver declined to nearly half the 1923 value.

Table 61.—Products of the Precious Metal Products Indusrty in Canada, 1923 and 1924

Product	Selling value	
	1923	1924
	$	$
DENTAL SUPPLIES SECTION		
Refined metals—		
Gold, including dental gold	736,082	623,099
Silver	4,095	47,102
Platinum	4,000	70,776
Dental supplies (gases, teeth, bridges, etc.)	53,829	105,829
Gold leaf	9,826	31,790
Alloys and gold-filled wire	182,484	2,818
Job work and repairs	631	55,563
Other products[1]	17,399	33,204
Total	1,008,346	970,181
JEWELRY, CLOCKS AND WATCHES SECTION		
Alloys and gold-filled wire	.....	7,332
Electro-silver-plated ware—		
(a) Hollow-ware	.....	24,510
(b) Flat-ware	.....	34,673
Jewelry	3,666,676	3,039,241
Watch cases	456,760	81,079
Clocks	405,940	484,860
Sterling silver hollow-ware and flat-ware	.....	356,070
Watches	182,086	478,292
Other products[2]	194,515	318,085
Repairs	371,712	437,203
Total	5,277,689	5,262,245
SILVERWARE SECTION		
Electro-silver-plated ware—		
(a) On Britannia metal—		
Hollow-ware	549,929	621,553
Flat-ware	193,712	270,855
Cutlery	88,698	136,606
(b) On nickel-silver—		
Hollow-ware	496,180	263,695
Flat-ware	459,603	837,521
Cutlery	892,968	491,788
Unplated nickel-silver flatware	.....	83,913
Sterling silver hollow-ware and flat-ware	560,479	165,206
Bronze tablets and castings	35,017	.....
Cutlery of stainless steel	14,706	50,827
Cutlery, other, not plated	218,496	55,524
Casket hardware	27,093	21,573
Glassware	72,807	58,016
Other products[3]	176,889	159,691
Totnl	3,786,637	3,216,858
Total	**10,072,672**	**9,449,284**

[1]Includes brass and copper tubing, imitation and semi precious stones, jewelry and other products.

[2]Includes bronze tablets and castings and other products.

[3]Includes paper cups, wax paper, and various other products.

The following extracts have been taken from the *Annual Report on the Mineral Production of Canada, 1924*, issued by the Dominion Bureau of Statistics.

Gold.—Production of gold from all sources in Canada during the calendar year 1924 amounted to 1,525,382 fine ounces which at $20·671834 per fine ounce, amounted in value to $31,532,443. This marked an increase of 292,041 fine ounces or 23·6 per cent over the previous year and was the greatest production of gold recorded in any one year in the history of Canada.

Table 62.—Production of Gold in Canada, 1858-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$			$
1858	34,104	705,000	1881	63,524	1,313,153	1904	706,374	16,462,517
1859	78,129	1,615,072	1882	60,288	1,246,268	1905	684,951	14,159,195
1860	107,806	2,228,543	1883	53,853	1,113,246	1906	556,415	11,502,120
1861	128,973	2,666,118	1884	51,202	1,058,439	1907	405,517	8,382,780
1862	135,391	2,798,774	1885	55,575	1,148,829	1908	476,112	9,842,105
1863	202,498	4,186,011	1886	70,782	1,463,196	1909	453,865	9,382,230
1864	199,605	4,126,199	1887	57,460	1,187,804	1910	493,707	10,205,835
1865	192,898	3,987,562	1888	53,145	1,098,610	1911	473,159	9,781,077
1866	152,555	3,153,597	1889	62,653	1,295,159	1912	611,885	12,648,794
1867	145,775	3,013,431	1890	55,620	1,149,776	1913	802,973	16,598,923
1868	134,169	2,773,527	1891	45,018	930,614	1914	773,178	15,983,007
1869	102,720	2,123,405	1892	43,905	907,601	1915	918,056	18,977,901
1870	83,415	1,724,348	1893	47,243	976,603	1916	930,492	19,234,976
1871	105,187	2,174,412	1894	54,600	1,128,688	1917	738,831	15,272,992
1872	90,283	1,866,321	1895	100,798	2,083,674	1918	699,681	14,463,689
1873	74,346	1,536,871	1896	133,262	2,754,774	1919	766,764	15,850,423
1874	97,856	2,022,862	1897	291,557	6,027,016	1920	765,007	15,814,098
1875	130,300	2,693,533	1898	666,386	13,775,420	1921	926,329	19,148,920
1876	97,729	2,020,233	1899	1,028,529	21,261,584	1922	1,263,364	26,116,050
1877	94,304	1,949,444	1900	1,350,057	27,908,153	1923	1,233,341	25,495,421
1878	74,420	1,538,394	1901	1,167,216	24,128,503	1924	1,525,382	31,532,443
1879	76,547	1,582,358	1902	1,032,161	21,336,667			
1880	63,121	1,304,824	1903	911,559	18,843,590	**Total**	**26,353,907**	**544,783,702**

* Calculated from the value: one dollar = 0·048375 ounces.

Imports of gold, largely in the form of manufactures, were about the same as in the preceding year, but exports in the form of bullion in gold-bearing quartz, dust, nuggets, etc., obtained direct from mining operations, more than doubled the total for 1923 and amounted in value to $28,358,449.

Table 63.—Imports into Canada and Exports of Gold, 1923 and 1924

Item	1923	1924
	$	$
IMPORTS—		
Gold—		
Fringe	42,283	40,468
Manufactures of gold and silver—		
Leaf	81,252	69,495
Sweepings	4,849	5,508
Manufactures, n.o.p.	125,582	142,008
Electroplated ware	509,131	604,500
EXPORTS—		
Gold-bearing quartz, dust, nuggets and bullion obtained direct from mining operations	12,541,745	28,358,449

Platinum.—Metals of the platinum group in Canada are derived principally from the nickel-copper ores of the Sudbury district. Precious metals follow the copper and nickel through the smelting operations and are recovered at the various refineries. Small amounts of platinum are also obtained from certain alluvial sands in British Columbia.

Table 64.—Summary of Platinum Statistics, 1923 and 1924

Source	1923			1924		
	Platinum	Palladium	Rhodium, etc.	Platinum	Palladium	Rhodium, etc.
Produced by refineries in Canada or elsewhere from Canadian mattes and residues—Fine oz.	1,210	1,732	(a) 304	9,181	8,923	(b) 593
Value	$141,010	$138,560	$45,000	$1,090,858	$811,993	$51,120
British Columbia placers—Fine oz.	7	.....	.....	5	.....	.....
Value	$816	.....	.....	$569	.....	.....
Total for Canada—Fine oz.	**1,217**	**1,732**	**304**	**9,186**	**8,923**	**593**
Value	**$141,826**	**$138,560**	**$45,000**	**$1,091,427**	**$811,993**	**$51,120**

(a) 206 oz. Rhodium valued at $18,540 and 98 oz. Iridium valued at $26,460.
(b) 367 oz. Rhodium valued at $27,500, 69 oz. Osmium valued at $4,924, and 78 oz. Rothenium valued at $2,106 and 79 oz. Iridium valued at $16,590.

Imports and exports of platinum are small and consist mostly of forms used in the jewelry trade.

Table 65.—Imports into Canada and Exports of Platinum, 1923 and 1924

Item	1923		1924	
	Ounces	Value	Ounces	Value
		$		$
IMPORTS—				
Crucibles	.....	10,177	.....	11,567
Wire and bars, strips, sheets or plates	.....	117,607	.....	167,225
Retorts, pans, condensers, etc.	.....	40,471	.....	579
Total	.....	**168,255**	.....	**179,371**
EXPORTS—				
Jewelers' sweepings	.....	274,467	.....	344,074
Ores and concentrates	349	33,838	467	47,723
Old and scrap	126	8,988	237	24,372
Total	.....	**317,293**	.....	**416,169**

Table 66.—Monthly Average Prices of Platinum, 1923 and 1924

(From the *Engineering and Mining Journal-Press*, 1923)

(In dollars per fine ounce.)

Month	1923	1924
	$	$
January	112·462	122·115
February	113·273	124·739
March	110·846	121·692
April	116·840	115·577
May	115·007	115·731
June	115·615	116·000
July	116·000	118·231
August	116·000	120·000
September	116·000	118·923
October	116·923	118·000
November	124·479	117·792
December	125·000	117·000
Average	**116·537**	**118·817**

Silver.—Production of silver from Canadian ores during 1924 amounted to 19,736,323 fine ounces which, at the average price for the year of 66·781 cents per ounce, was valued at $13,180,113 as against 18,601,744 fine ounces valued at $12,067,509 in 1923 when the average price was 64·873 cents per ounce. This was an increase of 6 per cent in quantity and 9·2 per cent in value over the totals for 1923.

Table 67.—Production of Silver in Canada, by Provinces, 1887-1924*

Year	Quebec		Ontario		British Columbia		Yukon Territory	
	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value
		$		$		$		$
1887	146,898	143,666	190,495	186,304	17,690	17,301	.....	.....
1888	149,388	140,425	208,064	195,580	79,780	74,993	.....	.....
1889	148,517	139,012	181,609	169,986	53,192	49,787	.....	.....
1890	171,545	179,436	158,715	166,066	70,427	73,666	.....	.....
1891	185,584	183,357	225,633	222,926	3,306	3,266	.....	.....
1892	191,910	168,113	41,581	36,425	77,180	67,592	.....	.....
1893	.....	126,439	.....	8,689	.....	195,000	.....	.....
1894	101,318	63,830	.....	.....	746,379	470,219	.....	.....
1895	81,753	53,369	.....	.....	1,496,522	976,930	.....	.....
1896	70,000	46,942	.....	.....	3,135,343	2,102,561	.....	.....
1897	80,475	48,116	5,000	2,990	5,472,971	3,272,289	.....	.....
1898	74,932	43,655	85,300	49,521	4,292,401	2,500,753	.....	.....
1899	40,231	23,970	202,000	120,352	2,939,413	1,751,302	230,000	137,034
1900	58,400	35,817	161,650	99,140	3,958,175	2,427,548	290,000	177,857
1901	41,459	24,440	151,400	89,250	5,151,333	3,036,711	195,000	114,953
1902	42,500	22,168	145,000	75,632	3,917,917	2,043,586	185,900	96,985
1903	28,600	15,287	17,777	9,502	2,996,204	1,601,471	156,000	83,362
1904	15,000	8,583	206,875	118,376	3,222,481	1,843,935	133,170	76,201
1905	19,620	11,841	2,451,356	1,479,442	3,439,417	2,075,757	89,630	54,093
1906	17,686	11,813	5,401,766	3,607,894	2,990,262	1,997,226	63,605	42,522
1907	16,000	10,452	9,982,363	6,521,178	2,745,448	1,793,519	35,988	23,510
1908	13,209	7,030	19,398,545	10,254,847	2,631,389	1,391,058	63,000	33,304
1909	13,233	6,815	24,822,099	12,784,126	2,649,141	1,364,387	45,000	23,176
1910	7,503	4,061	30,366,366	16,241,755	2,407,887	1,287,883	87,418	46,756
1911	18,435	9,827	30,540,754	16,279,443	1,887,147	1,005,924	112,708	60,078
1912	9,465	5,758	29,214,025	17,772,352	2,651,002	1,612,737	81,068	49,318
1913	34,573	20,672	28,411,261	16,987,377	3,312,343	1,980,483	87,626	52,392
1914	57,737	31,646	25,139,214	13,779,055	3,159,897	1,731,971	92,973	50,959
1915	63,450	31,524	22,748,609	11,302,419	3,565,852	1,771,658	248,049	123,241
1916	98,610	64,748	21,608,158	14,188,133	3,392,872	2,227,794	360,101	236,446
1917	136,104	110,885	19,301,835	15,714,975	2,655,994	2,162,430	119,605	97,379
1918	178,675	172,907	17,198,737	16,643,562	3,921,336	3,794,755	71,915	69,594
1919	140,926	156,600	12,117,878	13,465,628	3,713,537	4,126,556	27,556	30,621
1920	61,003	61,552	9,907,626	9,996,795	3,327,028	3,356,971	19,190	19,363
1921	38,084	23,861	9,761,607	6,116,037	3,350,357	2,099,133	393,092	246,288
1922	.....	.....	10,811,903	7,300,305	7,150,937	4,828,384	663,403	447,997
1923	33,006	21,412	10,549,943	6,838,226	6,113,327	3,965,899	1,914,438	1,241,953
1924	83,814	55,972	11,272,567	7,527,933	8,153,003	5,444,657	226,755	151,429
Total	**2,669,913**	**2,286,001**	**352,978,411**	**226,352,221**	**110,848,870**	**72,528,092**	**5,993,340**	**3,786,811**

* Does not include small productions from New Brunswick, Alberta, and Manitoba in 1917, from Manitoba from 1918 to 1924 and from Nova Scotia and Manitoba, in 1923 and 1924.

Imports of silver in the form of bullion, coins and sterling were slightly lower than in 1923 but exports in the form of ore, concentrates and bullion were a little higher in value than in the preceding year.

Table 68.—Imports into Canada and Exports of Silver, 1923 and 1924

Item	1923	1924
	$	$
IMPORTS—		
Silver—		
Bullions in bars and blocks	723,040	665,280
Coins	.....	1,275
Sterling	234,047	209,430
Manufacture of gold and silver—		
Leaf	81,252	69,495
Sweepings	4,849	5,508
Manufactures, n.o.p.	125,582	142,008
Electroplated ware	509,131	604,500
EXPORTS—		
In ore, concentrates, bullion	11,137,724	12,082,954

Table 69.—Monthly Average Prices of Silver, 1923 and 1924

From the "*Engineering and Mining Journal-Press*"

Month	New York (Cents per fine ounce)		London (Pence per standard ounce)	
	1923	1924	1923	1924
January	65·668	63·447	31·928	33,549
February	64·313	64·359	30·875	33·565
March	67·556	63·957	32·310	33·483
April	66·855	64·139	32·346	33·065
May	67·043	65·524	32·611	33·870
June	64·861	66·690	31·611	34·758
July	63·015	67·159	30·942	34·509
August	62·793	68·519	30·952	34·213
September	64·203	69·350	31·698	34·832
October	63·649	70·827	31·718	35·387
November	63·818	69·299	32·774	33·775
December	64·705	68·096	33·375	32·620
Average	**64·873**	**66·781**	**31·929**	**33·969**

CHAPTER SIX

ELECTRICAL APPARATUS AND SUPPLIES

The electrical industry in Canada includes all firms engaged in the manufacture of apparatus and supplies used in the transmission, generation and utilization of electrical energy. Due to increased power developments and the greater use and electrical equipment and to the increasing popularity of radio, the industry has shown a steady growth during the last three years and, in 1924, it attained a record production. In that year there were 109 firms in Canada engaged principally in the production of electrical equipment. These firms had a working capital of over 72 million dollars, gave employment to 13,670 persons and produced electrical apparatus having a selling value of $56,490,465. Active plants were distributed as follows: 13 in Quebec, 87 in Ontario, 4 in Manitoba, 3 in Alberta and 2 in British Columbia.

Public interest in radio broadcasting and the consequent demand for apparatus has created in Canada a new industry which already has attained commercial importance and which should be considerably augmented in the next few years. Production of radio sets and parts in 1924 was valued at $3,201,103 while imports from United States of similar commodities were valued at $2,413,687; as exports from Canada in this class were practically negligible, the apparent total purchases of radio sets and parts in Canada, thus reached the grand total of $5,614,790.

Table 70.—Summary Statistics of the Electrical Apparatus and Supplies Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries	Wages	Cost of fuel and *electricity	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$	$	$
1920.....	99	69,000,008	14,115	4,650,431	11,936,613	773,469	27,220,861	55,965,896	28,745,035
1921.....	100	63,609,530	10,640	4,631,063	8,924,649	637,749	19,438,688	45,093,591	25,654,903
1922.....	101	62,436,282	10,630	4,624,396	7,538,211	626,334	17,546,839	41,208,368	23,661,529
1923.....	108	65,077,942	13,268	5,023,414	9,968,136	954,987	26,257,361	51,360,400	25,103,039
1924.....	109	72,301,204	13,670	5,329,878	10,759,614	884,808	24,370,996	56,490,465	32,119,469

*Electricity not included in 1920, 1921 and 1922.

Capital employed.—Capital employed in the plants producing electrical apparatus and supplies in 1924 was 11 per cent above 1923 and amounted to $72,301,204. Investment in lands, buildings and equipment rose to $36,886,391 from $33,789,537 in 1923; the value of inventories increased by about a million dollars to $19,756,532; and cash, trading and operating accounts at $15,658,281 was 20 per cent greater than in the preceding year.

Table 71.—Capital Employed in the Electrical Apparatus and Supplies Industry in Canada, by Classes and by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating account	Total	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating account	Total
	$	$	$	$	$	$	$	$
Quebec	10,280,801	5,597,027	2,088,217	17,966,045	10,770,906	6,318,323	2,361,153	19,450,382
Ontario	23,437,856	13,065,369	10,279,237	46,782,462	26,005,211	13,303,118	13,182,043	52,490,372
Manitoba	38,249	82,732	95,471	216,452	74,507	89,802	102,251	266,560
Alberta	11,666	15,826	8,895	36,387	15,767	17,570	4,583	37,920
British Columbia	20,965	24,866	30,765	76,596	.....	.....	.....	.....
Canada*	**33,789,537**	**18,785,820**	**12,502,585**	**65,077,942**	**36,886,391**	**19,756,532**	**15,658,281**	**72,301,204**

* Includes figures for 2 firms in British Columbia.

Employment.—Manufacturers of electrical supplies employed an average of 13,670 people during 1924 and distributed $16,089,492 in salaries and wages; in the previous year 13,268 persons received $14,991,550 in salaries and wages.

As indicated by the monthly records, employment fell off slightly during the summer months. In January, there was a total of 10,538 wage-earners employed, and this number was gradually augmented until in March there were 10,785 on the rolls. Employment then fell off gradually to reach a minimum of 10,016 in August after which industrial conditions improved and the year closed with 11,405 wage-earners employed.

Of the 109 firms engaged in this industry each worked an average of 292 days throughout the year and paid an average of $1,012 to each wage-earner. In 1923, the corresponding figures were 289 days worked and an average yearly wage of $957.

Table 72.—Employment, Salaries and Wages Paid in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924

	1923			1924		
	Male	Female	Total	Male	Female	Total
(a) Number of employees:						
Salaried employees	2,139	717	2,856	2,261	779	3,040
Wage-earners, by months						
January	6,982	2,215	9,197	7,933	2,605	10,538
February	7,154	2,399	9,553	8,050	2,568	10,618
March	7,593	2,476	10,069	8,198	2,587	10,785
April	7,859	2,444	10,303	8,216	2,498	10,714
May	8,119	2,380	10,499	8,160	2,404	10,564
June	8,149	2,404	10,553	7,996	2,329	10,325
July	8,026	2,346	10,372	7,762	2,284	10,046
August	8,136	2,434	10,570	7,706	2,310	10,016
September	8,227	2,492	10,719	7,769	2,414	10,183
October	8,430	2,532	10,962	8,143	2,576	10,719
November	8,399	2,547	10,946	8,345	2,776	11,121
December	8,510	2,536	11,046	8,469	2,936	11,405
Average	7,978	2,434	10,412	8,076	2,554	10,630
Total employees	**10,117**	**3,151**	**13,268**	**10,337**	**3,333**	**13,670**
(b) Salaries and wages						
Salaries $			5,023,414			5,329,878
Wages $			9,968,136			10,759,614
Total $			**14,991,550**			**16,089,492**
(c) Average yearly earnings of each wage-earner $			**957**			**1,012**
(d) Average number of days on which plants in this industry operated during the year			**289**			**292**
(e) Labour turnover						
Total number of different wage-earners employed during the year						17,351
Average number of wage-earners employed within the year			**10,412**			**10,630**
Difference						**6,721**
Apparent labour turnover (Per cent)						**63**

Table 73.—Fuel and Electricity Used in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924

Kind	Unit of measure	1923		1924	
		Quantity	Value	Quantity	Value
		No.	$	No.	$
Anthracite coal	Short ton	1,968	19,849	1,971	23,342
Bituminous coal	"	55,210	379,101	57,818	342,972
Lignite coal	"	90	1,084	20	250
Coke	"	3,321	45,392	2,324	24,542
Fuel oil	Gallon	457,509	42,187	891,421	73,952
Gasoline	"	30,981	8,409	36,075	9,358
Gas	M. cu. ft.	90,992	89,477	91,727	91,301
Wood	Cord	842	6,531	646	1,364
Other fuel			10,337		2,378
Electric power	k.w.h.		352,620	20,648,662	315,349
Total			**954,987**		**884,808**

Table 74.—Power Employed in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924

Description	1923		1924	
	Number of units	Total h.p. according to manufacturers' rating	Number of units	Total h.p. according to manufacturers' rating
Boilers	53	7,986	76	10,587
Engines—				
(a) Steam	8	5,640	8	6,210
(b) Gas	5	33	5	33
Hydraulic turbines or water wheels	7	3,100	7	3,100
Electric motors—				
(a) Operated by purchased power	1,419	8,013	2,298	24,530
(b) Operated by power generated by the establishment	2,103	22,070	1,650	11,326

Materials used.—Firms in the electrical industry used $24,370,996 worth of purchased materials which were advanced in value by 132 per cent by the manufacturing processes. Altogether, the industry consumed in the form of pigs, castings, rods, etc., 27,840 tons of iron and steel, 16,721 tons of brass and copper, 7,673 tons of lead, 737 tons of zinc, 189 tons of aluminium, and various miscellaneous materials which are shown in detail in the accompanying table.

In addition to the above, 62,133 tons of coal and coke, 927,496 gallons of gasoline and fuel oil, 91 million cubic feet of gas, and over 646 cords of wood ,were used for heat and power purposes.

Table 75.—Materials Used in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924

Materials used	Unit of measure	1923		1924	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Iron—					
Pig and scrap	tons	9,866	278,676	5,048	131,105
Iron castings purchased	tons	5,096	583,592	5,463	897,830
Steel castings, punchings and forgings purchased	tons	2,119	424,710		
Iron and steel rods, bars, tubes, pipes, sheets and wire	tons	15,930	1,942,164	17,329	1,881,306
Copper—					
Pig and scrap	lb.	371,188	58,179	597,340	74,595
Brass and copper castings and punchings purchased	lb.	362,168	140,329	436,925	148,070
Brass and copper rods, bars, tubes, pipe, sheets and wire	lb.	43,095,149	7,581,378	32,407,068	5,317,730
Aluminium—					
Pig and scrap	lb.	52,057	16,054	94,462	31,262
Castings purchased	lb.	177,681	97,980	216,982	98,902
Rods, bars, tubes, sheets and wire	lb.	152,903	42,070	66,456	39,301
Lead—					
Pig and scrap	lb.	13,595,241	1,111,704	14,265,031	1,105,658
Sheets, bars and tubes	lb.	141,460	17,493	1,080,595	151,055
Magnesium: Bars, sheets and wire	lb.	6,405	11,079	13,600	8,004
Manganese	lb.				8,665
Zinc—					
Pig	lb.	119,372	10,663	82,763	6,725
Bars, sheets and wire	lb.	949,846	93,400	1,392,308	160,667
Resistance wire	lb.	400,000	83,831	517,137	44,943
Carbon for brushes, electrodes, etc	lb.	2,310,000	69,440	2,950,282	184,064
Mica	lb.	250,000	238,995	113,690	148,951
Glass and porcelain			965,953		877,420
Rubber, crude	lb.	282,256	76,738	445,507	123,130
" reclaimed or compounded	lb.	3,061,342	305,789	1,275,351	114,967
Cotton and linen yarns, sheets, tapes and webbings			1,105,063		947,314
Insulating paints, varnishes, japans, shellacs and lacquers			243,202		214,261
Insulating waxes	lb.	1,791,025	75,552	1,731,138	157,256
Insulating materials not otherwise specified			938,149		952,445
Clays and marls	lb.	5,865,827	124,802	5,238,000	86,322
Tungsten, crude or finished	grams		65,935	200,000	88,865
	metres			4,518,476	
Nitrogen and argon gas	cu. ft.		14,425	390,239	25,395
Copper sulphate	lb.	1,746	99	876	82
Sulphuric acid (66° Be)	lb.	1,334,250	20,830	1,549,064	32,881
Ammonium chloride (sal-ammoniac)	lb.	451,216	33,116	686,941	42,863
Chemicals and acids not otherwise specified			144,411		283,899
Electrical apparatus or parts purchased not otherwise specified			1,983,445		1,854,772
Electrical supplies or parts purchased, not otherwise specified			1,173,154		1,168,780
Shipping containers and packing material			582,459		713,149
All other materials			5,593,503		6,248,356
Total			**26,257,361**		**24,370,996**

Products.—The total output of electrical equipment in Canada in 1924 was valued at $56,490,465 or 9 per cent above the production of the previous year. The more important products of the industry included: 6·4 million dollars' worth of telephone material; about 10 million dollars' worth of copper wire and cable; alternating and direct current motors valued at 5·5 million dollars; generators, alternating current, with a selling value of 4·8 million dollars; incandescent lamps worth 3 million dollars; 3·2 million dollars' worth of radio apparatus; 1·2 million dollars' worth of vacuum cleaners; and to a less extent, meters of all kinds, lighting fixtures, and domestic appliances of various kinds.

Table 76.—Products Made in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924

Product	1923			1924		
	Number	Total rating	Selling value, boxed, f.o.b. works	Number	Total rating	Selling value, boxed, f.o.b. works
			$			$
Alternating current generators	118	243,512 k.w.	3,112,162	156	518,995 k.w.	4,843,053
Annunciators, bells, clocks, time recorders, flashers, signalling apparatus	.....	.....	11,721	.....	.....	8,021
Alternating current motors—						
Stationary, for power purposes, including control equipment	4,515	61,176 h.p.	1,266,662	4,697	82,025 h.p.	1,484,002
Traction, including control equipment and other accessories	.....	.....	441,065	32	1,120 "	10,976
Fractional horse power, for domestic and utility appliances	.....	.....	.....	21,110	3,923 "	306,150
Any types not elsewhere reported, including control equipment and other accessories	.....	.....	46,749	.....	.....	.....
Parts and supplies for same	.....	.....	167,355	.....	.....	341,826
Batteries—						
Storage, for internal combustion engine starting and ignition	178,001	.....	2,256,278	205,069	.....	2,690,627
Storage, for all other purposes	.....	.....	75,653	.....	.....	188,947
Primary, dry cell type	.....	.....	1,561,528	15,759,843	.....	2,101,395
Any other type	.....	.....	60,394	.....	.....	175,636
Parts and supplies	.....	.....	166,857	.....	.....	65,130
Baking, tempering, and enamelling ovens	.....	.....	.....	13	225 k.w.	10,497
Controllers, rheostats, auto-starters, exclusive of any reported with generators and motors or on switch boards	.....	.....	18,898	.....	.....	20,135
Cooking and heating apparatus—						
Flat irons	103,282	.....	397,871	77,911	.....	215,[illegible]
Stoves and ranges	4,954	.....	421,412	8,775	.....	613,188
Water heaters and air heaters	19,716	.....	174,788	27,715	.....	205,[illegible]
Domestic and commercial utility devices not elsewhere reported	.....	.....	276,222	.....	.....	266,[illegible]
Direct current generators	92	5,230 k.w.	32,701	39	797 k.w.	50,[illegible]
Direct current motors—						
All kinds, including control equipment	4,275	30,321 h.p.	993,735	644	10,742 h.p.	612,151
Parts and supplies for same	.....	.....	82,992	.....	.....	104,509
Electro-metallurgical muffles and furnaces, with actuating and control equipment and accessories	.....	.....	19,160	.....	.....	26,320
Electric-therapeutic apparatus	.....	.....	81,771	.....	.....	39,050
Fans, A.C. and D.C.—						
Desk type	1,870	.....	52,878	1,012	.....	30,400
All other types	.....	.....	99,799	.....	.....	2,670
Fuses and fuse wire	.....	.....	235,152	.....	.....	188,004
Incandescent lamps—						
Regular, carbon, all other classes	354,831	.....	52,325	307,247	.....	73,390
Regular, tungsten, vacuum, for street series lighting	10,410	.....	4,544	11,410	.....	4,611
Regular, tungsten, vacuum, all other classes	6,195,604	.....	1,186,501	6,924,591	.....	1,460,024
Regular, tungsten, gas filled for street lighting	67,490	.....	49,611	289,750	.....	216,616
Regular, tungsten, gas filled, all other classes	1,963,438	.....	913,322	1,917,846	.....	1,058,604
Automobile, decorative, miniature, and any others not elsewhere reported	1,876,424	.....	247,225	2,188,419	.....	390,570
Bulbs, bases, or other parts	.....	.....	319,131	.....	.....	38,175
Instruments—						
Ammeters, voltmeters, wattmeters, watt-hour meters, etc., portable type, including accompanying transformers	.....	.....	16,891	.....	.....	27,339
Ammeters, voltmeters, wattmeters, watt-hours meters, etc., switch board type, including accompanying transformers	.....	.....	19,197	.....	.....	19,753

Table 76.—Products Made in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924—Continued

Product	1923			1924		
	Number	Total rating	Selling value, boxed, f.o.b. works	Number	Total rating	Selling value, boxed, f.o.b. works
			$			$
Interior conduit and moulding, and fittings for same			670,196			709,314
Knobs, cleats, tubes, bushings, wiring insulators			39,696			70,083
Lighting fixtures			774,392			920,183
Lightning arresters			82,749			98,583
Line material—						
Light and power, excluding line insulators						376,378
Telegraph and telephone, excluding line insulators						132,000
Overhead trolley			39,043			45,562
Line insulators, glass, porcelain, and composition			350,000			423,599
Motor-generator sets, dynamotors, rotary converters, double current generators, balancer sets, boosters	321	21,373 k.w.	397,525	63	11,384 k.w.	291,170
Parts and supplies for same			214,430			76,089
Panel boards and cabinets			270,136			236,295
Radio apparatus and supplies:—						
Aerial material (wire, insulators, ground clamps, lightning arresters, spreaders)			264,104			1,242,505
Condensers						78,622
Coils and couplers						15,445
Panels and parts (switches, dials, knobs, binding posts, keys, sockets)						205,921
Rheostats and resistances						12,963
Telephones (head sets, loud speakers, microphones)			125,000			420,021
Transformers						80,229
Vacuum tubes						696,151
Apparatus or parts not elsewhere reported						215,246
Receiving and transmitting sets, complete						225,000
Rectifiers:—						
Mechanical, mercury, vapour and chemical	1,000		11,841	5,953		13,286
Parts and supplies for same						2,878
Searchlights, projectors, focussing lamps, headlights			8,994			46,856
Switch boards, light and power			1,218,052			1,898,456
Sockets, receptacles, rosettes, attaching plugs, cutouts			692,068			1,196,322
Switches, all kinds, with plates and other fittings and accessories			1,295,891			395,506
Telephone material, including switch boards, telephones transmitters, receivers, parts and supplies			4,648,308			6,462,778
Telegraph material			118,096			
Transformers:—						
Power and service types, including oil, fuse boxes, etc			3,192,547	6,458	k.w. 1,065,330	3,730,263
All other types, including feeder regulators, auto-transformers, etc			168,908			302,839
Vacuum cleaners	27,316		997,313	36,429		1,286,845
Vacuum tubes, X-Ray tubes, glower lamps, vapour lamps, etc			512,101			44,170
Watt-hour meters, service type, including any accompanying transformers and other accessories			1,027,865	98,068		1,141,234
Washers, floor polishers, refrigerating equipment, and other domestic and utility small motor appliances not elsewhere reported			28,362			137,539
Welding apparatus, with control equipment and accessories	25	5,000 k.w.	122,249	6		18,688
Wires and cables:—						
Copper, bare			3,456,520			2,673,449
Copper, insulated			8,922,588			7,176,673
Aluminium, bare			33,500			
Wiring material and sundries not elsewhere reported			358,658			272,173
Gas meters	2,000		20,000	15,780		233,398
Gas mantles, incandescent	134,632		57,086	81,231		33,439
Insulating varnish						25,000
Refrigerators, electric						10,320
Stampings			60,494			83,930
Gas regulators	201		13,427			6,784
Scrap						112,519

Table 76.—Products Made in the Electrical Apparatus and Supplies Industry in Canada, 1923 and 1924—Concluded

Product	1923			1924		
	Number	Total rating	Selling value, boxed, f.o.b. works	Number	Total rating	Selling value, boxed, f.o.b. works
			$			$
Any electrical apparatus or supplies not reported elsewhere[1]	.....	.....	939,125	.....	.....	1,312,375
Any other apparatus or supplies not reported elsewhere	.....	.....	4,400,229	.....	.....	2,667,541
Any repair parts not reported elsewhere, and repairs	.....	.....	966,357	.....	.....	735,038
Total	.....	.....	**51,360,490**	.....	.....	**56,190,465**

[1] Includes carbon brushes, spark plugs and other products.

CHAPTER SEVEN

MISCELLANEOUS NON-FERROUS METAL PRODUCTS

This group includes those firms producing as a major product such commodities as lamps, lanterns, lamp and lantern burners, weatherstripping, etc., which do not naturally fall into any of the other groups. Most of the firms in this industry are small but the demand for their goods is steady and the quantity produced annually is fairly constant.

In 1924, there were 16 plants in Canada in this group located as follows: 2 in Quebec, 13 in Ontario and 1 in Manitoba. These firms employed 202 persons throughout the year and produced commodities having a total selling value of $741,066. In 1923, the same 16 plants had an output worth $773,556.

Table 77.—Summary Statistics of the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries	Wages	Cost of *fuel and electricity	Cost of materials	Selling value of products	Value added by manufacturing
		$		$	$	$	$	$	$
1920	16	394,096	246	73,814	200,456	4,887	260,299	708,780	448,481
1921	18	665,481	162	80,919	138,740	1,804	250,596	557,420	306,824
1922	16	663,070	169	59,614	138,604	4,821	236,797	607,567	370,770
1923	16	739,457	196	87,372	164,484	6,495	269,557	773,556	503,999
1924	16	853,248	202	100,794	168,029	5,302	322,001	741,066	419,065

*Electricity not included in 1920, 1921 and 1922.

Capital employed.—Capital employed in the miscellaneous group increased to $853,248 from $739,457 in 1923, which in turn showed a corresponding increase over 1922. The gain was almost entirely accounted for by the increased value of lands, plant and plant equipment which in 1924 amounted to $432,491 or about half the entire capital employed.

Table 78.—Capital Employed in the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, by Classes and by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating account	Total	Lands, buildings, fixtures, machinery and tools	Materials on hand, and stocks in process	Cash, trading and operating account	Total
	$	$	$	$	$	$	$	$
Ontario	287,005	170,358	143,980	610,943	374,086	195,967	163,632	733,685
Canada*	**346,262**	**224,674**	**168,521**	**739,457**	**432,491**	**229,752**	**191,005**	**853,248**

* Includes figures for 2 firms in Quebec and 1 in Manitoba.

Employment.—Plants in this group employed 42 salaried employees and 160 wage-earners throughout the year and paid out $268,823 in salaries and wages. In the previous year, 42 salaried employees and 154 wage-earners received $251,856 in salaries and wages.

As indicated by the monthly records of employment, the industry was steady during the first nine months with a slight pick-up toward the end of the year. In January, there were 157 wage-earners on the roll and there was but little variation from this figure until October when the number rose to 184 where it remained until the end of the year.

Table 79.—Employment, Salaries and Wages Paid in the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1923 and 1924

	1923			1924		
	Male	Female	Total	Male	Female	Total
a) Number of employees:						
Salaried employees	32	10	42	38	4	42
Wage-earners, by months:						
January	95	32	127	113	44	157
February	102	32	134	112	45	157
March	102	31	133	109	41	150
April	98	30	128	109	41	150
May	104	34	138	106	44	150
June	108	37	145	103	42	145
July	114	47	161	107	42	149
August	121	50	171	105	45	150
September	123	48	171	109	51	160
October	131	37	168	123	61	184
November	122	44	166	123	63	186
December	128	42	170	122	63	185
Average	115	39	154	112	48	160
Total employees	**147**	**49**	**196**	**150**	**52**	**202**
(b) Salaries and wages:—						
Salaries $			87,372			100,794
Wages $			164,484			168,029
Total $			251,856			268,823
(c) Average yearly earnings of each wage-earner $			1,068			1,038
(d) Average number of days on which plants in this industry oporated during the year			255			280
(e) Labour turnover:—						
Total number of different wage-earners employed during the year						225
Average number of wage-earners employed within the year			154			160
Difference						65
Apparent labour turnover (per cent)						41

Table 80.—Fuel and Electricity Used in the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1923 and 1924

Kind	Unit of measure	1923		1924	
		Quantity	Value	Quantity	Value
		No.	$	No.	$
Anthracite coal	Short ton	81	1,199	20	310
Bituminous coal	"	254	2,049	336	2,351
Gas	M. cu. ft.	522	597	399	423
Wood	Cord	1	9	6	32
Electric power	K.W.H.	101,652	2,641	128,700	2,186
Total			**6,495**		**5,302**

Table 81.—Power Employed in the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1923 and 1924

Description	1923		1924	
	Number of units	Total h.p. according to manufacturers' rating	Number of units	Total h.p. according to manufacturers' rating
Electric motors operated by purchased power	32	163	25	148

Materials used.—Materials used in this industry included quite a variety of articles which are shown in detail in the table below.

Table 82.—Materials Used in the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1923 and 1924

Materials used	Unit of measure	1923		1924	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Alloyed metals			90,468		97,915
Brass goods			11,381		8,371
Bronze goods			9,734		10,168
Electric sockets, plugs, etc.			13,710		
Fringes, tassels, cords, etc.			19,090		55,479
Iron, galvanized	lb.			9,767	556
Iron, n.e.s.			12,747		2,187
Lenses	pcs.	13,181	5,291		1,783
Lumber			2,574		19,108
Metal stampings	lb.			11,300	5,438
Moulding	lb.	37,174	6,038		5,811
Nails and hardware, n.e.s.			422		21,772
Paint			2,655		
Rubber			10,018		20,726
Silk	yds.	18,472	15,067		10,110
Solder	lb.	1,939	499	838	252
Steel and steel wire	lb.	4,000	370		
Tin and terne plate			4,867		4,658
Wire and wire frames					1,903
Zinc	lb.		8,505	119,345	11,463
Shipping containers, of all kinds			3,322		6,801
All other materials			52,199		37,000
Total			**269,557**		**322,801**

Products.—Lamps and lanterns worth $222,107, lamp and lantern burners valued at $33,076, metal screens worth $48,629 and weatherstripping valued at $84,374, were the most important of the products listed in this industry.

Table 83.—Products of the Miscellaneous Non-Ferrous Metal Goods Industry in Canada, 1923 and 1924

Products	Unit of measure	1923		1924	
		Quantity	Selling value	Quantity	Selling value
			$		$
Lamps and lanterns			343,884		222,107
Lamp and lantern burners	Doz.	33,900	33,033	35,210	33,076
Screens			34,841		48,629
Weatherstrip:					
Brass	Ft.	6,674	266	17,616	792
Bronze	Ft.			67,144	2,202
Zinc	Ft.	13,347	535	135,555	7,116
Other			75,894		74,264
Other products*			229,227		287,434
Receipts for custom and repair work			55,876		65,446
Total			**773,556**		**741,066**

* Includes headlights, car heaters, train signals, arm trays, cushions, glass shades, gasoline irons, mantles, silk shades stoves, wooden standards.

DIRECTORY OF FIRMS IN THE INDUSTRIES CLASSIFIED UNDER "MANUFACTURES OF NON-FERROUS METALS."

Aluminium and its Products

Name of Firm	Head Office Address	Location of Plant
QUEBEC		
Northern Aluminium Co., Ltd	2400 Oliver Bldg., Pittsburg, Pa	Shawinigan Falls.
ONTARIO		
Aluminium Last and Metal Foundry Co	46 Ontario St. South, Kitchener	Kitchener.
Aluminium Ware Manufacturing Co., Ltd	Colborne St., Oakville	Oakville.
Aluminium Steel Products, Ltd	Owen Sound	Owen Sound.
Clark, Geo. C., Metal Last Co	782 McDougal Ave., Windsor	Windsor.
Duro Aluminium Ltd	Park St. N., Hamilton	Hamilton
Hamilton Aluminium Ware Co	13 Ferguson Ave., N., Hamilton	Hamilton.
Ideal Aluminium Products Ltd	2480 Dundas St. W., Toronto	Toronto.
Metal and Thermit Co	120 Broadway, New York, N.Y., U.S.A	15 Emily St., Toronto.
Northern Aluminium Co., Ltd	2400 Oliver Bldg., Pittsburgh, Pa	158 Sterling Rd., Toronto
Veribest Aluminium Co. of Canada	78 Dundas St., Toronto	Toronto.

Brass and Copper Products

NOVA SCOTIA		
Collings, Wm. & Son	711-713 Barrington St., Halifax	Halifax.
NEW BRUNSWICK		
McAvity, T. & Sons, Ltd	67-73 Water St., St. John	St. John.
QUEBEC		
Archambault, Arthur	3520 Henri Julien Ave., Montreal	Montreal.
Boisette, Ernest	79 Harmony St., Montreal	Montreal.
Booth-Coulter Copper Smithing Co., Limited	105 Wellington St., Montreal	Montreal.
Canada Brass Products Ltd	162 Craig St., W., Montreal	Montreal.
Canadian Bronze Ltd	999 Delorimier Ave., Montreal	Montreal.
Clarke, C. O., & Bro	1510 St. Patrick St., Montreal	Montreal.
Cuthbert, W. R., & Co	41 Duke St., Montreal	Montreal.
Eastern Brass Foundry Co	6 Harbour St., Montreal	Montreal.
Electrolier Manufacturing Co., Ltd	1025 Boyer St., Montreal	Montreal.
Empire Brass Foundry	121 Nazareth St., Montreal	Montreal.
Harris, C. E. T	126 Prince St., Montreal	Montreal.
Hazel, James	128-130 Grant St., Quebec	Quebec.
Jenkins Bros., Ltd	103 St. Remi St., Montreal	Montreal.
Johnson Wire Works	50 Dagenais St., St. Henry, Montreal	Montreal.
Menagh, F. B	22 Jurors St., Montreal	Montreal.
Mitchell, Robert, Co., Ltd	64 Behir Ave., Montreal	Montreal.
New Brassware Company	380 Aird Ave., Montreal	Montreal.
Union Screen Plate Co. of Canada, Limited	Main St., Lennoxville	Lennoxville.
ONTARIO		
Anaconda American Brass Ltd	Box 8, cor. 8th St. and Birmingham Ave., New Toronto	New Toronto.
Beaver Brass Mfg. Co., Ltd	309 King St. W., Toronto	Toronto.
Betcherman Iron and Metal Co	278 Creighton St., Ottawa	Ottawa.
Bong, John	203 Van Horne St., Toronto	Toronto.
Booth-Coulter Copper & Brass Co., Ltd	115-121 Sumach St., Toronto	Toronto.
Brantford Brass Foundry Ltd	22 Leonard St., Brantford	Brantford.
Brass and Aluminium Works	17 Division St., Guelph	Guelph.
Burger Mfg. Co	25 Brant St., Toronto	Toronto.
Canada Smelting & Refining Works	344½ Richmond St., London	London.
Canadian Brass Co., Ltd	415 Dundas St., Galt	Galt.
Canadian Gasket Co	Lewis St., Bridgeburg	Bridgeburg.
Capital Brass Works	207½ Booth St., Ottawa	Ottawa.
Capital Wire Cloth & Mfg. Co., Limited	Cor. Armstrong & Hinton Ave., Ottawa	Ottawa.
Cole Manufacturing Co	Kent St. W., Box 815, Lindsay	Lindsay.
Cornwall Brass and Iron Foundry	Cornwall	Cornwall.
Dean Bros	184 Richmond St. W., Toronto	Toronto.
Dodd and Strunkers	Des Moines, Iowa	105 Sandwich St. E., Walkerville.
Dominion Lightning Rod Co	Dundas	Dundas.
Edmunds, J. H., & Co	225 Richmond St. W., Toronto	Toronto.
Engravers Metal Co., Ltd	115 Sumach St., Toronto	Toronto.
Empire Brass Mfg. Co	1100-1120 Dundas St. E., London	London.
Galt Brass Co., Ltd	471 Dundas St., Galt	Galt.
Hahn Brass Co., Limited	Waterloo St., New Hamburg	New Hamburg.
Jeune Mfg. Co	1260 Queen St. W., Toronto	Toronto.
Keating, Wm	266 Macdonell Ave., Toronto	Toronto.
Lauder and Company	109½ Adelaide St. W., Toronto	Toronto.

Brass and Copper Products—Concluded

Name of Firm	Head Office Address	Location of Plant
Ontario—Concluded		
Malcolm & Co.	64 Lombard St., Toronto	Toronto.
McCulloch, A. F.	37-41 Ritson Road N., Oshawa	Oshawa.
Mitchell Brass Foundry	Cor. Mercer and Hanna Sts., Windsor	Windsor.
Monarch Brass Mfg. Co., Limited	71 Browns Ave., Toronto	Toronto.
Monarch Metal Co., Ltd.	Main St. W., Hamilton	Hamilton.
Mueller, H., Mfg. Co., Ltd	Clifford St., Sarnia	Sarnia.
National Brass and Aluminium Foundry	117 St. Patrick St., Toronto	Toronto.
Niagara Wire Weaving Co	Robinson St., Niagara Falls	Niagara Falls.
Ottawa Car Mfg. Co., Ltd	301 Slater St., Ottawa	Ottawa.
Petrie Brass Works	163-181 Sterling Rd., Toronto	Toronto.
Penberthy Injector Co., Ltd	Cor. Pitt and Windsor Sts., Windsor	Windsor.
Phillips, Eugene F., Electrical Works Limited	De Gaspe and Mariner St., Montreal, Que	Brockville.
Porter, A. D., Mfg. Co., Ltd.	Galt	Galt.
Quality Brass Foundry	Rossin House Lane, Toronto	Toronto.
Queen City Brass Foundry	28 Dalhousie St., Toronto	Toronto
Robertson, Jas., Co., Limited	144 William St., Montreal, Que	207 Spadina Ave., Toronto.
Schrader's A., Son, Inc	334 King St. E., Toronto	Toronto.
Shinn Mfg. Co. of Canada, Ltd.	133 Woolwich St., Guelph	Guelph.
Stratford Brass Co., Ltd	Cor. Erie and Gore St., Stratford	Stratford.
Sully, Joseph	2388 Dundas St. W., Toronto	Toronto.
St. Catharines Brass Works	62 George St., St. Catharines	St. Catharines.
St. Thomas Bronze Co., Ltd.	1st Ave., St. Thomas	St. Thomas.
Tallman Brass & Metal Company	Cor. Wilson and Sanford Ave., Hamilton	Hamilton.
Teeswater Lightning Rod Co	Teeswater	Teeswater.
Tickell, J. G., and Sons	560 King St. W., Toronto	Toronto.
Universal Lightning Rod Co	Tannery St., Hespeler	Hespeler.
Vacuettes Limited	530 Parkdale Ave., Ottawa	Ottawa.
Wahl Co., Limited	100 Stirling Rd., Toronto	Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd	Wallace St., Wallaceburg	Wallaceburg.
Wilson & Cousins	35 McCaul St., Toronto	Toronto.
Manitoba		
Derby Specialty Mfg. Co.	197 Princess St., Winnipeg	Winnipeg.
Northwestern Brass Ltd.	Bury St., Winnipeg	Winnipeg.
Winnipeg Brass & Fixture Company	1259 Riddle Ave., Winnipeg.	Winnipeg.
Alberta		
Northwestern Brass Ltd.	1009-24th Ave. East, Calgary	Calgary.
British Columbia		
Hastings Brass Foundry	2559 Pender E., Vancouver	Vancouver.
Smith, Thos. Wm	632 Pembroke St., Victoria	Victoria.
Starr Brass Foundry	194 Lorne Ave. W., Vancouver	Vancouver.
Sumner Metal Works	1705 Georgia St., W. Vancouver	Vancouver.
Vancouver Brass Works	1304 Keefer St., Vancouver	Vancouver.
Victoria Brass and Iron Works	Pioneer St., Esquimalt	Esquimalt.
Wilson's Brass Foundry	22 Dufferin St. E., Vancouver	Vancouver.

Lead, Tin and Zinc Products

New Brunswick		
James Robertson Co., Ltd.	142 William St., Montreal, Quebec	1-29 Sheffield St., St. John.
Quebec		
Dominion Metal Co	108-110 Frontenac St., Sherbrooke	Sherbrooke.
Eagle Smelting & Refining Works, Ltd.	248 Richmond St., Montreal	Montreal.
Magnolia Metal Company	115 Bank St., New York, N.Y., U.S.A.	37-39 Shannon St., Montreal.
Mount Royal Metal Co	Cor. Mill and Oak Sts., Montreal	Montreal.
Robertson, Jas., & Co., Ltd.	142 William St., Montreal	Montreal.
Robertson, Thomas, & Co., Ltd.	134 Craig St. W., Montreal	207 Common St., Montreal.
Ontario		
Canada Metal Co., Ltd.	35-53 Fraser Ave., Toronto	Toronto.
Canadian Collapsible Tube & Containers Ltd.	95 Sterling Road, Toronto	Toronto.
Canadian Hanson & Van Winkle Co., Ltd.	15 Morrow Ave., Toronto	Toronto.
Canadian Type Foundries Ltd.	74 Market St., Toronto	Toronto.
Flexible Metallic Packing Co.	Windsor	Windsor.
Hoyt Metal Company	1506 Boatman's Bank Bldg., St. Louis, Mo., U.S.A.	Eastern Ave. and Lewis St., Toronto.
Modern Machine Co.	344 Queen St., Ottawa	Ottawa.
Frankel Bros., Ltd.	Don and Eastern Ave., Toronto	Toronto.
Spooner, Alonzo, Ltd.	Port Hope	Port Hope.

Lead, Tin and Zinc Products—Concluded

Name of Firm	Head Office Address	Location of Plant
MANITOBA		
Canada Metal Co.	35 Frazer Ave., Toronto, Ont.	301 Chambers St., Winnipeg.
Union Metal Co.	405 Langside St., Winnipeg.	Winnipeg.
BRITISH COLUMBIA		
Canada Metal Co., Ltd.	35 Frazer Ave., Toronto, Ont.	Vancouver.
Great Western Smelting & Refining Co.	146 Dufferin St. E., Vancouver.	Vancouver.
Shivlock-Jackson Ltd.	341 Pender St. W., Vancouver	Vancouver.

Precious Metal Products

NOVA SCOTIA		
Eastwood, Jas.	65 Provost St., New Glasgow	New Glasgow.
NEW BRUNSWICK		
Maritime Dental Laboratory	162 Union St., St. John	St. John.
QUEBEC		
Acme Gold Co.	Sherbrooke	Sherbrooke.
Bramley, Wm., & Co.	4 Dollard Lane, Montreal	Montreal.
Birks, Henry & Sons, Ltd.	Phillips Square, Montreal	Montreal.
Caron Brothers	233-239 Bleury St., Montreal	Montreal.
Canadian Peerless Jewellery Co., Ltd.	115 Laurier Ave., Sherbrooke	Sherbrooke.
Canadian Sturdy Chain Co.	Richmond St., Sherbrooke	Sherbrooke.
Coffee, J. G.	119 St. Alexander, Montreal	Montreal.
Elite Metal Novelty Mfg. Co.	141 St. Paul St. W., Montreal	Montreal.
Farmer Bros.	40 St. Lawrence Blvd., Montreal	Montreal.
Grothy, Theodore A., & Fils	155-157 St. Lawrence Blvd., Montreal	Montreal.
Helmsley, Geo. T., Co.	7 Bleury St., Montreal	Montreal.
Hoichberg & Soltanoff	Room 404, 46 St. Alexander, Montreal	Montreal.
Ingersoll, Robt. H., & Bro.	294 St. Catharine St. E., Montreal	Montreal.
Lariviere, J. L. H.	684 Lartigue, Montreal	Montreal.
Lasker, Moses	7 Bleury St., Montreal	Montreal.
Lemaitre, Paul, Ltee.	1552 Blvd. St. Laurent, Montreal	Montreal.
Mappin & Webb (Canada), Ltd.	353 St. Catherine St. W., Montreal	Montreal.
Marion, Aly.	222 Craig St. West, Montreal	Montreal.
McRae Stone Co., Ltd.	Ball & Gillespie Sts., Sherbrooke	Sherbrooke.
Montreal Dental Supply & Mfg. Co.	495 Birks Bldg., 14 Phillips Sq., Montreal	Montreal.
Pepin, Paul	2789 Rue Drolet, Montreal	Montreal.
Roughton & Skelton	32 McGill College Ave., Montreal	Montreal.
Stephenson-Robillard Co.	7 Bleury St., Montreal	Montreal.
Stoves, Annie	275 Craig St. W., Montreal	Montreal.
Whiting & Davis Co.	21 Jenckes Lane, Sherbrooke	Sherbrooke.
ONTARIO		
American Watch Case Co. of Toronto, Ltd.	511 King W., Toronto	Toronto.
Allport, Herbert R.	360 Richmond St., London	London.
Allport Bros.	28 Adelaide St. E., Toronto	Toronto.
Anthony Bros.	366 Adelaide St. W., Toronto	Toronto.
Arrowsmith Co.	45 Richmond St. E., Toronto	Toronto.
Baker, Geo. L.	101 John St., Hamilton	Hamilton.
Baker, T. H., and Co., Ltd.	115 Carling St., London	London.
Benedict Proctor Mfg. Co., Ltd.	East Syracuse, N. Y., U.S.A.	Trenton.
Berlin & Racycle Mfg. Co., Ltd.	53 Frederick St., Kitchener	Kitchener.
Breadner Mfg. Co.	1002 Somerset St., W., Ottawa	Ottawa.
Butterworth, L. R.	176 Richmond St. W., Toronto	Toronto.
Canadian Seamless Wire Co., Ltd.	198 Clinton St., Toronto	Toronto.
Canadian Silversmiths, Ltd.	110 Adelaide St. W., Toronto	Toronto.
Canadian Wm. A. Rogers, Ltd.	570 King St. W., Toronto	Toronto
Capp, T. W., Company	176 Richmond St. W., Toronto	Toronto.
Caulk, L. D., Co. of Canada Ltd.	172 John St., Toronto	Toronto.
Cherry, Albert James	1410 Scarth St., Regina, Sask.	39 Lombard St., Toronto.
Cope, C. H.	51 Richmond St., E., Toronto	Toronto.
Cowdrill and Mullen	39 Lombard St. Toronto	Toronto.
Davis Mfg. Co.	11 Dundas St. W., Toronto	Toronto.
Donnelly, L., & Co.	116 Church St., Toronto	Toronto.
Eaton, T., Co., Ltd.	190 Yonge St., Toronto	Toronto.
Electric Chain Co. of Canada	21 River St., Toronto	Toronto.
Elliott & Bishop Co.	34 Adelaide St. W., Toronto	Toronto.
Ellis, P. W., & Co., Ltd.	31 Wellington St. E., Toronto	Toronto.

Precious Metal Products—Concluded

Name of Firm	Head Office Address	Location of Plant
ONTARIO—Concluded		
Excelsior Jewelry Mfg. Co	69-71 Adelaide St. W., Toronto	Toronto.
Fort William Jewelry Co	Fort William	Fort William.
Fremes, S., & Co., Ltd	333 Adelaide St., W., Toronto	Toronto.
Friedman & Hurwitz	176 Richmond St. W., Toronto	Toronto.
Gill, Ernest W	186 Adelaide St. W., Toronto	Toronto.
Goldsmith Bros. Smelting & Refining Co., Ltd	21 Dundas St. E., Toronto	Toronto.
Goldstein Jewelry Manufacturing Co., Ltd	180 John St., Toronto	Toronto.
Gray and Pullen	45 Richmond St. E., Toronto	Toronto.
Imperial Refining & Smelting Works	34 Beverly St., Toronto	Toronto.
International Silver Co., Ltd	375 Madison Ave. N., Toronto	Toronto.
Jackson, Howe and Brooks	11 Temperance St., Toronto	Toronto.
Jones, Chas. F	380 Clarence St., London	London.
Luckie, Milton	106 Lombard St., Toronto	Toronto.
Lees, Geo. H., & Co., Ltd	47 Main St. E., Hamilton	Hamilton.
Levy Bros. Co., Ltd	58-60 King St. E., Hamilton	Hamilton.
McCann, Wm., Plating Co	114 Jarvis St., Toronto	Toronto.
McElheran and Plant	66 Dundas St. W., Toronto	Toronto.
McGlashan Clarke, Co., Ltd	Palmer Ave., Niagara Falls	Niagara Falls.
Meriden Britannia Co., Ltd	Wellington and Cannon Sts., Hamilton	Hamilton.
Milroy, S. K	284 Dundas St., London	London.
Murphy, Bruce	Orillia	Orillia.
National Refining Co., Ltd	34 Ross St., Toronto	Toronto.
Nolan & Strachan	39 Lombard St., Toronto	Toronto.
Oneida Community Co. Ltd	Oneida, N. Y., U.S.A	Niagara Falls.
Parkinson, F. A	401 Colborne St., Toronto	Toronto.
Platinum Art Co	70 Lombard St., Toronto	Toronto.
Pugh, William, Co	159-161 Richmond St. W., Toronto	Toronto.
Queen City Dental Manufacturers, Ltd	384 Victoria St., Toronto	Toronto.
Riordan Plating Works	13 Park St. N., Hamilton	Hamilton.
Roden Bros., Ltd	345 Carlaw Ave., Toronto	Toronto.
Rogers, Wm. Mfg. Co., Ltd	145 River Road, Niagara Falls	Niagara Falls.
Rogul, A	73 Adelaide St. W., Toronto	Toronto.
Saunders, H. & A	Cor. King & John Sts., Toronto	Toronto.
Saunders, Lorie & Co., Ltd	200-206 Adelaide W., Toronto	Toronto.
Smith, F. W., Mfg. Co	124 Percy St., Ottawa	Ottawa.
Sterling Craft	176 Richmond St. W., Toronto	Toronto.
Sweet John, & Co	92 King St., W., Hamilton	Hamilton.
Tisdall, H. W	150 Yonge St., Toronto	Toronto.
Toronto Watch Case Repair Co	40 Colborne St., Toronto	Toronto.
Traub Mfg. Co. of Canada, Ltd	28 London St., W., Windsor	Windsor.
Unity Jewelry Mfg. Co	10 Bond St., Toronto	Toronto.
Vallier & Millard	1 Duchess St., Toronto	Toronto.
Wade Manufacturing Co	Cross St., Dundas	Dundas.
Wellings Mfg. Co. of Toronto, Ltd	67 Richmond St. E., Toronto	Toronto.
Western Clock Company	383 George St. S., Peterborough	Peterborough.
White, T., & Son	11 Richmond St. W., Toronto	Toronto.
Wickett & Smith Co	71 Lombard St., Toronto	Toronto.
Williams, Gold Refining Co	Mentholatum Bldg., Bridgeburg	Bridgeburg.
MANITOBA		
Birks, Henry, & Sons, Ltd	Phillips Square, Montreal, Que	Smith & Portage Ave., Winnipeg.
Cutler, S., & Co	512 Avenue Block, Winnipeg	Winnipeg.
Lewis, R	490 Main St., Winnipeg	Winnipeg.
ALBERTA		
Baker and Jarratt	No. 2 Western Block, 222A 8th Ave. W., Calgary	Calgary.
Birks, Henry, & Son	Phillips Square, Montreal, Que	Herald Bldg., Calgary.
Calgary Dental Laboratory	608 Leeson Lineham Blk., 8th Ave W., Calgary,	Calgary.
BRITISH COLUMBIA		
Birks, Henry & Sons, Ltd	Phillips Square, Montreal, Que.,	710 Grenville St., Vancouver.
Boris, Cecil Peetz	654 Yates St., Victoria	Victoria.
Flewwelling, E. R	Room 12, 18 Hastings St. W., Vancouver	Vancouver.
Jacoby Bros	423 Hamilton St., Box 492, Vancouver	Vancouver.
Pettigrew, J. D	Bernard Ave., Kelowna	Kelowna.

Electrical Apparatus and Supplies

QUEBEC		
Hart Battery Co. Ltd	London, Eng	St. Johns.
Canadian Laco Lamps, Ltd	152 Bleury St., Montreal	Montreal.
Canadian Vacuum Cleaner Co	252 Lagauchetiere St., W., Montreal	Montreal.
Devoe Electric Switch Co	414 Notre Dame St., W., Montreal	Montreal.
Duncan Electrical Co., Ltd	2 Inspector St., Montreal	Montreal.
Economy Fuse & Mfg. Co. of Canada, Ltd	504 Unity Bldg., Montreal	Montreal.
Ellwood Electric Co	1786 St. Catherine St., E., Montreal	Montreal.

Electrical Apparatus and Supplies—Continued

Name of Firm	Head Office Address	Location of Plant
QUEBEC—Concluded		
Hughes, Benj., Electric Co	2311 Jeanne Mance St., Montreal	Montreal.
L. & N. Co., Ltd	St. Johns	St. Johns.
Marchand Electrical Works Ltd	55 Coté St., Montreal	Montreal.
Marconi Wireless Telegraph Co	173 William St., Montreal	Montreal.
Monarch Electric Co., Ltd	Waterman St., St. Lambert	St. Lambert.
Northern Electric Co., Ltd	121 Shearer St., Montreal	Montreal.
Phillips, Eugene F., Electrical Works Ltd	De Gaspé & Marmier, Box 729, Montreal	Montreal.
Safety Car Heating & Lighting Co	122 Versailles St., Montreal	Montreal.
Solex Co., Ltd	762 St. Lawrence St., Montreal	Montreal.
ONTARIO		
Apex Electrical Manufacturing Co., Ltd	1067 East 152nd St., Cleveland, Ohio, U.S.A.	102 Atlantic Ave., Toronto.
Banfield, W. H., & Son, Ltd	372 Pape Ave., Toronto	Toronto.
Benjamin Electric Mfg. Co. of Can., Ltd	11-17 Charlotte St., Toronto	Toronto.
Boston Insulated Wire & Cable Co	118 Shaw St., Hamilton	Hamilton.
Brunston, Charles A., & Co	355 Yonge St., Toronto	Toronto.
Brock Snyder Mfg. Co	John St., Grimsby	Grimsby.
Burgess Batteries, Ltd	65 Battery St., Niagara Falls	Niagara Falls.
Canada Wire & Cable Co., Ltd	2410 Dundas St. W., Toronto	Leaside.
Canadian Armature Works	88-90 Queenston St., St. Catharines	St. Catharines.
Canadian Brandes Ltd	243 Church St., Toronto	Toronto.
Canadian Coil Co., Ltd	Walker Power Bldg., Walkerville	Walkerville.
Canadian Consolidated Corporation, Ltd	64 Niagara St., St. Catharines	St. Catharines.
Canadian Crocker-Wheeler Co., Ltd	George St., St. Catharines	St. Catharines.
Canadian Drill & Electric Box Co	1402 Queen St. E., Toronto	Toronto.
Canadian Electric Floor Waxer and Polisher	22 Dundas St. W., Toronto	Toronto.
Canadian General Electric Co., Ltd	212 King St. W., Toronto	Peterborough.
" "	" "	245 Downie St., Stratford.
" "	" "	Lansdowne Ave., Toronto.
" "	" "	Cor. Ward St. & Wallace Ave., Toronto.
" "	" "	Park St., Peterborough.
" "	" "	Cannon and Ashley Sts., Hamilton.
" "	" "	Edison Works, 221 Dufferin St., Toronto.
Canadian Meter Co., Ltd	88-90 Caroline St. N., Hamilton	Hamilton.
Canadian National Carbon Co., Ltd	Canada Life Building, Toronto	Hillcrest Park, Toronto.
Canadian Triangle Conduit Co. Ltd	21 Prescott Ave., Toronto	Toronto.
Canadian Tungsten Lamp Co., Ltd	Cor. Cannon and Ashley Sts., Hamilton	Hamilton.
Canadian Westinghouse Co., Ltd	Sanford Ave. N., Hamilton	Hamilton.
Cansfield, Chas. E	260 Geary Ave., Toronto	Toronto.
Chadwick, F., Brass Co	1924 Rolus St., Hamilton	Hamilton.
Champion Spark Plug Co	1416 Howard Ave., Windsor	Windsor.
Clements Manufacturing Co., Ltd	78 Duchess St., Toronto	Toronto.
Continental Electric Co., Ltd	507-511 King St. E., Toronto	Toronto.
Crouse-Hinds Co. of Canada, Ltd	7 Labatt Ave., Toronto	Toronto.
Crown Electrical Mfg. Co., Ltd	17 Sydenham St., Brantford	Brantford.
Dalyte Electric Ltd	Surrey St. Guelph	Guelph.
Dixons, Ltd	18-24 Ferguson Ave. N., Hamilton	Hamilton.
Dominion Dry Cells Co., Ltd	20 Trinity St., Toronto	Toronto.
Dominion Carbon Brush Co	38 Duke St., Toronto	Toronto.
Dominion Electric Switch Box Co	60 Sumach St., Toronto	Toronto.
Dominion Gas Meter Works	328 Wortley Rd., London	London.
Dominion Insulator and Mfg. Co. Ltd	Niagara Falls	Niagara Falls.
Electroplax Co. Ltd	146-152 King St. W., Toronto	Toronto.
Equator Manufacturing Co., Ltd	144 York St., Hamilton	Hamilton.
Exide Batteries of Canada, Ltd	153 Dufferin St., Toronto	Toronto.
Factory Products, Ltd	220 King St. W., Toronto	Toronto.
Ferranti Meter & Transformer Mfg. Co., Ltd	26 Noble St., Toronto	Toronto.
Galt Electric and Gas Fixtures Co	59 Queen St. E., Galt	Galt.
Hamilton Lamp Co	146 York St., Hamilton	Hamilton.
Hessco Co	20 Millstone Lane, Toronto	Toronto.
Hoover Suction Sweeper Co. of Canada	Gage & Barton Sts., Hamilton	Hamilton.
I. X. L. Mfg. Co	Norman and Daly Sts., Palmerston	Palmerston.
Jones & Moore Electric Co., Ltd	296 Adelaide St. W., Toronto	Toronto.
Keith Electric Refrigerator Co	297 Campbell Ave., Toronto	Toronto.
La Salle Lead Products Ltd	630 Wyandotte St. E., Windsor	Windsor.
Lighting Fixture, Ltd	86 Richmond St. W., Toronto	Toronto.
Lincoln Electric Co. of Canada, Ltd	136 John St., Toronto	Toronto.
Live Wire Co., Ltd	Metcalfe St., Guelph	Guelph.
Mack Storage Battery Co. of Canada Ltd	296 Greenwood Ave., Toronto	Toronto.
Maloney Electric Co. of Canada Ltd	213 Sterling Road, Toronto	Toronto.
Metal Studios, Ltd	21 Walnut St., N., Hamilton	Hamilton.
Metropolitan Engineering Co. of Canada, Ltd	20 Hayter St., Toronto	Toronto.
Mis-Can-Ada Mfg. Co	12 Chamberlain Ave., Ottawa	Ottawa.
Monarch Battery Co., Ltd	275 Ontario St., Kingston	Kingston.
National Electric Heating Co., Ltd	544 Queen St. E., Toronto	Toronto.
Neptune Meter Co	1195 King St. W., Toronto	Toronto.
Nesbitt Electric Mfg. Co., Ltd	60 Duchess St., Toronto	Toronto.
Osborne Electric Co	28 Temperance St., Toronto	Toronto.

Electrical Apparatus and Supplies—Concluded

Name of Firm	Head Office Address	Location of Plant
ONTARIO—Concluded		
Packard Electric Co., Ltd	13 Race St., St. Catharines	St. Catharines.
Phoenix Art Metal Mfrs	1102 Ossington Ave., Toronto	Toronto.
Pierce Fuse Corporation of Canada, Ltd	8 Lewis St., Bridgeburg	Bridgeburg.
Premier Vacuum Cleaner Co., Ltd	445½ Yonge St., Toronto	Toronto.
Prest-O-Lite Company of Canada, Ltd	Canada Life Bldg., Toronto	Hillcrest Park, Toronto.
RadioValve Co. of Canada Ltd	212 King St. W., Toronto	Hamilton.
Renfrew Electric Products, Ltd	Bonnechere St., Box 641, Renfrew	Renfrew.
Robbins & Myers Co	Morrel St., Brantford	Brantford.
Sangamo Electric Co., of Canada, Ltd	183-185 George St., Toronto	Toronto.
Service Lamp Co	348 Talbot St., London	London.
Smith, Peter, Heater Co	Walkerville	Walkerville.
Smith & Stone, Ltd	Georgetown	Georgetown.
Square D. Company	6060 Rivard St., Detroit, Mich	Walkerville
Standard Bronze Co., Ltd	145 Victoria St., Toronto	Toronto.
Standard Meter Co., Ltd	10 Morrow Ave., Toronto	Toronto.
Standard Underground Cable Co. of Canada, Ltd	Sherman Ave., Hamilton	Hamilton.
Superior Electric Co., Ltd	197 John St., Pembroke	Pembroke.
Supreme Water Heater Mfg. Co	1 Carlton St., Toronto	Toronto.
Taylor Elec. Mfg. Co., Ltd	237 Dundas St., London	London.
Thermo Electric Ltd	32 Wharf St., Brantford	Brantford.
Toronto and Hamilton Electric Co	99-103 McNab St. N., Hamilton	Hamilton.
United Electric Co. of Canada, Ltd	82 Chestnut St., Toronto	Toronto.
Volta Mfg. Co., Ltd	Burgar St., Welland	Welland.
Walker, Hiram, & Sons, Metal Products Ltd	Kildare Road, Walkerville	Walkerville.
Walsh Electrical Co., Ltd	465 Church St., Toronto	Toronto.
Willard Storage Battery Co., of Canada, Ltd	100 Sterling Road, Toronto	Toronto.
Wonder Recharger Corporation Ltd	2964 Danforth Ave., Toronto	Toronto.
MANITOBA		
Burgess Dry Cells, Ltd	14 Bury St., Winnipeg	Winnipeg.
Garry Mfg. Co., Ltd	120 Lombard St., Winnipeg	Winnipeg.
Globelite Battery Co., Ltd	14 Pacific Ave., Winnipeg	Winnipeg.
Langley, G. E., Electrical Mfg. Co	35 Martha St., Winnipeg	Winnipeg.
ALBERTA		
Alberta Battery Co	420-229th Ave. E., Calgary	Calgary.
Masse Bros. Electric Co	10161-100 A. St., Edmonton	Edmonton.
Smith's Battery Station	211-10th Ave. W., Calgary	Calgary.
BRITISH COLUMBIA		
Cope & Son, Ltd	150 Hastings W., Vancouver	Vancouver.
Farr, Robinson & Bird	546 Howe St., Vancouver	Vancouver.
Mere Light, Ltd	918 Pender St., Vancouver	Vancouver.

Miscellaneous Non-Ferrous Metal Goods

QUEBEC		
Piper, Hiram L., Co., Ltd	75 St. Remi St., Montreal	Montreal.
White Bros	1234 Van Horne Ave., Montreal	Montreal.
Window Strip and Supply Co., Ltd	345 Notre Dame St. W., Montreal	Montreal.
ONTARIO		
Baetz Bros. Specialty Co., Ltd	21 Gaukel St., Kitchener	Kitchener.
Best Weather Strip Co., Ltd	13 Ferguson Ave. N., Bartonville	Bartonville.
Chamberlain Metal Weather Strip Co	Kingsville	Kingsville.
Coleman Lamp Co., Ltd	Queen St. E. and Davis Ave., Toronto	Toronto.
Crown Metal Weather Strip Co	123 Isabella St., Toronto	Toronto.
Dewar Mfg. Co	357 College St., Toronto	Toronto.
Ford's Golden All-Metal Weather Strip Co	111 Prospect St., Hamilton	Hamilton.
Furber, C. J., & Co	Durham	Durham.
Glenney, W. H	23 Rosehearth Ave., Toronto	Toronto.
Golden All-Metal Weather Strip Co	417 Margueretta St., Toronto	Toronto.
Higgin Manufacturing Co	33-35 McCall St., Toronto	Toronto.
Peace, William, Co., Ltd	Bank of Hamilton Bldg., Hamilton	Hamilton.
Schultz Manufacturing Co., Ltd	154 York St., Hamilton	Hamilton.
MANITOBA		
Dennis, H. J	284 Stradbrook Ave., Winnipeg	Winnipeg.