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

ANNUAL REPORT

ON THE

MINERAL PRODUCTION OF CANADA

DURING THE CALENDAR YEAR

1924

Published by Authority of the Hon. J. A. Robb, M.P.,
Acting Minister of Trade and Commerce

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1926

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 and** (f) **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:

Classification of Manufacturing Industries in Canada for the Collection of Production Statistics

Manufactures 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; Gas, Illuminating and Fuel; Glass (blown, cut, ornamental, etc.); Monumental and Ornamental Stone; Petroleum Products; Miscellaneous Manufactured Non-Metallic Mineral Products, including (a) Artificial Abrasives; (b) Abrasive Products (c) Electrodes; (d) Fuel Briquettes; (e) Gypsum Products; (f) Mica Trimming.

(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, Perfumes, Cosmetics and Toilet Preparations; Inks, Dyes, and Colour Compounds; Wood Distillates and Extracts.

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

PREFACE

Final data for 1924 given in this report show that the mineral production of Canada in that year had a total value of $209,583,406. The total value shown in the Preliminary Report for 1924, issued February 23, 1925, was $209,516,465, only a fraction of one per cent below the final totals.

Annual statistical reports on the mineral production of Canada have been published for many years, first by the Geological Survey, later by the Mines Branch of the Department of Mines, and, since 1921, by the Dominion Bureau of Statistics. The present report is issued in continuance of this series, certain new material having been introduced which it is believed will be found of value to the mineral industry.

The statistics relating to the different minerals and the general statistical tables have been prepared as formerly, and these have been supplemented by general reviews of the principal mineral industries, (e.g., the copper-gold industry, the silver-lead-zinc industry, the nickel-copper industry, etc.), and by a section on metallurgical works. In recent years, the value of statistics of this character, covering capital, labour, equipment, etc., has become more generally recognized and the demand for such information has greatly increased.

To meet a demand for the names and addresses of concerns operating in the mineral industry, a list has been prepared and is included in this report; this departure, adopted in 1922, will, it is hoped, be found of value.

Statistical reports on the mineral production of Canada issued by the Dominion Bureau of Statistics include the following publications: (a) Preliminary estimate of production issued on January 1 in each year; (b) Preliminary Report for the calendar year, printed in February; (c) Report on production during the six months ending June 30, distributed in August; (d) Bulletins giving finally revised production data for the calendar year on each mineral product, issued as the compilations are completed; (e) Annual Report on the Mineral Production of Canada, available towards the close of the year. Monthly reports on Coal Statistics are also issued on the fifteenth of each month, and a special annual report giving detailed information on the Canadian coal mining industry and on the importation and distribution of coal, is published in June.

The cordial thanks of the Bureau are tendered to the Dominion Department of Mines and to the several Provincial Departments of Mines, which have without exception, assisted materially in the preparation of the report. In reference to the co-ordination of mining statistics between the Provincial Departments and this Bureau, it has been found possible to arrange for the co-operative collection of monthly statistics of coal production with all the provinces in which such records are obtained, namely, Nova Scotia, New Brunswick, Saskatchewan and Alberta. In the field of general mining statistics, co-operative arrangements with the Ontario Department of Mines have been continued, thus preventing overlapping and duplication of work. All data collected by the Bureau on mining statistics are made available to the Dominion Department of Mines.

The thanks of the Bureau are also tendered to the mine and smelter operators, for assistance given and information made available. The railway and other transportation companies, as well as smelter operators outside of Canada, have also furnished data the receipt of which is gratefully acknowledged.

The report has been prepared 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. Mr. W. H. Losee, B.Sc., who supervised the work, was assisted by Mr. B. R. Hayden and a staff of six clerks, in the checking and compilation of the returns and in the preparation of the material in the report.

R. H. COATS,
Dominion Statistician.

DOMINION BUREAU OF STATISTICS, OTTAWA,
December 1, 1925.

11857—1½

TABLE OF CONTENTS

Part Three—Directory

List of all concerns in the Canadian Mining Industry, operating in 1924

PART ONE

PRODUCTION STATISTICS

The first section of this report deals with the statistics of the Mineral Production of Canada. Where possible, tables showing historical data, and World's Production have been shown.

Table 1.—Quantities and Values of Mineral Products from Canadian Sources, 1923 and 1924

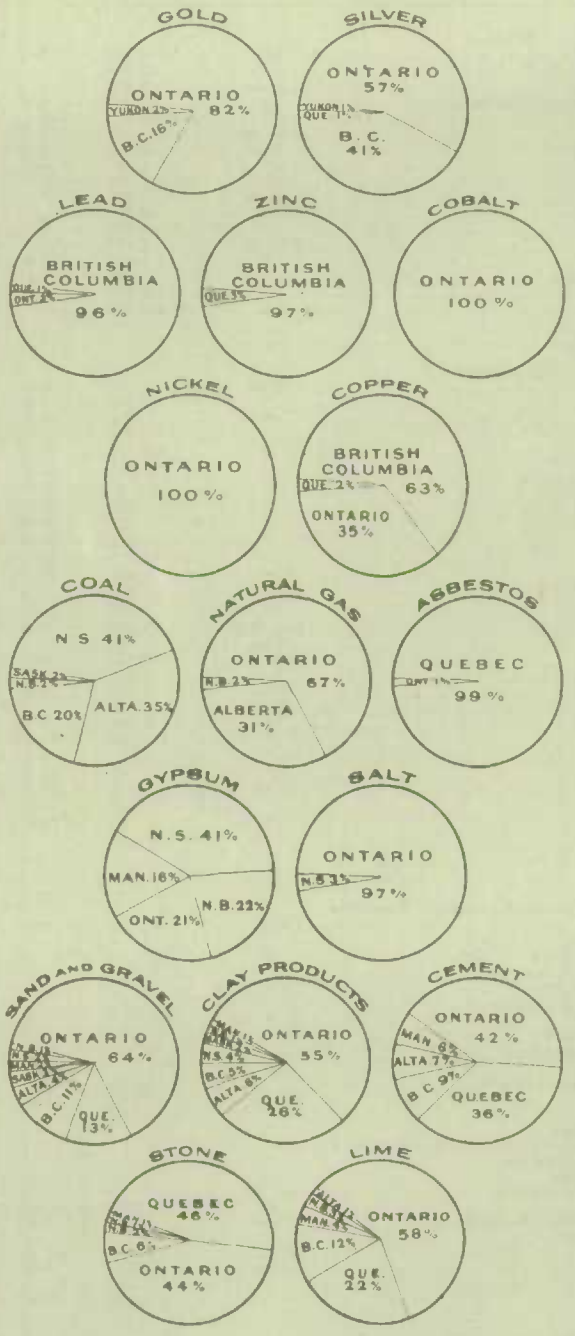
		1923			1924		
		Quantity	Value	Per cent of total	Quantity	Value	Per cent of total
METALLIC			$			$	
Arsenic As_2O_3	Lb.	6,421,587	626,815	0·29	4,621,567	348,293	0·16
Bismuth	"				12,863	27,913	0·01
Chromite Cr_2O_3	Tons	3,558	52,650	0·03			
Cobalt, metallic and contained in oxide	Lb.	888,061	2,530,974	1·18	648,704	1,682,395	0·80
Copper	"	86,881,537	12,529,186	5·85	101,457,447	13,694,538	6·50
Gold	Fine oz.	1,233,341	25,495,421	11·92	1,525,382	31,532,443	15·05
Iron pig, from Canadian ore	Tons	20,739	432,298	0·20	3,716	92,750	0·04
Iron ore sold for export	"	5,670	20,279	0·01	1,408	3,771	
Lead	Lb.	111,234,466	7,985,522	3·73	175,485,496	14,221,345	6·79
Manganese ore	Tons	200	1,400		584	4,088	
Molybdenite	Lb.				18,739	9,370	
Nickel	"	62,453,843	18,332,077	8·56	69,536,350	19,470,178	9·29
Palladium	Fine oz.	1,732	138,560	0·06	8,923	811,993	0·39
Platinum	"	1,217	141,826	0·07	9,186	1,091,447	0·52
Rhodium, Osmium, Iridium	"	304	45,000	0·02	593	51,120	0·02
Silver	"	18,601,744	12,067,509	5·64	19,736,323	13,180,113	6·29
Zinc	Lb.	60,416,240	3,991,701	1·86	98,909,077	6,274,791	3·00
Total			**84,391,218**	**39·42**		**102,406,528**	**48·86**
NON-METALLIC							
Actinolite	Tons	53	583		90	1,225	
Asbestos	"	231,482	7,522,506	3·51	225,744	6,710,834	3·20
Barytes	"	409	8,548		151	3,308	
Bituminous sands	"				531	2,127	
Coal	"	16,990,571	72,058,986	33·66	13,638,197	53,593,188	25·58
Feldspar	"	29,225	237,601	0·11	44,804	358,540	0·17
Fluorspar	"	139	1,732		76	1,343	
Garnets	"	1,250	100,000	0·05	360	7,200	
Graphite	"	1,113	67,873	0·03	1,334	76,117	0·04
Grindstones	"	2,014	80,083	0·04	2,691	130,854	0·06
Gypsum	"	578,301	2,243,100	1·05	646,016	2,208,108	1·06
Magnesite	"	4,801	134,382	0·06	3,873	101,356	0·05
Magnesium sulphate	"	121	6,580				
Mica	"	3,525	326,974	0·15	4,091	357,372	0·17
Mineral water	Imp. Gal.	232,451	16,455		209,353	15,421	0·01
Natro-alunite	Tons	15	750				
Natural gas	M cu. ft.	15,960,583	5,884,618	2·75	14,881,336	5,708,636	2·73
Oxides, iron	Tons	10,424	129,636	0·06	7,366	91,160	0·04
Petroleum, crude	Bbl.	170,169	522,018	0·24	160,773	467,100	0·22
Phosphate	Tons	30	600				
Pyrites	"	28,591	113,020	0·05	23,552	95,670	0·05
Quartz	"	264,076	599,250	0·28	150,896	323,156	0·15
Salt	"	202,387	1,713,516	0·80	207,979	1,374,780	0·66
Sodium carbonate	"	265	3,975		510	5,173	
Sodium sulphate	"	733	10,189		1,083	6,004	
Talc and soapstone	"	10,366	150,507	0·07	11,332	154,480	0·07
Tripolite	"	130	3,250		33	838	
Volcanic ash	"				245	1,103	
Total			**91,936,732**	**42·95**		**71,796,069**	**34·26**
STRUCTURAL MATERIALS AND CLAY PRODUCTS							
Cement, portland and puzzolan	Brl.	7,543,589	15,064,661	7·04	7,498,654	13,388,411	6·39
Clay products—							
Brick—Soft mud process {Face	M				10,831	185,248	0·09
{Common	"				59,079	746,044	0·36
Stiff mud process (wire cut) {Face	"				80,565	1,842,224	0·88
{Common	"	388,647	6,701,317	2·49	124,556	1,889,631	0·90
Dry press {Face	"				35,203	761,572	0·36
{Common	"				12,794	168,043	0·08
Fancy or ornamental brick	"				755	98,460	0·05
Sewer brick	"				2,690	41,775	0·02
Fire brick from domestic clay	"	6,122	295,037		4,317	209,256	0·10
Fireclay	Tons	2,685	24,158		3,645	26,258	0·01
Kaolin	"	163	2,369				
Fireclay blocks and shapes	"		81,345			51,273	0·02
Structural tile—Hollow blocks (including fire-proofing and load-bearing tile)	"		1,209,605		96,818	926,777	0·44
Roofing tile	No.				7,377	917	
Floor tile (quarries)	Sq. ft.				444,601	35,608	0·02
Drain tile	M	10,599	323,314		15,137	409,369	0·20
Sewer pipe (including copings, flue lining, etc.)	Tons	70,252	1,616,324		76,355	1,594,280	0·76
Pottery, glazed or unglazed			229,547			238,342	0·11
Lime	Bush.	10,035,319	3,266,608	1·53	9,136,952	3,178,541	1·51
Sand and gravel	Tons	12,752,515	3,016,518	1·41	11,603,500	3,181,683	1·52
Slate	"	1,836	17,289				
Stone—							
Granite	Tons	398,432	1,159,303	0·54	419,971	1,013,345	0·47
Limestone	"	3,687,663	4,475,921	2·09	4,249,061	4,831,684	2·35
Marble	"	2,473	201,518	0·09	4,379	322,455	0·14
Sandstone	"	22,766	66,547	0·03	91,603	210,273	0·10
Total			**37,751,381**	**17·63**		**35,380,869**	**16·88**
Grand total			**214,079,331**	**100·00**		**209,583,496**	**100·00**

Table 2.—Increase or Decrease in Quantities and Values of Mineral Products from Canadian Sources, in 1924 as compared with 1923

		Increase (+) or Decrease (−)		Increase (+) or Decrease (−)	
		Quantity	%	Value	%
				$	
Metallic					
Arsenic	Lb.	− 1,800,020	− 28·1	− 278,52[illegible]	− 44·5
Bismuth	"	+ 12,863	.....	+ 27,9[illegible]3	.....
Chromite	Tons	− 3,558	.....	− 52,65[illegible]	.....
Cobalt, metallic and contained in oxide	Lb.	+ 61,643	+ 6·8	− 848,579	− 33·6
Copper	"	+17,575,910	+ 20·[illegible]	+ 1,075,35[illegible]	+ 8·5
Gold	Fine oz.	+ 292,041	+ 23·6	+ 6,037,92[illegible]	+ 23·6
Iron pig from Canadian ore	Tons	− 17,029	− 78·3	− 339,548	− 78·6
Iron ore sold for export	"	− 4,26[illegible]	− 75·[illegible]	− 16,50[illegible]	− 81·5
Lead	Lb.	+64,251,033	+ 57·7	+ 6,235,8[illegible]3	+ 78·0
Manganese	Tons	+ 384	+ 192·0	+ 2,688	+ 192·0
Molybdenite	Lb.	+ 18,739	.....	+ 9,37[illegible]	.....
Nickel	"	+ 7,082,507	+ 11·3	+ 1,138,101	+ 6·2
Palladium	Fine oz.	+ 7,191	+ 415·1	+ 673,433	+ 486·0
Platinum	"	+ 7,969	+ 654·8	+ 949,691	+ 669·5
Rhodium, Osmium, Iridium	"	+ 289	+ 95·0	+ 6,120	+ 13·6
Silver	"	+ 1,134,579	+ 6·0	+ 1,112,604	+ 9·2
Zinc	Lb.	+38,492,837	+ 63·7	+ 2,283,090	+ 57·1
Total		.....	.....	**+18,615,310**	**+ 21·3**
Non-metallic					
Actinolite	Tons	+ 37	+ 69·8	+ 64	+ 110·1
Asbestos	"	− 5,738	− 2·5	− 811,676	− 10·7
Barytes	"	− 258	− 63·0	− 5,54[illegible]	− 61·3
Bituminous sands	"	+ 531	.....	+ 2,15[illegible]	.....
Coal	"	− 3,352,374	− 10·7	−18,464,908	− 25·7
Feldspar	"	+ 15,579	+ 53·3	+ 120,939	+ 50·9
Fluorspar	"	− 63	− 45·3	− 389	− 22·5
Garnets	"	− 890	− 71·[illegible]	− 92,860	− 92·8
Graphite	"	+ 221	+ 19·8	+ 8,244	+ 12·1
Grindstones	"	+ 677	+ 33·6	+ 50,741	+ 63·3
Gypsum	"	+ 67,715	+ 11·7	− 34,99[illegible]	− 1·5
Magnesite	"	− 928	− 19·3	− 33,0[illegible]6	− 24·5
Magnesium sulphate	"	− 121	.....	− 6,58[illegible]	.....
Mica	"	+ 566	+ 16·1	+ 30,29[illegible]	+ 9·2
Mineral water	Imp. Gal.	− 23,008	− 9·9	− 1,034	− 6·2
Natro-alunite	Tons	− 15	.....	− 75[illegible]	.....
Natural gas	M cu. ft.	− 1,079,247	− 6·7	− 175,98[illegible]	− 2·0
Oxides, iron	Tons	− 3,158	− 30·2	− 38,47[illegible]	− 29·6
Petroleum, crude	Bbl.	− 9,396	− 5·5	− 54,618	− 10·4
Phosphate	Tons	− 30	.....	− 60[illegible]	.....
Pyrites	"	− 5,039	− 17·6	− 17,400	− 15·3
Quartz	"	− 113,180	− 42·8	− 276,094	− 46·0
Salt	"	+ 5,58[illegible]	+ 2·7	− 348,736	− 19·7
Sodium carbonate	"	+ 245	+ 92·4	+ 1,198	+ 30·1
Sodium sulphate	"	+ 350	+ 47·7	− 4,18[illegible]	− 41·0
Talc	"	+ 166	+ 9·4	+ 3,972	+ 2·6
Tripolite	"	− 97	− 74·6	− 2,41[illegible]	− 74·2
Volcanic ash	"	+ 245	.....	+ 1,10[illegible]	.....
Total		.....	.....	**−20,140,723**	**− 21·9**
Structural Materials and Clay Products					
Cement	Brl.	− 44,965	− 0·5	− 1,666,250	− 11·0
Clay products—					
Brick—Soft mud process { Face	M				
{ Common	"				
Stiff mud process (wire cut) { Face	"				
{ Common	"				
Dry press { Face	"	− 71,174	− 18·3	− 978,320	− 14·5
{ Common	"				
Fancy or ornamental brick	"				
Sewer brick	"				
Fire brick from domestic clay	"	− 1,795	− 29·3	− 85,781	− 29·0
Fire clay	Tons	+ 989	+ 35·7	+ 2,10[illegible]	+ 8·6
Kaolin	"	− 163	.....	− 2,36[illegible]	.....
Fire clay blocks and shapes	"	.....	.....	− 30,07[illegible]	− 36·9
Structural tile—Hollow blocks (including fire proofing and load-bearing tile)	"				
Roofing tile	No.	.....	.....	− 246,3[illegible]	− 20·3
Floor tile (quarries)	sq. ft.				
Drain tile	M	+ 4,538	+ 42·8	+ 86,655	+ 56·6
Sewer pipe (including copings, flue linings, etc.)	Tons	+ 6,103	+ 8·6	− 22,044	− 1·3
Pottery, glazed or unglazed	.....	.....	.....	+ 8,795	+ 3·8
Lime	Bush.	− 8[illegible]8,367	− 8·9	− 88,067	− 2·0
Sand and gravel	Tons	− 1,147,015	− 9·0	+ 104,56[illegible]	+ 5·4
Slate	"	− 1,836	.....	− 17,289	.....
Stone	"	+ 656,680	+ 15·9	+ 504,468	+ 8·5
Total		.....	.....	**− 2,370,512**	**− 6·2**
Grand total		.....	.....	**− 4,495,925**	**− 3·1**

MINERAL PRODUCTION OF CANADA-1924

% of output values by Provinces	Provincial Sources by Principal Minerals	% of output values by Kinds
YUKON 0·45 SASKATCHEWAN 0·54 MANITOBA 0·73 NEW BRUNSWICK 0·94		OTHERS 2·17 SALT 0·66 COBALT 0·80 GYPSUM 1·06 LIME 1·51 SAND & GRAVEL 1·52 NATURAL GAS 2·73
QUEBEC 9·12		ZINC 3·00 STONE 3·06 ASBESTOS 3·20
ALBERTA 10·61		CLAY PRODUCTS 4·40
NOVA SCOTIA 11·38		SILVER 6·29 CEMENT 6·39
BRITISH COLUMBIA 24·94		COPPER 8·50 LEAD 8·79 NICKEL 9·29
ONTARIO 41·29		GOLD 15·05 COAL 25·58



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

ANNUAL REPORT

ON THE

MINERAL PRODUCTION OF CANADA

DURING THE CALENDAR YEAR, 1924

GENERAL REVIEW

Canada's mineral industry in 1924 yielded products valued in the aggregate at $209,583,406, a total which has only been exceeded in three previous years; in 1923, when the output was valued at $214,079,331; in 1920, when the peak of $227,859,665 was reached; and in 1918 when the total value of $211,301,897 was recorded. Metallic mineral products attained an output not previously equalled in times of peace and exceeded only by the records established during the last three years of the war when the production of non-ferrous metals was at its peak. Primary metals produced from Canadian ores during 1924 reached a total value of 102.40 million dollars, an advance of 18.01 million dollars over the total for the preceding year. Non-metallic minerals and structural materials on the other hand showed lower aggregate values than in the preceding year. Most of the non-metals showed only slight recessions from the totals for 1923 and a few, notably feldspar, graphite, and mica showed increased values; but continued labour difficulties in the coal fields so reduced production that the total value of non-metallic minerals including coal, dropped to 71.79 million dollars from a total of 91.93 million dollars in 1923. Delayed building programs throughout Canada restricted the output of structural materials and clay products so that the totals for these products were less than in 1923. Nevertheless, the mineral industry of Canada representing a capital investment of about a half-a-billlion dollars and employing upwards of 60,000 hands, yields place only to agriculture and forests production among the primary industries. It is a basic industry with a long and creditable production record. The value of the output per capita has risen from $2.23 in 1886 to a maximum of $26.40 in 1920 and the value of production has grown in the same years from 10 million dollars to a high point of 228 million dollars. The fact that every province contributes annually to the output serves but to emphasize the variety and wide distribution of Canada's mineral products, and the continued advances, particularly in recent years, have brought the mining industry of Canada into great prominence.

Among the metals, increased outputs in comparison with the totals for the previous year were recorded in the case of cobalt, copper, gold, lead, nickel, silver and zinc. In the non-metallic field, advances were made in the production of feldspar, graphite, gypsum, mica and in the quantity of salt produced. Lower prices reduced the total values recorded for gypsum and salt below those of the previous year. Among the structural materials, the quantities of fire-clay, drain tile, sewer pipe and building stone produced were greater than in 1923. Due to the drop in prices of sewer pipe, the total value of this commodity was slightly below the total reported in 1923.

Considered by groups, and compared with corresponding data for 1923, metals showed an advance of 21.3 per cent to a total value of $102,406,528; including coal, the value of the non-metals produced dropped 21.9 per cent to a total of $71,796,009; while the structural materials and clay products group showed a 6.2 per cent loss in value to a total of $35,380,869. Canada's mineral output values in 1924 included: metallics, 48.86 per cent; non-metallics, 34.26 per cent; structural materials, 16.88 per cent. In 1923, metallics made up only 39.42 per cent of the total while non-metals claimed 42.95 per cent and structural materials and clay products accounted for 17.63 per cent.

Ontario was again the principal mineral-producing province of Canada, the value of its output in 1924 being determined at $86,398,656 or 41·22 per cent of the total for Canada. British Columbia came second with a mineral production valued at $52,298,533 or 24.94 per cent of the total for Canada. Nova Scotia contributed $23,820,353 or 11.38 per cent of the production, winning third place over Alberta which held this position in 1923. Alberta's output was valued at $22,344,940, representing 10.61 per cent; Quebec's minerals were valued at $19,136,504 or 9.14 per cent; and New Brunswick, Manitoba, Saskatchewan and Yukon Territory followed in the order named. In 1923 Yukon Territory held sixth place, but in 1924 it dropped to the end of the list; this was due in part to the reduction in the output of placer gold, but more particularly to the fact that shipments of silver-lead-zinc ore accounted for in 1924 were much less in quantity than those reported in the preceding year. Climatic conditions, however, are an important factor in the movement of Yukon ores, and the totals from year to year therefore are not subject to the same strict comparisons that may be made in the case of other areas.

Ontario, with an area of 407,262 square miles, occupies first place among the mineral-producing provinces of the Dominion, especially in the production of gold, silver and nickel. Here, also are produced large quantities of copper, most of the world's cobalt, some lead and iron, and small quantities of platinum and its related metals as well as natural gas, salt, gypsum, quartz, crude petroleum, feldspar, talc, mica, garnets and pyrites. In the class of building materials there is also a large production of portland cement, bricks and other clay products, building stone, sand and gravel, and quick and hydrated lime.

Individual mines in Ontario are said to own the largest deposits in America of talc, feldspar, mica, and graphite. Porcupine and Kirkland Lake are two of the most productive gold camps in the world, and in Cobalt and the South Lorrain areas the world's richest silver camps are located.

British Columbia's claim to distinction in the mineral field is based on the outputs for a long period of years of coal, copper, lead, gold, silver, and zinc; other minerals produced in less amounts include: cement, sand and gravel, lime, building stone, clay products, quartz, pyrites, fluospar and gypsum, and in recent years sodium carbonate and magnesium sulphate.

Production in 1924 surpassed all previous records, and in all phases of mining—prospecting, development and production; lode mining, placer mining, and coal mining—great progress has been and still is being made in the Pacific Coast province. The Sullivan mine of the Consolidated Mining and Smelting Company has now become recognized as one of the greatest lead zinc mines in the world. It is also highly satisfactory that the metals, silver, lead and zinc contained in the crude ore of this mine are now being smelted, refined and prepared in finished condition for the market at the company's metallurgical works at Trail.

Nova Scotia, producing coal, gypsum, clay products, gold, building stone, salt and several other mineral products of less importance, attained third place among the mineral-producing provinces of Canada in 1924. Production of coal in Nova Scotia was less by about one million tons than in the preceding year.

Alberta's chief mineral product is coal, but the list also includes natural gas, clay products, lime, crude petroleum, cement, stone, sand and gravel and bituminous sands. Labour difficulties in the coal fields restricted the output, and this cause alone was sufficient to place Alberta fourth among the mineral-producing provinces, whereas in 1923 Alberta claimed third place.

While metal mining in Quebec is yet of less importance than the production of the non-metallic minerals, the metallic list includes lead, zinc, silver, gold and chromite. Asbestos is the chief non-metallic mineral produced and the output of this commodity from the mines in the eastern townships represents about 85 per cent of the world's production. Feldspar, and mica, are produced each year in considerable amounts. Other non-metallic minerals found in this province are magnesite, iron oxide, quartz, and soapstone, and there is a very considerable production of cement, brick and other clay products, lime, kaolin, slate, building stone, sand and gravel. Activity in prospecting the Rouyn field has resulted in the proving-up of many claims, and the establishment of a very considerable metal mining industry in this area yielding copper and gold, is anticipated.

The New Brunswick minerals are non-metallics exclusively. Coal is the principal product. Other mineral products obtained in this province are grindstones, gypsum, petroleum, natural gas, clay products, lime, stone, sand and gravel, and recently there has been some movement towards the development of oil shales.

Manitoba and Saskatchewan are primarily agricultural provinces, and the annual production of minerals in each of these areas is valued usually between one and two million dollars. The total area of Manitoba is 251,882 square miles. Of this, approximately two-fifths, in the southern and south-western sections of the province, is agricultural and is the main source of the non-metallic minerals. The remaining three-fifths is Pre-Cambrian, and in it are being mined, copper, gold and other metallic minerals. Transportation from the northern metal mining fields is costly, and the development of properties in this area has been retarded for this reason. Development work has been renewed by companies who are in strong financial positions and the prospects for increased production are improving. The principal items of interest in the mineral industry of Saskatchewan, are coal, sodium sulphate, clay products and sand and gravel. Lignite is found in extensive deposits most of which are readily workable. There is also in this province a supply of high-grade pottery clay. Shipments from this deposit have been made to Alberta in recent years, but hope is held out that this deposit may yet prove the basis of a ceramic industry within the province.

As already noted, production from the Yukon in 1924 was less in value than in the preceding year, due to some extent to the reduction in the amount of placer gold produced, but more particularly to the lessened tonnages of silver-lead ore reported in that year. Shipments from Keno Hill are only made during the season of navigation and owing to the long haul it is impossible to obtain records from year to year that are absolutely comparable. In the case of Yukon production, only records over a period of three years should be considered.

Mention has been made of the inflation in prices during and immediately after the war, and in the study of production records, shown in terms of money values, the trend in prices must be taken into consideration. The Internal Trade Branch of the Bureau has developed a commodity price index based on the prices prevailing in 1913; prices in that year are represented by the figure 100, and the index for subsequent years is expressed as a percentage of the prices prevailing in 1913. Several methods of grouping items have been adopted so that index numbers for many different groups of commodities are available, as well as a general index based on the prices of all commodities entering into the compilation. Taking the average price for 1913 as a base of 100, the index for non-ferrous metals stood at 94·5 in January, 96·2 in February, 98·1 in March. During the next four months it hovered between 93·1 and 94·7 and then rose in August to 96·5 and in December to 99·8. That is to say, the average prices of non-ferrous metals in Canada during 1924 were from 3 to 4 per cent lower than the prices prevailing for these commodities in 1913. On the other hand, the index for non-metallic minerals was approximately 85 per cent in excess of the 1913 average, but during the closing months of the year there was an appreciable drop in the index number for these commodities. The non-metallic group includes such materials as coal, gas, lime, brick, stone, sulphur, etc.

Iron and steel prices declined more than those for other mineral products. From 168·5 in January, the index dropped consistently each month during the year until it stood at 155·2 in November. Lower prices of iron and steel and the decreased production of these commodities were statistical marks of a very considerable depression.

Seventeen mineral products reached a production value of one million dollars or over, in Canada during 1924 and contributed 97·83 per cent of the total recorded value of the mineral production of Canada in that year. In order of total values these were, coal, at $53,593,988; gold, nickel, lead, copper, cement, silver, clay products (including brick, tile and pottery), asbestos, stone, zinc, natural gas, sand and gravel, lime, gypsum, cobalt, and salt the output of which was valued at $1,374,780.

In the following paragraphs the production of each of these commodities is considered in further detail, the metals being reviewed first, then the non-metals, and finally the structural materials and clay products. Increased production from Ontario gold mines was the principal cause of the great advance in the amount of gold produced in Canada during 1924 when a new record output was established at 1,525,382 fine ounces worth $31,532,443, an increase of 292,041 fine ounces or 23·6 per cent over the totals for the previous year. Ontario contributed 84·40 per cent of the total and British Columbia mines yielded 16·10 per cent: the balance was derived from mines in Nova Scotia, Quebec, Manitoba, and the Yukon. Since 1914, Ontario has become by far the largest producer of gold in Canada. This remarkable increase has been brought about by the successful development of the Porcupine and Kirkland Lake districts and by the extension of milling facilities in these camps. The decline in production during 1917 and 1918

was due to the abnormal conditions created by the war. There was a marked recovery in 1919 and this developed in the following years to a maximum in 1924. Power shortage in northern Ontario during the earlier months of 1923 seriously interfered with production, but the provision of adequate power facilities later in the year definitely removed the possibility of further power shortage.

Two companies, the International Nickel Company and the Mond Nickel Company produced nickel-copper ores throughout the year, and operated their smelters in the Sudbury area. The British America Nickel Corporation was forced into liquidation in July and operations at their mine, smelter and refinery were discontinued. In spite of this loss, the output of nickel, determined as the nickel content of matte made in the Sudbury smelters together with small quantities contained in south Ontario smelter residues exported, advanced 7·08 million pounds to 69,536,350 pounds which, valued at the average New York market price of 28 cents for refined nickel, would be worth $19,470,178. Possibly, sales of refined nickel from the Canadian refineries would be a better measure of nickel production and particularly of the nickel output value, but it has been customary in past years to quote as the production of nickel, the nickel content of smelter matte produced during the year together with the comparatively small amounts of nickel contained in products from the south Ontario smelters, and for convenience the same method has been retained.

New lead production records have been established in Canada in each of the past four years. By far the greater part of the output each year is from the Trail smelter of the Consolidated Mining and Smelting Company; but the production in Ontario by the Kingdon Mining, Smelting and Manufacturing Company at Galetta and the output from the Yukon Territory add to the total. Including all lead from these sources, the total production in 1924 reached 175,485,499 pounds valued at $14,221,345, an increase of 64,251,033 pounds or 57·7 per cent above the quantity produced in 1923 and an advance of $6,235,823 or 78·0 per cent above the value reported in the previous year.

Copper contained in matte produced, by the nickel-copper smelters of Ontario constituted about one-third of the total Canadian production; the output of blister copper from the Granby smelter along with a comparatively small amount from the Trail smelter contributed approximately another third; the remainder was made up of the recoverable copper from British Columbia and Quebec ores treated in United States smelters; the greater part of this balance being credited to British Columbia ores. Copper production for the year as thus computed totalled 104,457,447 pounds which, valued at the average prevailing price for copper, was estimated to be worth $13,604,538; this was an advance of 20·2 per cent above the 86,881,537 pounds in 1923. Receding prices made the increase in value over the total for the preceding year somewhat less than it would have been if copper prices had been maintained at their 1923 level. Production for the year was valued at an advance of 8·5 per cent or more than a million dollars above the total for 1923.

Silver production showed an advance in 1924 of 1,134,579 ounces to a total of 19,736,323 fine ounces valued at $13,180,113. High prices for silver made the increased production worth 9·2 per cent more than the total reported for 1923. Silver from the Cobalt area, including the bullion produced in the reduction works at Cobalt and at the south Ontario smelters, as well as the silver contained in cobalt-bearing ores exported, made up slightly more than half the total. Practically all the rest was recovered from British Columbia ores treated at Trail or in United States smelters. The continued success of the South Lorrain silver mines in Ontario and the production from such properties as the Premier silver mine in the Portland Canal area in British Columbia, were important factors in building up the output of silver during the year.

Continued development of the world famous Sullivan mine in British Columbia resulted in the establishment of another high record in the output of zinc in 1924. Production of zinc concentrates was in excess of smelter capacity and large quantities were exported to Belgium and the United States for treatment. Including the recoverable zinc in concentrates exported and the refined zinc made at Trail, production during the year reached a total of 98,909,077 pounds valued at $6,274,791, an advance of 38,492,837 pounds or 63·7 per cent above the quantity produced in 1923, and $2,283,090 or 57·1 per cent above the value reported for that year. While the price of zinc declined greatly in 1923 there was little change in the monthly average price quotations throughout 1924. Production of zinc from Canadian ores has advanced steadily each year since 1916 in which year production amounted to 23,364,760 pounds. The output in 1924 was more than four times this sum.

Sales of cobalt and its products in the form of metal, oxides and salts and in residues exported during 1924 comprised 948,704 pounds of contained metal, for which the producers received $1,682,395.

Five non-metallic minerals were produced in sufficient volume to bring each of their total values above the million-dollar mark, and to put them among the 17 principal minerals listed above; these were coal, asbestos, natural gas, gypsum and salt. Production of coal from Canadian mines in 1924 amounted to only 13,638,197 short tons marking a loss of 3·35 million tons from the total reported in the preceding year. Lower average values per ton and the decreased production, reduced the aggregate value of the output to $53,593,988 as compared with $72,058,986 reported in 1923. Reductions in output were general, and while the production from Nova Scotia mines was a million tons less than in 1923, the output of 5,557,441 tons placed that province in the premier position among the Canadian coal-producing areas while Alberta, which in 1923 had produced 6,854,397 tons of coal, reported an output of 5,189,729 tons in 1924, thus dropping into second place. British Columbia, third in output tonnage, and a leader in the export of coal, more nearly maintained its position producing 2,193,667 tons in 1924 as compared with 2,823,306 tons in 1923. Production of coal in Canada during 1924 included 9,483,732 tons of bituminous coal, 590,168 tons of sub-bituminous and 3,564,297 tons of lignite. Canada's consumption of coal in 1924 amounted to only 29,254,137 short tons or an average of 3·171 tons per capita as compared with a total of 36,060,915 tons averaging 3·970 tons per capita in 1923. Of this total coal used, 42·8 per cent was drawn from Canadian mines, 56·1 per cent from the United States and 1·1 per cent from Great Britain. Very small quantities were also imported from other countries. Coal from Canadian mines constituted an increasing percentage of the total in the years 1918 to 1920 and again in 1922; in the latter year 50 per cent of the total consumption was of Canadian origin. In 1921, 1923 and 1924 the proportion of Canadian coal dropped to 41·0 per cent, 41·8 per cent and 42·8 per cent, respectively.

In the asbestos industry, shipments were somewhat less than in 1923 amounting to 225,744 tons valued at $6,710,830, a loss of 2·5 per cent in quantity and 10·7 per cent in value from the totals for the previous year. Production by some companies was fairly well maintained, but lower prices prevailed during the year and a slight depression was quite noticeable throughout the industry.

Ontario and Alberta each produced more than 7,000,000 thousand cubic feet of natural gas in 1924, the increase in production in Alberta very nearly bringing the output from that province up to the total for Ontario. There was also a small production in New Brunswick and Manitoba. From all these sources the natural gas produced amounted to 14,881,336 thousand cubic feet valued at $5,708,636. Both in quantity and value, production of natural gas in 1924 was less than in the preceding year. Ontario's output was about a million thousand cubic feet less than in the preceding year; Alberta's production was only slightly below the output in 1923, and because of the higher prices the value of Alberta's output reached a slightly higher total than in 1923.

Improvement in the production of gypsum has marked the records for each of the past four years. In 1921, production amounted to 386,550 tons; in 1924, the total reported was 646,016 tons valued at $2,208,108. Gypsum is shipped in several different forms: lump, crushed, fine ground, or calcined. Nova Scotia is the principal source of supply, production in that province in 1924 amounting to 441,752 tons. Ontario produced 88,121 tons; New Brunswick, 86,738 tons; Manitoba, 29,375 tons; and British Columbia, 30 tons. In computing the production of gypsum, the quantities reported in the different forms are added; the values are those given as at point of shipment. About two-thirds of the output is exported annually.

Salt reached a slightly higher tonnage in 1924, but owing to the low prices prevailing in that year, the total value of the output was somewhat below the figures reported in 1923. Production amounted to 207,979 tons valued at $1,374,780, an increase of 2·7 per cent in quantity and a reduction of 19·7 per cent of the value. Most of the production is obtained from the salt wells of western Ontario, but about 2 per cent of the Dominion output is produced from the Malagash mine in Nova Scotia.

Structural materials mentioned among the 17 principal mineral products were cement, clay products, stone, sand and gravel and lime.

While cement consumption in Canada was greater in 1924 than in the preceding year, sales of cement were slightly below the totals for 1923 both in quantity and value. Exports showed a marked decrease and imports advanced. Prices of cement were lower in 1924 than in the preceding year.

Following a conference with the Executive of the Canadian National Clay Products Association and representatives of the Ontario and Dominion Departments of Mines, the Bureau classification of clay products was modified and very considerably improved during the year. Comparison of 1924 statistics compiled on the new plan with the figures for 1923 output can only be made in the aggregate, but the advantage gained in the revision of the classification more than offsets the slight inconvenience occasioned by the change. Stiff mud process, face and common brick produced during the year reached a value of $3,722,855, while soft mud process brick sold during the year had a total value of $931,292. Dry press and fancy brick were valued at $1,028,075. Structural tile reached a value of $963,302; drain tile, $409,369; pottery from Canadian clays, $238,342; and sewer pipe, $1,594,280. The figures for drain tile and pottery showed slight advances over the totals for 1923 and the production of sewer pipe was also greater, but the total value was less than in 1923. There was an increase of 15·9 per cent in the quantity of building stone produced during 1924 and an advance of 8·5 per cent in its total value. Sand and gravel were produced in slightly less quantities, but the value of the output was a little greater than in 1923. Production of building stone, and sand and gravel in Canada is wholly dependent upon the trend in building throughout the Dominion—when construction is progressing the output of stone, and sand and gravel shows marked improvement, and in times of depression in the building trades there is a corresponding reduction in the output of these building materials.

Lime production also follows the trend of building operations. In 1924, the output of lime in Canada amounted to 9,136,952 bushels including both quick and hydrated lime. This production was valued at $3,178,541. Both in quantity and in value the totals were less than the figures recorded in the preceding year.

At the close of 1923 it was noted that greater tonnages but lower unit prices were the characteristic features of the mineral production in that year. Stabilization of industry generally, occurred in 1923 and 1924, but the trend towards definitely improved production was scarcely apparent at the end of 1924. New mining fields had been discovered, the public held the mining industry in higher esteem, and the indications were that the next few years would show a marked improvement in the status of this industry. In metal mining, distinct progress was made and greater outputs were attained; in the non-metal field, production was only fairly well maintained; coal mining in particular showed a great loss; structural materials in the aggregate showed very little trend in either direction. At the close of 1924 conditions seemed brighter than at the beginning of the year and the expectation was that appreciable advances would shortly be made in the development of Canada's mineral industry.

Table 3.—Exchange Table Showing the Amount Paid in Canadian Dollars for one United States Dollar by Months, 1921-1924

Month	1921	1922	1923	1924
	$	$	$	$
January	1·1437	1·0553	1·0067	1·0275
February	1·1362	1·0351	1·0119	1·0322
March	1·1337	1·0297	1·0208	1·0294
April	1·1216	1·0208	1·0203	1·0184
May	1·1164	1·0125	1·0222	1·0166
June	1·1294	1·0138	1·0231	1·0141
July	1·1328	1·0091	1·0263	1·0064
August	1·1168	1·0023	1·0244	1·0011
September	1·1106	0·9998	1·0233	1·0078
October	1·0931	1·0011	1·0156	1·0016
November	1·0904	0·9998	1·0181	1·0000
December	1·0687	0·9966	1·0239	1·0015
Average for the year	**1·1161**	**1·0145**	**1·0197**	**1·0131**

Table 4.—Metal Prices 1920-1924

Commodity	Market	Unit	1920	1921	1922	1923	1924
			$	$	$	$	$
Antimony (ordinaries)	New York	Pound	0·08490	0·04957	0·05471	0·07897	0·10836
Arsenic, white	"	"	0·11	0·08850	0·08500	0·12050	0·09636
Cobalt	"	"	2·50	3·00	3·25	2·85	2·75
Cobalt oxide	"	"	–	–	2·00	2·10	2·10
Copper	"	"	0·17456	0·12502	0·13382	0·14421	0·13024
Lead	"	"	0·07957	0·04545	0·05734	0·07267	0·08097
"	Montreal*	"	0·08940	0·05742	0·06219	0·07179	0·08104
Nickel	New York*	"	0·45	0·35	0·35	0·29353	0·28
Platinum	" *	Ounce	110·9	75·033	97·618	116·537	118·817
Silver	" *	"	1·009	0·62654	0·67528	0·64873	0·66781
Tin	"	Pound	0·48273	0·28576	0·31831	0·41799	0·49674
Zinc	St. Louis*	"	0·07671	0·04655	0·05716	0·06607	0·06344

*Quotations used in this report in computing value of mineral production.

Table 5.—Prices of Non-Metallic Minerals and Structural Materials, 1919-1924, Showing the Average Returns Received by Producers, f.o.b. Shipping Points in Canada as Computed from the Total Receipts and Total Shipments for the Year.

Commodity	Unit	1920	1921	1922	1923	1924
		$	$	$	$	$
NON-METALLIC						
Actinolite	Ton	11·60	12·50	11·50	11·00	13·60
Asbestos	"	74·12	52·89	33·92	32·50	29·73
Barytes	"	30·60	35·43	33·00	20·89	21·90
Chromite	"	22·82	19·90	15·00	.....	.....
Coal	"	4·86	4·81	4·32	4·24	3·93
Corundum	"	125·24	138·87	.....	.....	.....
Feldspar	"	7·42	7·73	8·96	8·13	8·00
Fluorspar	"	21·40	24·69	22·08	12·46	17·66
Graphite	"	75·62	70·29	52·52	60·98	57·05
Grindstones	"	36·06	50·00	43·52	39·76	48·60
Gypsum (crushed)	"	3·04	2·56	2·26	1·90	1·82
Magnesite	"	27·90	21·80	26·78	27·99	26·17
Magnesium sulphate	"	20·49	19·47	23·52	54·38	.....
Manganese	"	16·99	30·00	28·00	.....	.....
Mica (rough cobbed)	Pound	0·10	0·10	0·12	0·10	0·06
Mineral water	Gal.	.....	0·07	0·06	0·07	0·07
Natro-alunite	Ton	.....	50·00	50·00	50·00	.....
Natural gas	M. cu. ft.	0·25	0·33	0·40	0·36	0·38
Oxides, iron	Ton	8·26	10·34	15·18	12·43	12·54
Peat	"	4·10	4·00	4·83	.....	.....
Petroleum, crude	Brl.	4·19	3·42	3·41	3·06	2·91
Phosphate	Ton	.....	15·00	9·45	20·00	.....
Pyrites	"	4·12	3·48	4·10	3·95	4·06
Quartz	"	3·65	3·12	1·90	2·20	2·14
Salt	"	7·36	10·16	8·96	8·46	6·61
Sodium sulphate	"	24·04	30·25	23·76	13·90	5·54
Talc	"	7·70	14·28	14·28	14·51	13·03
Tripolite	"	33·08	33·00	26·39	25·00	25·40
STRUCTURAL MATERIALS AND CLAY PRODUCTS						
Cement, portland and puzzolan	Brl.	2·22	2·47	2·22	2·00	1·78
Clay products—						
Brick, common	M.	15·94	16·18	15·99	15·50	.....
Brick, pressed	"	23·54	21·47	20·31	19·91	.....
Brick, hollow building	"	.....	48·88	91·72	80·35	.....
Brick, moulded and ornamental	"	21·03	25·35	20·68	20·95	.....
Brick, face } Soft mud process	"	.....	.....	.....	.....	17·10
Brick, common } Soft mud process	"	.....	.....	.....	.....	14·80
Brick, face } Stiff mud process, wire cut	"	.....	.....	.....	.....	22·80
Brick, common } Stiff mud process, wire cut	"	.....	.....	.....	.....	15·09
Brick, face } Dry press	"	.....	.....	.....	.....	21·60
Brick, common } Dry press	"	.....	.....	.....	.....	13·13
Brick, fancy or ornamental	"	.....	.....	.....	.....	30·41
Brick, sewer	"	.....	.....	.....	.....	15·15
Firebrick	"	.....	53·85	37·55	48·19	48·36
Fireclay	Ton	.....	10·18	5·41	9·00	7·20
Fireproofing and hollow porous blocks	"	12·05	.....	.....	.....	.....
Kaolin	"	22·00	15·23	14·92	14·53	.....
Paving brick	M.	.....	.....	39·81	.....	.....
Sewer-pipe	Ton	26·31	.....	23·26	23·01	20·87
Tile, drain	M.	38·73	.....	27·65	30·50	27·04
Lime	Bush.	0·41	0·40	0·35	0·33	0·34
Sand and gravel	Ton	0·37	0·22	0·30	0·24	0·28
Stone—						
Granite	Ton	.....	2·94	3·24	2·91	2·41
Limestone	"	.....	1·55	1·32	1·21	1·14
Marble	"	.....	104·67	121·28	81·49	73·63
Sandstone	"	.....	2·75	3·20	2·92	2·54

Table 6.—Annual Values of the Mineral Production of Canada, 1886-1924

Year	Value of production	Value per capita
	$	$
1886	10,221,255	2·23
1887	10,321,331	2·23
1888	12,518,894	2·67
1889	14,013,113	2·96
1890	16,763,353	3·50
1891	18,976,616	3·92
1892	16,623,415	3·39
1893	20,035,082	4·04
1894	19,931,158	3·98
1895	20,505,917	4·05
1896	22,474,256	4·38
1897	28,485,023	5·49
1898	38,412,431	7·32
1899	49,234,005	9·27
1900	64,420,877	12·04
1901	65,797,911	12·16
1902	63,231,836	11·36
1903	61,740,513	10·83
1904	60,082,771	10·27
1905	69,078,999	11·49
1906	79,286,697	12·81
1907	86,865,202	13·75
1908	85,557,101	13·16
1909	91,831,441	13·70
1910	106,823,623	14·93
1911	103,220,994	14·32
1912	135,048,296	18·33
1913	145,634,812	19·35
1914	128,863,075	16·75
1915	137,109,171	17·44
1916	177,201,534	22·05
1917	189,646,821	23·18
1918	211,301,897	25·37
1919	176,686,390	20·84
1920	227,859,665	26·40
1921	171,923,342	19·56
1922	184,297,242	20·55
1923	214,079,331	23·41
1924	209,583,406	22·71

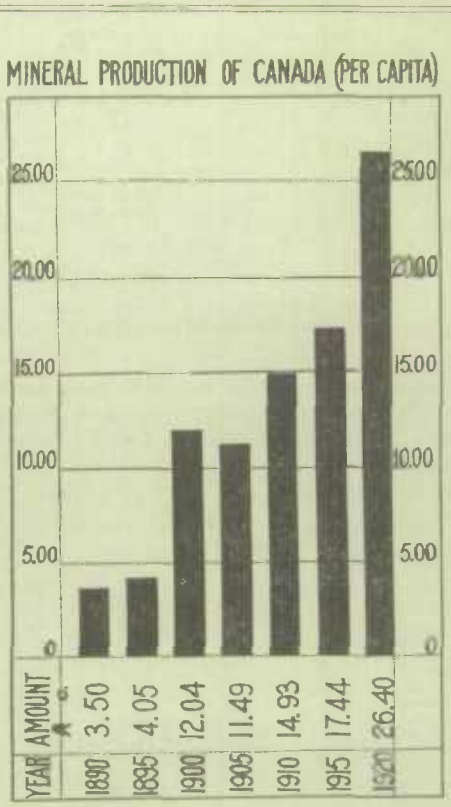


Table 7.—Annual Values of Metallic and Non-Metallic Mineral Production of Canada 1907-1924

Year	Metallic	Non-Metallic		Total
		Fuels and other non-metallics	Structural materials and clay products	
	$	$	$	$
1907	42,426,607	31,275,546	12,863,049	*86,865,202
1908	41,774,362	32,142,784	11,339,955	*85,557,101
1909	44,156,841	31,141,251	16,533,349	91,831,441
1910	49,438,873	37,757,158	19,627,592	106,823,623
1911	46,105,423	34,405,960	22,709,611	103,220,994
1912	61,172,753	45,080,674	28,794,869	135,048,296
1913	66,361,351	48,463,709	30,809,752	145,634,812
1914	59,386,619	43,467,229	26,009,227	128,863,075
1915	75,814,841	43,373,571	17,920,759	137,109,171
1916	106,319,365	53,414,983	17,467,186	177,201,534
1917	106,455,147	63,354,363	19,837,311	189,646,821
1918	114,549,152	77,621,946	19,130,799	211,301,897
1919	73,262,793	76,002,087	27,421,510	176,686,390
1920	77,939,630	108,027,947	41,892,088	227,859,665
1921	49,343,232	87,842,682	34,737,428	171,923,342
1922	61,785,707	82,976,794	39,534,741	184,297,242
1923	84,391,218	91,936,732	37,751,381	214,079,331
1924	102,406,528	71,796,009	35,380,869	209,583,406

* Total includes $300,000 allowed for products not reported.

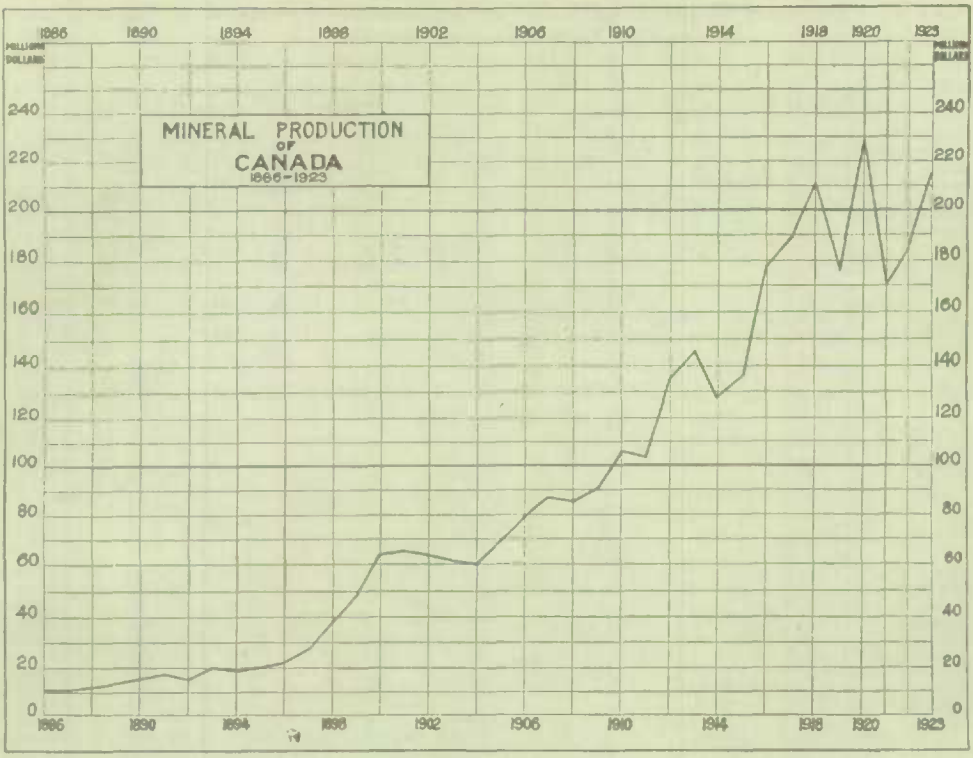


Table 8.—Values of the Mineral Production of Canada by Provinces, 1899-1924

Year	Nova Scotia*	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon
	$	$	$	$	$			$	
1899	6,817,274	420,227	2,585,635	9,819,557	17,108,707			12,482,605	Included
1900	9,298,479	439,060	3,202,383	11,258,099	23,452,330			16,680,526	with
1901	7,770,159	467,985	3,759,984	13,970,010	19,297,940			20,531,813	Mani-
1902	10,686,549	607,129	3,743,636	14,619,091	16,127,400			17,448,031	toba,
1903	11,431,914	580,495	3,585,938	14,160,033	14,082,986			17,899,147	Saskat-
1904	11,212,746	559,913	3,688,482	12,582,843	12,713,613			19,325,174	chewan
1905	11,507,047	559,035	4,405,975	18,833,292	11,387,642			22,386,008	and
1906	12,894,303	646,328	5,242,058	25,111,682	10,092,726			25,299,600	Alberta
1907	14,532,040	664,467	6,205,553	30,381,638	898,775	533,251	4,657,524	25,656,056	3,335,898
1908	14,487,108	579,816	6,372,949	30,623,812	584,374	413,212	5,122,505	23,704,035	3,669,290
1909	12,504,810	657,035	7,086,265	37,374,577	1,193,377	456,246	6,047,447	22,479,006	4,032,678
1910	14,195,730	581,942	8,270,136	43,538,078	1,500,359	498,122	8,996,210	24,478,572	4,764,474
1911	15,409,397	612,830	9,304,717	42,796,162	1,791,772	638,706	6,662,673	21,299,305	4,707,432
1912	18,922,236	771,004	11,656,998	51,985,876	2,463,074	1,165,642	12,073,589	30,076,635	5,933,242
1913	19,376,183	1,102,613	13,475,534	59,167,749	2,214,496	881,142	15,054,046	28,086,312	6,276,737
1914	17,584,639	1,014,570	11,836,929	53,034,677	2,413,489	712,313	12,884,234	24,164,039	5,418,185
1915	18,088,342	903,467	11,619,275	61,071,287	1,318,387	451,933	9,909,347	28,689,425	5,057,708
1916	20,042,262	1,118,187	14,406,598	80,461,323	1,823,576	590,473	13,297,543	39,969,902	5,491,610
1917	21,104,542	1,435,024	17,400,077	89,066,600	2,628,264	860,651	16,527,535	36,141,926	4,482,202
1918	22,317,108	2,144,017	19,605,347	94,694,093	3,120,600	1,019,781	23,109,987	42,935,333	3,355,631
1919	23,445,215	1,770,945	21,267,947	67,917,998	2,868,378	1,521,964	21,087,582	34,865,427	1,940,934
1920	34,130,017	2,491,787	28,886,214	81,715,808	4,223,461	1,837,468	33,586,456	30,411,728	1,576,726
1921	28,912,111	1,901,505	15,157,094	57,356,651	1,934,117	1,114,220	30,562,229	33,230,460	1,754,955
1922	25,923,499	2,263,692	17,647,939	65,866,029	2,258,942	1,255,470	27,872,136	39,423,962	1,785,573
1923	29,648,893	2,462,457	20,308,763	80,825,851	1,768,037	1,047,583	31,287,536	43,757,388	2,972,823
1924	23,820,352	1,969,260	19,136,504	86,398,656	1,534,249	1,128,100	22,344,940	52,298,533	952,812

* Includes a small production from Prince Edward Island.

Table 9.—Percentage of the Total Value of the Mineral Production of Canada Produced by Each Province, 1920-1924

Province	1920	1921	1922	1923	1924
Nova Scotia*	14·98	16·82	14·12	13·85	11·38
New Brunswick	1·09	1·10	1·23	1·15	0·94
Quebec	12·68	8·82	9·57	9·49	9·12
Ontario	35·86	33·36	35·74	37·76	41·29
Manitoba	1·85	1·12	1·23	0·83	0·73
Saskatchewan	0·81	0·65	0·67	0·49	0·54
Alberta	14·74	17·78	15·13	14·60	10·61
British Columbia	17·30	19·33	21·39	20·44	24·94
Yukon	0·69	1·02	0·92	1·39	0·45
Canada	**100·00**	**100·00**	**100·00**	**100·00**	**100·00**

* Includes a small percentage from Prince Edward Island.

Table 10.—Values by Classes of Products of the Mineral Production of Canada, by Provinces, 1924

Province	Metallic	Non-Metallic	Structural materials and clay products	Total
	$	$	$	$
Nova Scotia*	36,916	23,250,539	532,897	23,820,352
New Brunswick	4,088	1,643,178	321,994	1,969,260
Quebec	604,279	7,259,686	11,272,539	19,136,504
Ontario	61,980,175	6,989,032	17,429,449	86,398,656
Manitoba	24,486	348,272	1,161,491	1,534,249
Saskatchewan	.....	893,775	234,325	1,128,100
Alberta	.....	20,687,198	1,657,742	22,344,940
British Columbia	38,812,037	10,716,064	2,770,432	52,298,533
Yukon Territory	944,547	8,265	.....	952,812
Canada	**102,406,528**	**71,796,009**	**35,380,869**	**209,583,406**

* Includes a small production from Prince Edward Island.

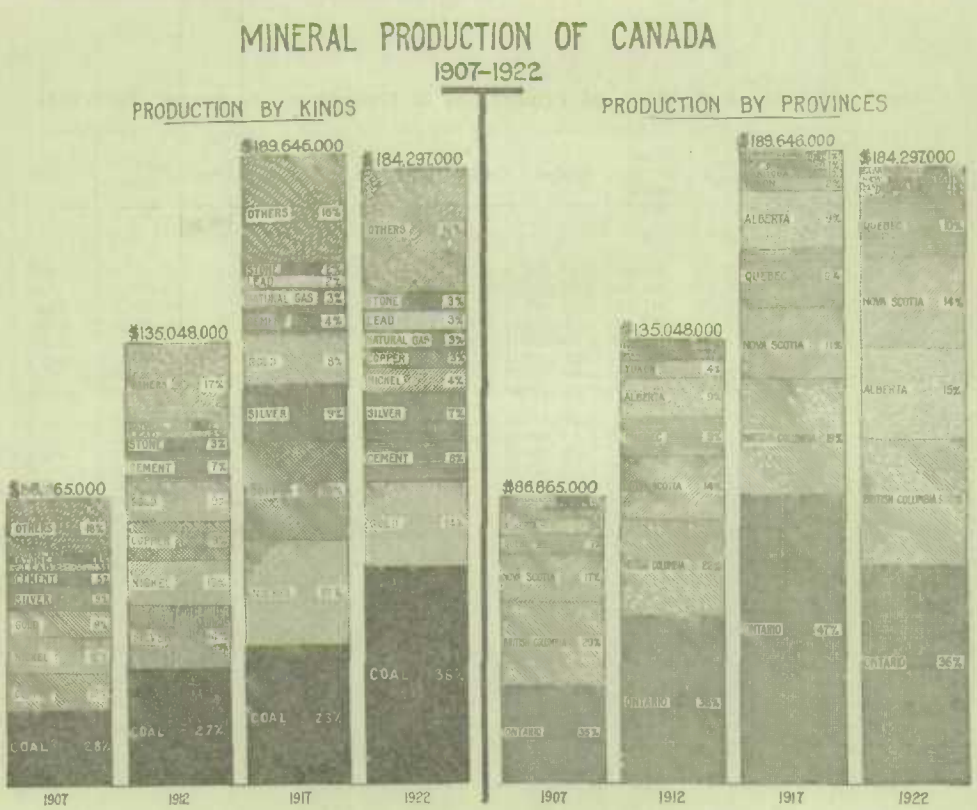


Table 10A—Mineral Production in Canada by Provinces, 1924

—	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon
METALLIC									
Arsenic.....Lb.	381,092	.....	.....	3,745,225	.....	.....	.....	495,250	.....
$	15,244	.....	.....	313,281	.....	.....	.....	19,768	.....
Bismuth.....Lb.	.....	.....	.....	12,863	.....	.....	.....	.....	.....
$	.....	.....	.....	27,913	.....	.....	.....	.....	.....
Cobalt.....Lb.	.....	.....	.....	948,704	.....	.....	.....	.....	.....
$	.....	.....	.....	1,682,395	.....	.....	.....	.....	.....
Copper.....Lb.	.....	.....	1,893,008	37,113,193	.....	.....	.....	65,451,246	.....
$	.....	.....	246,546	4,833,622	.....	.....	.....	8,524,370	.....
Gold.....Fine oz.	1,047	.....	883	1,241,728	1,180	.....	.....	245,719	34,825
$	21,643	.....	18,253	25,668,795	24,393	.....	.....	5,079,462	719,897
Iron, pig, from Canadian ore.....Tons	.....	.....	.....	3,696	.....	.....	.....	14	.....
$	.....	.....	.....	92,400	.....	.....	.....	350	.....
Iron ore sold for export.....Tons	.....	.....	1,408	.....	.....	.....	.....	.....	.....
$	.....	.....	3,771	.....	.....	.....	.....	.....	.....
Lead.....Lb.	.....	.....	1,058,983	5,055,368	.....	.....	.....	168,467,628	903,520
$	.....	.....	85,820	409,687	.....	.....	.....	13,652,617	73,221
Manganese.....Tons	.....	584	.....	.....	.....	.....	.....	.....	.....
$	.....	4,088	.....	.....	.....	.....	.....	.....	.....
Molybdenite.....Lb.	.....	.....	18,739	.....	.....	.....	.....	.....	.....
$	.....	.....	9,370	.....	.....	.....	.....	.....	.....
Nickel.....Lb.	.....	.....	.....	69,536,350	.....	.....	.....	.....	.....
$	.....	.....	.....	19,470,178	.....	.....	.....	.....	.....
Palladium.....Fine oz.	.....	.....	.....	8,923	.....	.....	.....	.....	.....
$	.....	.....	.....	811,993	.....	.....	.....	.....	.....
Platinum.....Fine oz.	.....	.....	.....	9,181	.....	.....	.....	5	.....
$	.....	.....	.....	1,090,858	.....	.....	.....	569	.....
Rhodium, Osmium, Iridium, Ruthenium—Fine oz.	.....	.....	.....	593	.....	.....	.....	.....	.....
$	.....	.....	.....	51,120	.....	.....	.....	.....	.....
Silver.....Fine oz.	44	.....	83,811	11,272,567	140	.....	.....	8,153,003	226,755
$	29	.....	55,972	7,527,933	93	.....	.....	5,444,657	151,429
Zinc.....Lb.	.....	.....	2,909,008	.....	.....	.....	.....	96,000,069	.....
$	.....	.....	184,547	.....	.....	.....	.....	6,090,244	.....
Total..... $	36,916	4,088	604,279	61,980,175	24,486	.....	.....	38,812,037	944,547
NON-METALLIC									
Actinolite.....Tons	.....	.....	.....	90	.....	.....	.....	.....	.....
$	.....	.....	.....	1,225	.....	.....	.....	.....	.....
Asbestos.....Tons	.....	.....	225,572	172	.....	.....	.....	.....	.....
$	.....	.....	6,618,930	91,900	.....	.....	.....	.....	.....
Barytes.....Tons	151	.....	.....	.....	.....	.....	.....	.....	.....
$	3,308	.....	.....	.....	.....	.....	.....	.....	.....
Bituminous sands..Tons	.....	.....	.....	.....	.....	.....	531	.....	.....
$	.....	.....	.....	.....	.....	.....	2,127	.....	.....
Coal.....Tons	5,557,441	217,121	.....	.....	.....	479,118	5,189,729	2,193,667	1,121
$	22,280,554	932,185	.....	.....	.....	886,668	18,884,318	10,601,998	8,265
Feldspar.....Tons	.....	.....	16,147	28,657	.....	.....	.....	.....	.....
$	.....	.....	142,118	216,422	.....	.....	.....	.....	.....
Fluorspar.....Tons	.....	.....	.....	70	.....	.....	.....	.....	.....
$	.....	.....	.....	1,343	.....	.....	.....	.....	.....
Garnets.....Tons	.....	.....	.....	360	.....	.....	.....	.....	.....
$	.....	.....	.....	7,200	.....	.....	.....	.....	.....
Graphite.....Tons	.....	.....	46	1,288	.....	.....	.....	.....	.....
$	.....	.....	3,275	72,842	.....	.....	.....	.....	.....
Grindstones.....Tons	338	2,113	.....	.....	.....	.....	.....	240	.....
$	12,525	99,299	.....	.....	.....	.....	.....	19,000	.....
Gypsum.....Tons	441,752	86,738	.....	88,121	29,375	.....	.....	30	.....
$	915,845	476,804	.....	467,097	348,212	.....	.....	150	.....
Magnesite.....Tons	.....	.....	3,873	.....	.....	.....	.....	.....	.....
$	.....	.....	101,356	.....	.....	.....	.....	.....	.....
Mica.....Tons	.....	.....	1,677	2,414	.....	.....	.....	.....	.....
$	.....	.....	185,020	172,252	.....	.....	.....	.....	.....
Mineral water Imp.Gals.	.....	.....	7,683	201,670	.....	.....	.....	.....	.....
$	.....	.....	2,288	13,133	.....	.....	.....	.....	.....
Natural gas...M cu. ft.	.....	599,972	.....	7,150,078	200	.....	7,131,086	.....	.....
$	.....	113,577	.....	3,798,381	60	.....	1,796,618	.....	.....
Iron oxides.....Tons	.....	.....	7,146	.....	.....	.....	.....	120	.....
$	.....	.....	88,540	.....	.....	.....	.....	2,620	.....
Petroleum, crude..Brls.	.....	5,561	.....	154,368	.....	.....	844	.....	.....
$	.....	21,313	.....	441,952	.....	.....	4,135	.....	.....
Pyrites.....Tons	.....	.....	4,032	11,429	.....	.....	.....	8,091	.....
$	.....	.....	10,619	44,542	.....	.....	.....	40,459	.....
Quartz.....Tons	.....	.....	17,893	111,645	.....	.....	.....	21,358	.....
$	.....	.....	87,267	192,855	.....	.....	.....	43,034	.....
Salt.....Tons	4,551	.....	.....	203,428	.....	.....	.....	.....	.....
$	37,469	.....	.....	1,337,311	.....	.....	.....	.....	.....
Sodium carbonate..Tons	.....	.....	.....	.....	.....	.....	.....	510	.....
$	.....	.....	.....	.....	.....	.....	.....	5,173	.....

Table 10A—Mineral Production in Canada by Provinces, 1924—Concluded

—	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon
NON-METALLIC—*Con.*									
Sodium sulphate...Tons	.....	.....	.....	.....	.....	1,083	.....	.....	.....
$	.....	.....	.....	.....	.....	6,004	.....	.....	.....
Talc and soapstone.Tons	.....	.....	449	10,718	.....	.....	.....	165	.....
$	.....	.....	20,273	130,577	.....	.....	.....	3,630	.....
Tripolite.....Tons	33	.....	.....	.....	.....	.....	.....	.....	.....
$	838	.....	.....	.....	.....	.....	.....	.....	.....
Volcanic ash.....Tons	.....	.....	.....	.....	.....	245	.....	.....	.....
$	.....	.....	.....	.....	.....	1,103	.....	.....	.....
Total..... $	23,250,539	1,643,178	7,259,686	6,989,032	348,272	893,775	20,687,198	10,716,064	8,265
STRUCTURAL MATERIALS AND CLAY PRODUCTS									
Cement, Portland...Brls	.....	.....	2,758,316	3,564,499	286,948	.....	416,534	472,327	.....
$	.....	.....	4,796,959	5,668,671	746,750	.....	945,700	1,240,331	.....
Clay products—									
Brick—									
Soft mud process—									
Face.....M.	.....	.....	.....	10,605	.....	226	.....	.....	.....
$	.....	.....	.....	182,385	.....	2,863	.....	.....	.....
Common (a)...M.	555	2,345	4,802	31,041	5,722	1,603	1,446	2,565	.....
$	7,470	38,131	48,865	488,742	93,698	20,473	19,195	29,470	.....
Stiff mud process (wire cut)—									
Face.....M.	675	.....	14,611	63,353	165	1,200	213	348	.....
$	13,581	.....	381,549	1,385,131	4,911	32,210	5,736	19,106	.....
Common.....M	4,161	.....	93,343	22,563	127	227	3,502	633	.....
$	50,322	.....	1,351,657	424,536	1,270	3,570	38,823	10,453	.....
Dry press—									
Face.....M.	.....	.....	1,817	30,597	.....	173	1,480	1,130	.....
$	.....	.....	53,006	636,101	.....	6,064	25,824	40,577	.....
Common.....M.	.....	.....	.....	2,433	.....	128	7,510	2,723	.....
$	.....	.....	.....	34,093	.....	2,018	96,533	35,399	.....
Fancy or ornamental brick...M.	.....	.....	223	532	.....	.....	.....	.....	.....
$	.....	.....	9,603	88,857	.....	.....	.....	.....	.....
Sewer brick.....M.	.....	.....	.....	2,656	.....	.....	.....	34	.....
$	.....	.....	.....	39,446	.....	.....	.....	1,329	.....
Fire brick from domestic clay..M.	176	23	.....	718	.....	436	.....	2,974	.....
$	8,269	640	.....	38,509	.....	19,936	.....	141,902	.....
Fireclay.....Tons	1,967	50	.....	.....	.....	315	.....	1,313	.....
$	5,258	2,005	.....	.....	.....	2,436	.....	16,559	.....
Fireclay blocks and shapes..... $	$30	.....	.....	.....	.....	3,818	12,977	33,548	.....
Structural tile—Hollow blocks (including fire-proofing and load-bearing tile)—									
Tons	4,695	.....	29,366	48,134	969	1,795	5,511	6,348	.....
$	54,410	.....	277,940	428,894	11,726	35,892	51,518	66,397	.....
Roofing tile....No.	.....	.....	.....	7,377	.....	.....	.....	.....	.....
$	.....	.....	.....	917	.....	.....	.....	.....	.....
Floor tile (quarries) Sq. ft.	.....	.....	.....	441,301	.....	.....	.....	3,300	.....
$	.....	.....	.....	35,211	.....	.....	.....	397	.....
Drain tile (b).....M.	146	.....	65	14,096	167	200	39	424	.....
$	4,265	.....	2,550	373,979	5,845	8,000	1,831	12,899	.....
Sewer pipe (including copings, flue lining, etc.).....Tons	12,910	.....	12,939	42,449	.....	.....	6,345	1,712	.....
$	214,783	.....	310,525	848,398	.....	.....	168,016	52,558	.....
Pottery, glazed or unglazed.....$	.....	34,218	.....	84,100	.....	.....	120,024	.....	.....
Lime.....Bush.	2,229	208,180	2,386,445	5,419,307	394,229	.....	90,214	636,348	.....
$	936	108,890	699,937	1,840,152	121,518	.....	36,279	370,829	.....
Sand and gravel(c).Tons	306,873	141,897	2,197,145	6,174,284	359,535	702,713	615,594	1,105,459	.....
$	60,849	23,999	414,428	2,041,959	81,897	97,045	115,969	344,937	.....
Stone—									
Granite.....Tons	7,554	4,921	42,283	214,691	.....	.....	.....	150,522	.....
$	33,021	80,812	442,933	208,219	.....	.....	.....	248,360	.....
Limestone.....Tons	57,069	14,308	1,465,237	2,614,911	54,065	.....	16,418	27,053	.....
$	56,323	33,299	2,058,432	2,551,111	93,876	.....	16,762	21,881	.....
Marble.....Tons	.....	.....	4,379	.....	.....	.....	.....	.....	.....
$	.....	.....	322,455	.....	.....	.....	.....	.....	.....
Sandstone.....Tons	2,912	.....	80,190	10,571	.....	.....	280	650	.....
$	22,480	.....	101,700	30,038	.....	.....	2,555	83,500	.....
Total .....$	532,897	321,994	11,272,539	17,429,449	1,161,491	234,325	1,657,742	2,770,432	.....
Grand total.....	**23,820,352**	**1,969,260**	**19,136,504**	**86,398,656**	**1,534,249**	**1,128,100**	**22,344,940**	**52,298,533**	**952,812**

(a) Includes 115 M valued at $1,590 for P.E.I.
(b) Including 76 M valued at $1,750 for P.E.I.
(c) Including 11420 tons valued at $1,248 for P.E.I.

Table 11.—Mineral Production of Nova Scotia, 1922, 1923 and 1924

Product	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLIC—						
Arsenic ..... Lb.	.....	.....	45,000	2,250	381,092	15,244
Gold ..... Fine oz.	(a) 1,128	21,598	(a) 680	13,556	(a) 1,091	21,672
Manganese ore ..... Tons	73	2,044	200	1,400	.....	.....
NON-METALLIC—						
Barytes ..... Tons	289	9,537	209	4,368	151	3,308
Coal ..... "	5,569,072	24,629,921	6,597,838	28,170,458	5,557,441	22,280,554
Feldspar ..... "	.....	.....	.....	.....	.....	.....
Grindstones ..... "	102	3,692	256	7,906	338	12,525
Gypsum ..... "	332,404	580,148	341,705	747,934	441,752	915,845
Salt ..... "	5,053	54,666	4,480	39,151	4,551	37,469
Tripolite ..... "	219	5,781	130	3,250	33	838
STRUCTURAL MATERIALS AND CLAY PRODUCTS—						
Clay products	.....	431,618	.....	413,974	.....	(b) 359,288
Lime ..... Bush	.....	.....	42,370	7,199	2,229	936
Stone ..... Tons	87,955	119,492	138,682	177,090	67,535	111,824
Sand and gravel ..... "	222,441	(c) 65,002	224,016	(c) 60,357	306,873	(c) 60,849
Total	.....	**25,923,499**	.....	**29,648,893**	.....	**23,820,352**

(a) Includes 86 ounces silver, value $58 in 1922, 25 oz. silver value $16 in 1923, and 44 oz. silver, value $29 in 1924.
(b) Includes small production from P.E.I.
(c) Includes railway ballast from P.E.I.; $10,028 in 1922, and $4,429 in 1923 and $1,248 in 1924.

Table 12.—Mineral Production of New Brunswick, 1922, 1923 and 1924

Product	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLIC—						
Manganese ore ..... Tons	.....	.....	.....	.....	584	4,088
NON-METALLIC—						
Coal ..... "	287,513	1,107,643	276,617	1,196,772	217,121	932,185
Grindstones ..... "	903	40,050	1,758	72,177	2,113	99,299
Gypsum ..... "	82,462	517,668	104,740	564,680	86,738	476,804
Natural gas ..... M cu. ft.	753,898	148,040	640,300	126,068	599,972	113,577
Petroleum ..... Brl.	7,778	32,732	8,826	35,642	5,561	21,313
STRUCTURAL MATERIALS AND CLAY PRODUCTS—						
Clay products	.....	75,425	.....	62,587	.....	74,994
Lime ..... Bush.	560,834	187,895	329,548	143,814	208,180	108,890
Stone ..... Tons	12,027	104,730	22,448	166,083	19,229	114,111
Sand and gravel ..... "	448,322	49,509	608,528	94,634	141,897	23,999
Total	.....	**2,263,692**	.....	**2,462,457**	.....	**1,969,260**

Table 13.—Mineral Production* of Quebec, 1922, 1923 and 1924

Product	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLIC—						
Chromite ..... Tons	⊕	.....	3,558	52,650	.....	.....
Copper ..... Lb.	.....	.....	.....	.....	1,893,008	246,546
Gold ..... Fine oz.	.....	.....	667	13,788	883	18,253
Iron ore, sold for export ..... Tons	526	1,410	69	186	1,408	3,771
Lead ..... Lb.	.....	.....	520,041	37,334	1,058,983	85,820
Molybdenite ..... "	.....	.....	.....	.....	18,739	9,370
Silver ..... Fine oz.	.....	.....	33,006	21,412	83,814	55,972
Zinc ..... Lb.	.....	.....	366,240	24,197	2,909,008	184,547
NON-METALLIC—						
Asbestos ..... Tons	163,706	5,552,723	231,476	7,519,906	225,572	6,618,930
Chromite ..... "	767	11,503	⊕	.....	⊕	.....
Feldspar ..... "	12,472	127,826	12,026	102,779	16,147	142,118
Graphite ..... "	24	1,500	45	2,316	46	3,275
Magnesite ..... "	2,849	76,294	4,801	134,382	3,873	101,356
Mica ..... "	1,360	97,748	1,545	216,684	1,677	185,020
Mineral water ..... Imp. Gal.	12,161	3,692	5,421	2,408	7,683	2,288
Iron oxides ..... Tons	7,282	110,488	9,911	123,186	7,146	88,540
Phosphate ..... "	131	1,320	30	600	.....	.....
Pyrites ..... "	.....	.....	.....	.....	4,032	10,619
Quartz ..... "	10,994	53,023	13,376	68,936	17,893	87,267
Talc ..... "	150	4,950	590	19,993	449	20,273
STRUCTURAL MATERIALS AND CLAY PRODUCTS—						
Cement ..... Brl.	2,660,935	5,907,300	3,173,993	6,347,986	2,758,316	4,796,059
Clay products	.....	2,476,370	.....	2,437,229	.....	2,435,695
Kaolin ..... Tons	1,197	17,866	163	2,369	.....	.....
Lime—						
Quicklime ..... Bush.	2,108,513	634,157	2,198,071	576,731	2,219,359	640,990
Hydrated lime ..... Tons	5,278	55,642	5,595	57,482	5,848	58,947
Slate ..... "	1,899	14,871	1,836	17,289	.....	.....
Stone ..... "	987,355	2,342,316	1,094,816	2,322,745	1,592,089	2,925,520
Sand and gravel ..... "	905,101	156,940	1,055,817	206,175	2,197,145	414,428
Total	.....	**17,647,939**	.....	**20,308,763**	.....	**19,136,504**

*There is also in this province an important production of aluminium from imported ores.
⊕Included in metallics 1923 and 1924.

Table 14.—Mineral Production of Ontario, 1922, 1923 and 1924

Product	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLIC—						
Arsenic, white ... Lb.	...	...	5,158,617	582,785	3,745,225	313,281
Bismuth ... "	...	...	...	...	12,863	27,913
Cobalt ... "	569,960	1,852,370	888,061	2,530,974	948,704	1,682,395
Copper ... "	10,943,636	1,464,477	31,656,800	4,565,227	37,113,193	4,833,622
Gold ... Fine oz.	1,000,340	20,678,862	971,704	20,086,904	1,241,728	25,668,795
Iron ore, sold for export ... Tons	...	...	5,358	18,878	...	...
Iron, pig, from Canadian ore (a) ... "	8,095	178,980	20,739	432,298	3,696	92,400
Lead ... Lb.	2,890,397	180,216	4,401,494	315,983	5,055,368	409,687
Nickel ... "	17,597,123	6,158,993	62,453,843	18,332,077	69,536,350	19,470,178
Platinum ... Fine oz.	458	44,709	1,210	141,010	9,181	1,090,858
Palladium ... "	724	47,060	1,732	138,560	8,923	811,993
Rhodium, ruthenium, osmium, iridium "	391	31,280	(b) 304	45,000	593	51,120
Silver ... Fine oz.	10,811,903	7,300,305	10,540,943	6,838,226	11,272,567	7,527,933
NON-METALLIC—						
Actinolite ... Tons	50	575	53	583	90	1,225
Arsenious oxide ... "	2,058	299,940	...	...	...	...
Asbestos ... "	...	...	6	2,600	172	91,900
Barytes ... "	...	...	200	4,180	...	...
Feldspar ... "	15,255	120,576	17,199	134,822	28,657	216,422
Fluorspar ... "	284	3,905	64	597	76	1,343
Garnet ... "	...	...	1,250	100,000	360	7,200
Graphite ... "	573	29,853	1,068	65,557	1,288	72,842
Gypsum ... "	110,227	621,668	99,958	542,317	88,121	467,097
Mica ... "	1,989	54,515	1,980	110,290	2,414	172,252
Mineral water ... Imp. gal.	209,072	10,528	227,030	14,047	201,670	13,133
Natural gas ... M. cu. ft.	8,060,114	4,076,296	8,128,413	4,066,244	7,150,078	3,798,381
Peat ... Tons	3,000	14,500	...	...	...	...
Petroleum ... Brl.	164,732	526,316	159,400	478,149	154,368	441,952
Phosphate ... Tons	59	476	...	...	...	...
Pyrites ... "	11,233	39,763	25,134	99,716	11,429	44,542
Quartz ... "	81,528	118,054	225,110	483,285	111,645	192,855
Salt ... "	176,741	1,573,657	197,917	1,674,365	203,428	1,337,311
Talc ... "	12,854	178,728	9,531	125,124	10,718	130,577
STRUCTURAL MATERIALS AND CLAY PRODUCTS—						
Cement ... Brl.	3,104,386	6,393,566	3,296,428	5,855,589	3,564,499	5,668,671
Clay products ...	...	6,944,218	...	6,270,615	...	5,089,299
Lime—						
Quicklime ... Bush.	3,939,954	1,311,563	4,810,421	1,373,823	4,391,050	1,401,545
Hydrated ... Tons	36,408	455,980	41,727	519,840	35,989	438,607
Stone ... Tons	2,317,265	2,969,926	2,638,984	2,869,228	2,840,173	2,789,368
Sand and gravel ... "	6,285,123	2,184,174	8,146,433	2,006,958	6,174,284	2,041,959
Total ...	...	**65,866,029**	...	**80,825,851**	...	**86,398,656**

(a) The total production of blast-furnace pig-iron in Ontario in 1922 was 293,662 tons valued at $6,493,513, in 1923 it was 674,428 tons valued at $15,995,496, and in 1924 it was 465,888 valued at $10,482,480.
(b) Rhodium and iridium

Table 15.—Sales and Shipments from the Mineral Industries of Ontario, 1923 and 1924 (Quantities shown are final shipments during the year; values given are those reported as received, f.o.b. shipping point, by the shippers.)

Metal mining industries		1923		1924	
		Quantity	Marketed value as reported	Quantity	Marketed value as reported
SILVER COBALT INDUSTRY—			$		
Sold by South Ontario smelters—					
Silver bullion	Oz.	3,093,060	2,004,180	4,309,595	2,936,927
Arsenic ($As_2 O_3$)	Lb.	5,158,617	582,785	3,596,165	309,108
Cobalt metal, oxide, salts, etc., (metal content)	"	666,213	1,708,337	626,400	1,421,826
Nickel metal, oxide, salts, etc. (metal content)	"	83,632	19,321	42,482	9,418
Sulphate	"	.....	.....	10,672	533
Matte		.....	76,642	.....	.....
Speiss residues exported	Tons	248	99,023	637	235,317
Silver lead bismuth bullion	Lb.	.....	.....	60,044	87,264
Sold direct from Ontario silver mines—					
Silver bullion	Oz.	6,018,259	3,928,311	5,004,092	3,369,664
Nuggets to provincial government	"	.....	.....	15,466	10,398
Ores, concentrates and residues exported	Tons	1,481	443,819	2,412	556,779
Total for silver-Cobalt industry		.....	8,862,418	.....	8,937,234
NICKEL-COPPER INDUSTRY—					
Matte exported	Tons	21,450	5,645,305	26,565	4,667,136
Refined nickel					
Nickel oxides		.....	7,935,962	.....	9,760,022
Converter copper					
Precious metals	Oz.	58,297	340,935	62,713	364,246
Total for nickel-copper industry		.....	13,922,202	.....	14,791,404
GOLD MINING INDUSTRY—					
Crude bullion	Oz.	1,214,964	20,143,938	1,579,994	25,692,578
Exchange premium		.....	280,119	.....	196,748
Slags exported	Tons	52	22,403	39	31,011
Temiskaming testing laboratory	"	.....	.....	39	2,279
Total for gold-mining industry		.....	20,446,460	.....	25,922,616
LEAD MINING AND SMELTING INDUSTRY—					
Lead bullion	Lb.	5,154,312	340,724	5,415,574	412,110
IRON MINING AND SMELTING INDUSTRY—					
Pig iron from Ontario ores	Tons	20,739	432,298	3,606	92,400
Totals—					
(a) Metal mining and smelting industries listed above		.....	44,004,102	.....	50,155,764
(b) Non-Metallic mineral industries, as per Table 14		.....	7,901,876	.....	6,989,032
(c) Structural materials and clay products industries, as per Table 14		.....	18,896,053	.....	17,429,449
Grand Total of Sales		.....	**70,802,031**	.....	**74,574,245**

Table 16.—Mineral Production of Manitoba, 1922, 1923 and 1924

Product		1922		1923		1924	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
METALLIC—							
Gold	Fine oz.	156	3,225	31	641	1,180	24,393
Silver	"	20	14	5	3	140	93
NON-METALLIC—							
Gypsum	Tons	34,072	440,914	31,575	386,554	29,375	348,212
Natural gas	M cu. ft.	200	60	200	60	200	60
STRUCTURAL MATERIALS AND CLAY PRODUCTS—							
Cement	Brl.	429,352	1,126,137	320,218	817,664	286,948	746,750
Clay products		.....	210,740	.....	160,134	.....	117,450
Lime	Bush.	525,184	163,799	524,128	161,226	394,229	121,518
Sand and gravel	Tons	780,231	207,415	595,549	123,478	359,535	81,897
Stone	Tons	34,359	106,638	51,304	118,277	54,065	93,876
Total		.....	**2,258,942**	.....	**1,768,037**	.....	**1,534,249**

Table 17.—Mineral Production of Saskatchewan, 1922, 1923 and 1924

Product		1922		1923		1924	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
NON-METALLIC—							
Coal	Tons	382,437	802,053	438,100	858,448	479,118	886,668
Sodium sulphate	"	504	11,980	733	10,189	1,083	6,004
Volcanic ash	"	.....	.....	.....	.....	245	1,103
STRUCTURAL MATERIALS AND CLAY PRODUCTS							
Clay products		.....	134,704	.....	119,405	.....	137,280
Sand and gravel	Tons	924,944	306,733	438,319	59,541	702,713	97,045
Total		.....	**1,255,470**	.....	**1,047,583**	.....	**1,128,100**

Table 18.—Mineral Production of Alberta, 1922, 1923 and 1924

Product		1922		1923		1924	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
NON-METALLIC—							
Bituminous sand	Tons	.....	.....	.....	.....	531	2,127
Coal	Tons	5,990,911	24,351,913	6,854,397	28,018,303	5,189,729	18,884,318
Natural gas	M cu. ft.	5,867,459	1,622,105	7,191,670	1,692,246	7,131,086	1,796,618
Petroleum	Brl.	5,608	52,128	1,943	8,227	844	4,135
STRUCTURAL MATERIALS AND CLAY PRODUCTS—							
Cement	Brl.	358,209	838,208	318,756	740,940	416,534	945,700
Clay products		.....	700,063	.....	590,565	.....	540,477
Lime	Bush.	130,627	71,328	87,753	37,999	90,214	36,279
Sand and gravel	Tons	1,139,963	229,091	888,216	199,256	615,594	115,969
Stone	Tons	554	7,300	.....	.....	16,698	19,317
Total		.....	**27,872,136**	.....	**31,287,536**	.....	**22,344,940**

Table 19.—Mineral Production of British Columbia, 1922, 1923 and 1924

Product	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLIC—						
Arsenic ..... Lb.	.....	.....	1,217,970	41,780	495,250	19,768
Copper (a) ..... "	31,936,182	4,273,700	55,224,737	7,963,059	65,451,246	8,524,370
Gold ..... Fine oz.	207,370	4,286,718	200,140	4,137,261	245,719	5,079,462
Iron ore sold for export ..... Tons	1,255	3,528	243	1,215	.....	.....
Iron, pig from Canadian ores	.....	.....	.....	.....	14	350
Lead ..... Lb.	87,093,266	5,430,265	99,541,818	7,146,107	168,467,628	13,652,617
Platinum ..... Fine oz.	12	1,154	7	816	5	569
Silver ..... "	7,150,937	4,828,384	6,113,327	3,965,889	8,153,003	5,444,657
Zinc ..... Lb.	56,290,000	3,217,536	60,050,000	3,967,504	96,000,069	6,090,244
NON-METALLIC—						
Arsenic ..... Tons	518	21,097	(b)	.....	(b)	.....
Coal ..... "	2,927,033	14,622,317	2,823,306	13,813,520	2,193,667	10,801,998
Fluorspar ..... "	4,219	98,233	75	1,135	.....	.....
Grindstones ..... "	.....	.....	.....	.....	240	19,000
Gypsum ..... "	100	500	323	1,615	30	150
Magnesium sulphate ..... "	1,021	24,017	121	6,580	.....	.....
Natro-alunite ..... "	50	2,500	15	750	.....	.....
Oxides (iron) ..... "	3	120	513	6,450	120	2,620
Pyrites ..... "	6,908	34,540	3,457	13,304	8,091	40,459
Quartz ..... "	17,425	37,521	25,590	47,029	21,358	43,034
Sodium carbonate ..... "	202	3,027	265	3,975	510	5,173
Talc ..... "	191	4,780	245	5,390	165	3,630
STRUCTURAL MATERIALS AND CLAY PRODUCTS—						
Cement ..... Brl.	391,090	1,173,270	795,637	1,302,482	472,327	1,240,331
Clay products	.....	447,452	.....	426,138	.....	460,594
Lime—						
Quicklime ..... Bush.	433,716	254,320	564,971	338,443	517,577	320,312
Hydrated ..... Tons	2,909	30,321	4,410	50,051	4,157	50,517
Sand and gravel ..... "	960,251	304,071	434,194	266,119	1,105,459	344,937
Stone ..... "	197,670	324,591	165,100	249,868	178,225	353,741
Total	.....	**39,423,962**	.....	**43,757,388**	.....	**52,298,533**

(a) Smelter recoveries of copper. (b) Included in metallics in 1923 and 1924.

Table 20.—Mineral Production of Yukon, 1922, 1923 and 1924

Product	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLIC—						
Gold ..... Fine oz.	54,456	1,125,705	60,144	1,243,287	34,825	719,897
Silver ..... "	663,493	447,997	1,914,438	1,241,953	226,755	151,429
Lead ..... Lb.	3,323,508	207,221	6,771,113	486,098	903,520	73,221
NON-METALLIC—						
Coal ..... Tons	465	4,650	313	1,485	1,121	8,265
Total	.....	**1,785,573**	.....	**2,972,823**	.....	**952,812**

METALLICS

ALUMINIUM

Up to the present time no commercial ores of aluminium have been discovered in Canada. This extremely useful metal has been produced in Canada since 1903 from ore imported mainly from the United States and in less amounts from France, by the Northern Aluminium Company, which is the Canadian branch of the Aluminium Company of America at Shawinigan Falls, Que. The ore from which aluminium is produced, known as bauxite, is a variety of laterite, a rock containing varying proportions of hydrated oxides of iron and aluminium. In Europe, bauxite is found in commercial quantities in the south of France, particularly in the Dalmatia-Croatia-Istria region, and in the Bihar mountains in Roumania. Other important deposits are those of the United States, British and Dutch Guiana, India and the Gold Coast of Africa.

As there is only one Canadian producer of aluminium, production figures are not shown separately. There are several companies making aluminium ware of all kinds and a separate report is published annually by the Dominion Bureau of Statistics on this section of the trade.

Aluminium is a product of the electric furnace. Alumina, which has previously been recovered by chemical means from bauxite, is dissolved in molten cryolite, in the electric furnace and a low voltage current is passed through the melt to decompose the oxide into metallic aluminium and oxygen; the metal sinks to the bottom of the crucible. The free oxygen attacks the carbon of the furnace electrode forming carbon dioxide gas, for this reason the electrode consumption is high. Theoretically, there should be no loss of cryolite but in actual operations losses occur, which must be made good from time to time. The mineral cryolite used in the manufacture of aluminium occurs in Greenland; annual shipments amount to approximately 10,000 tons. The chief uses of aluminium are in the manufacture of alloys with other metals including copper, nickel, cobalt, iron, antimony, tin, zinc and magnesium, and there are many uses for the pure metal itself. Pure aluminium powder is used in the thermit process to reduce the oxides of certain metals to the metallic state. In the manufacture of some alloys, metals of low carbon content are required and in the preparation of these metals from their oxides, reduction by aluminium is found very desirable, and a great improvement over the older method of reduction by carbon. Powdered aluminium is also used in precipitation of gold and silver from cyanide solutions and because of its great affinity for oxygen, it is sometimes employed as a degasifier or a deoxidizer in the manufacture of steel.

Table 21.—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
Leaf foil		215,944		151,023		135,316
Household and hollow-ware		544,784		544,046		403,613
Total		**2,282,255**		**3,578,805**		**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**

Table 22.—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 23.—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	14,320	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	24,244
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**

Table 24.—World's Production of Bauxite, 1913, 1920-1924

(1913 from "*The Mineral Industry, 1918*"; 1920-1924 from "*The Mineral Industry, 1924*")

(Metric tons)

Country	1913	1920	1921	1922	1923	1924
Austria	.....	362	2,638	4,095	2,734	3,000
British Guiana	.....	31,883	20,011	.....	112,168 (a)	160,000
British India	1,203	6,401	6,759	4,998	6,547 (a)	6,000
Dutch Guiana	.....	.....	.....	18,805	12,613 (a)	60,000
France	309,285	266,716	95,318	139,176	314,330	335,582
Germany	.....	13,420 (a)	2,000	20,000	16,054 (a)	10,000
Roumania	.....	.....	.....	3,736	4,161 (a)	3,000
Italy	6,953	13,139	49,120	66,646	98,055	145,520
Jugo-Slavia	.....	27,860	10,021	32,624 (a)	50,000 (a)	30,000
Spain	.....	540	184	192	372	300
United Kingdom	8,417	11,197	2,305	5,953	3,504 (a)	5,000
United States	213,675	529,675	141,790	314,584	553,434	352,098
Total	**539,533**	**901,193**	**330,146**	**610,809**	**1,173,972**	**1,110,500**

(a) Estimated.

ANTIMONY

No antimony has been produced in Canada since 1917. Ores of antimony are known to occur in British Columbia, New Brunswick, Nova Scotia, Ontario, Quebec and the Yukon. The greater part of the Canadian output of refined antimony was produced in the years 1907, 1909, 1915, and 1916, by the Consolidated Mining and Smelting Company. The remainder was from the New Brunswick ores treated locally.

Table 25.—Production of Antimony in Canada, 1886-1924

Year	Antimony ore		Refined regulus	
	Tons	Value	Pounds	Value
		$		$
1886	665	31,490		
1887	584	10,860		
1888	345	3,696		
1889	55	1,100		
1890	26½	625		
1891	10	60		
1892-1897				
1898	1,344	20,000		
1899-1904				
1905 (a)	527			
1906 (a)	782			
1907	2,016	65,000	63,850	5,108
1908 (b)	148	5,443		
1909	35	1,575	61,207	4,285
1910	364	13,906		
1911-1914				
1915	1,341	81,283	59,440	11,888
1916	885	94,537	107,185	41,823
1917	361	22,000		
1918-1924				

(a) As recorded by the Nova Scotia Department of Mines: no value given.
(b) Exports.

Table 26.—Imports of Antimony into Canada, 1922, 1923 and 1924

	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$
IMPORTS—						
Antimony or regulus of	405,646	22,340	900,483	57,882	780,271	70,982
Antimony salts	16,050	3,661	19,883	4,904	16,412	3,408
Total	**421,696**	**26,001**	**920,366**	**62,786**	**796,683**	**74,390**

Table 27.—Monthly Average Prices of Antimony, 1922, 1923 and 1924

(Compiled from quotations given in the *Engineering and Mining Journal-Press*—"Ordinaries" stand for Hungarian, Chinese, or other "Foreign" brands)

(At New York in cents per pound)

Month	1922	1923	1924
	Ordinaries	Ordinaries	Ordinaries
January	4·463	6·884	10·279
February	4·416	7·290	10·935
March	4·319	8·885	11·442
April	4·980	8·380	9·952
May	5·467	7·477	8·755
June	5·145	6·839	8·403
July	5·091	7·097	8·477
August	5·315	7·753	9·839
September	6·580	7·633	11·022
October	6·905	8·005	11·519
November	6·584	9·156	14·385
December	6·382	9·365	15·024
Average	**5·471**	**7·897**	**10·836**

Table 28.—World's Production of Antimony (a) 1913, 1920-1924

From *"The Mineral Industry, 1921 and 1924."*

(Metric tons)

Country	1913	1920	1921	1922	1923	1924
United States				4	9	33
Canada						
Mexico	2,340	1,572	45	457	490	370
Bolivia	30	(c) 588	(c) 336	(c) 185	(c) 312	(c) 621
Peru		6	7			
Hungary		314		67		
Austria	1,038			172	643	
Austria-Hungary	840					
Germany		644				
France	5,170	1,413	1,118	814	437	674
Italy	300	187	90	183	271	165
Portugal	10					
Spain						
Serbia	250	(c) 831	600	160		410
Algeria	186	(c) 1,000	(c) 103	(c) 530	(c) 500	(c) 905
British South Africa	30	73		1		
China	13,032	(c)13,109	(c)14,752	(c)14,316	(c)14,244	(d)13,168
Japan	20					
India			1			
Indo-China						
Asia Minor	240	400	400	400	400	400
Victoria	960	375	150	730	421	329
New South Wales	10	64	40			
Queensland						
Western Australia		3				
Total	**24,516**	**20,579**	**17,592**	**18,019**	**17,727**	**17,075**

(a) U. S. Geol. Surv., with additions from official reports; metal content of ore.
(b) Incomplete data; actual production probably larger.
(c) Exports.
(d) Statistics of Hunan Antimony Association.

ARSENIC

Arsenic occurs in Canada in the arsenical gold ores of Nova Scotia and British Columbia and in the silver-cobalt-nickel ores of Ontario.

Arsenical ores from Nova Scotia and British Columbia are exported for treatment as are also some ores from Cobalt, but the major part of the Dominion output of arsenic is produced by the smelters situated in the southern part of Ontario which treat the ores from Cobalt. In 1924, arsenic production amounted to 4,621,567 pounds valued at $348,293. Of this amount, Ontario contributed 3,745,225 pounds valued at $313,281; British Columbia, 495,250 pounds valued at $19,768; and Nova Scotia, 381,092 pounds valued at $15,244. Arsenic credited to British Columbia and Nova Scotia, was recovered from ores exported for treatment in foreign smelters. In 1923, Ontario produced 5,158,617 pounds valued at $582,785; British Columbia, 1,217,970 pounds valued at $41,780, and Nova Scotia 45,000 pounds valued at $2,250. During the year 1924, the price of arsenic decreased from 13·5 cents in January to 6·75 cents in December, averaging 9·63 cents for the year.

Arsenic is used mainly in the manufacture of insecticides and the annual consumption depends considerably on the activities of the boll-weevil, an insect which is very destructive to the southern cotton crop. In 1923, producers of insecticides looked for a large consumption in the following year. Apparently, this anticipated consumption did not take place with the result that the price of arsenic fell off towards the end of the year. The glass and tanning industries also consume considerable quantities of white arsenic.

Imports during the year amounted to 3,105 pounds having a value of $319. Exports of white arsenic amounted to 545 tons valued at $28,360; exports of arsenic contained in ore concentrates, etc., amounted to 1,304 tons valued at $227,331.

Table 29.—Production of Arsenic in Canada, 1885-1924

Year	White Arsenic		Year	Arsenic in Ore*		White Arsenic	
	Tons	Value		Tons	Value	Tons	Value
		$			$		$
1885	440	17,600	1907	656	11,094	330	36,209
1886	120	5,460	1908	986	17,506	716	41,060
1887	30	1,200	1909	224	3,346	1,129	64,100
1888	30	1,200	1910	547	5,716	1,502	75,328
1889	.....	.....	1911	.....	.....	2,007	76,237
1890	25	1,500	1912	.....	.....	2,045	89,262
1891	20	1,000	1913	.....	.....	1,692	101,463
1892-3	.....	.....	1914	.....	.....	1,737	104,015
1894	7	420	1915	.....	.....	2,396	147,830
1895-8	.....	.....	1916	.....	.....	2,186	262,349
1899	57	4,872	1917	280	11,200	2,656	658,231
1900	303	22,725	1918	1,078	43,114	2,482	520,525
1901	695	41,676	1919	530	21,218	2,859	488,706
1902	800	48,000	1920	628	22,231	1,831	425,617
1903	257	15,420	1921	.....	.....	1,491	233,763
1904-5	.....	.....	1922	518	21,097	2,058	299,940
1906	201	14,058	1923	631	44,030	2,579	582,785
			1924	513	39,185	1,798	309,108
			Total	**6,591**	**239,737**	**33,584**	**4,516,528**

*Computed as As_2O_3; net value as reported by the operators.

Table 30.—Production, Exports and Imports of Arsenic, (As_2O_3), for Canada, 1922, 1923 and 1924

	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
PRODUCTION—						
From arsenical concentrates exported Tons	518	21,097	631	44,030	513	39,185
White arsenic "	2,058	299,940	2,579	582,785	1,798	309,108
Total "	**2,576**	**321,037**	**3,210**	**626,815**	**2,311**	**348,293**
EXPORTS—						
White arsenic (Arsenic n.o.p.) "	222	5,238	587	25,003	545	28,360
Arsenic in ore, concentrates, etc. "	1,367	198,005	1,564	348,646	1,304	227,331
IMPORTS—						
White arsenic Lb.	958,120	70,718	457,422	66,280	3,105	319
Sulphide of arsenic "	8,294	1,066	7,339	1,244	14,387	2,008
Arseniate of soda "	7,961	1,402	4,940	475	1,087	220

Table 31.—Monthly Average Prices of Arsenic, 1922, 1923 and 1924

(From "*Engineering and Mining Journal-Press*")

Month	New York in cents per pound		
	1922	1923	1924
January	7·50	13·00	13·50
February	7·50	14·00	13·00
March	7·50	14·50	12·50
April	7·00	14·25	11·00
May	7·00	14·10	10·50
June	7·25	13·50	9·50
July	7·50	11·00	8·50
August	8·00	9·50	8·00
September	9·00	10·75	7·75
October	10·50	11·50	7·50
November	11·00	13·50	7·00
December	13·00	13·50	6·75
Average	**8·56**	**12·75**	**9·63**

Table 32.—*World's Production of Arsenic (As_2O_3) 1913, 1920-1924

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

(Metric tons)

Country	1913	1920	1921	1922	1923	1924
Belgium	.....	463	485	1,008	1,380	.....
Canada (a)	1,535	2,231	1,353	2,337	2,913	2,097
China (b)	(c) 547	49	100	29	589	.....
France—White arsenic	.....	606	.....	.....	.....	.....
Ore	4,427	280	580	941	4,245	10,552
Germany (d)	1,892	2,077	2,000	2,000	.....	.....
Ore	5,721	6,007	6,902	.....	.....	.....
Greece	.....	854	768	967	1,176	.....
Japan	21	933	1,395	2,044	4,287	.....
Mexico	.....	2,183	785	271	1,402	1,293
Portugal	925	653	268	.....	.....	.....
Queensland	.....	310	224	407	620	573
Rhodesia (e)	.....	396	327	451	774	534
Spain	47	76	.....	.....	.....	.....
Union of South Africa	.....	10	2	3	5	.....
United Kingdom—White arsenic	1,722	2,029	1,049	994	1,631	3,259
Pyrites	36	1,197	.....	360	741	304
United States	2,280	10,434	4,342	9,096	12,946	13,112

(*) White arsenic except where noted otherwise.
(a) Dominion Bureau of Statistics figures. (b) Exports. (c) Arsenic trisulphide.
(d) Estimated arsenic in ore. (e) Ore.

CHROMITE

There was no production of chromite in Canada in 1924. In 1923, production totalled 3,558 tons, valued at $52,650. During the same year, Canadian exports amounted to 3,750 tons with a value of $64,890.

The mineral chromite (FeO, Cr_2O_3) is the commercial source of the metal chromium, which is of prime importance in the manufacture of chrome steel armour plate and other steels used in warfare. This metal is a necessary constituent of many high-speed cutting tools, and, in the manufacture of stainless steels, where it makes up from 12 to 14 per cent of the alloy, its use is well established.

Quebec has been the main source of chromite ore in Canada. Rhodesia, India and New Caledonia, supply over 90 per cent of the world's chromite.

During the war when the higher grades of ore from other continents were not easily obtainable, many low-grade deposits in Canada and the United States were opened up, and considerable metallurgical research was done in Canada on the reduction of chromium from the ore. When hostilities ceased, the demand fell off, with the result that the preliminary work then under way, was discontinued. Chromium metal may be obtained from chromium oxide by reduction with aluminium. The metal made in this manner is very pure and free from carbon. In less pure form, it has been made in the electric furnace directly from the ore. The resultant product made in this manner contains small percentages of iron and carbon but not enough to cause any serious trouble when the metal is used in alloys with other metals. Ferro-chrome, also a product of the electric furnace, is made from a good grade of chromite ore, and the iron chromite alloy runs about 60 to 70 per cent chromium. This alloy can then be added in the required amounts to a bath of molten steel. Ferro-chrome requirements take about 40 per cent of the world's supply of chromite; about 35 per cent of the chromite produced is used in the manufacture of chromite refractories such as brick and other furnace linings and 25 per cent is used in the manufacture of chemicals.

Table 33.—Production of Chromite in Canada, 1886-1924.

Year	Short tons	Value	Year	Short tons	Value
		$			$
1886	60	945	1908	7,225	82,008
1887	38	570	1909	2,470	26,604
1888-93	.....	.....	1910	299	3,734
1894	1,000	20,000	1911	157	2,587
1895	3,177	41,300	1912-13	.....	.....
1896	2,342	27,004	1914	136	1,210
1897	2,637	32,474	1915	12,341	179,543
1898	2,021	24,252	1916	(a) 27,517	311,460
1899	2,010	21,842	1917	(a) 36,725	499,682
1900	2,335	27,000	1918	21,994	867,122
1901	1,274	16,744	1919	8,541	228,898
1902	900	13,000	1920	11,016	251,379
1903	3,509	51,129	1921	2,798	55,696
1904	6,074	67,146	1922	767	11,563
1905	8,575	93,301	1923	3,558	52,650
1906	9,035	91,859	1924	.....	.....
1907	7,196	72,901	Total	187,727	3,175,543

(a) A portion of this ore was sold to a customs mill in the district and the final shipments of ores and concentrates in 1916 were 15,249 short tons valued at $310,902 or an average of $20.39 per ton: and 23,713 tons valued at $581,796 or an average of $24.54 per ton in 1917.

Table 34.—Production in Canada, Imports and Exports of Chromite, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
PRODUCTION—		$		$		$
Quebec—Chromite	767	11,503	3,558	52,650	.....	.....
EXPORTS	773	8,286	3,750	64,890	.....	.....
IMPORTS—						
Bichromate of soda	720	118,872	693	103,093	877	126,670
Bichromate of potash	48	10,283	44	9,770	128	22,661

Table 35—World's Production of Crude Chromite, 1913, 1920-1924

(From "*The Mineral Industry, 1919 and 1924.*")

(Metric tons)

Country	1913	1920	1921	1922	1923	1924
Brazil	.....	3,506	.....	.....	.....	.....
Bosnia	305	.....	.....	.....	.....	.....
Canada*	.....	9,996	2,538	696	3,228	.....
Cuba	.....	721	610	1	10,587	8,276
Greece	6,342	7,382	8,029	9,213	(b) 14,509	.....
Guatemala	.....	1,122	401	.....	.....	.....
India	5,670	27,232	35,322	23,144	55,115	.....
Japan	.....	3,067	3,368	3,756	4,528	.....
New Caledonia (a)	63,370	91,536	29,458	10,718	23,226	15,292
Queensland	.....	161	.....	.....	.....	.....
Rhodesia	63,384	54,674	45,533	84,799	87,702	156,692
Russia	.....	2,360	2,220	(b) 1,500	(c) 970	(c) 4,750
Turkey	26,374	25,000	(b) 10,000	2,540	.....	.....
United States	259	2,542	256	361	231	293

* Dominion Bureau of Statistics figures.
(a) Exports. (b) Estimated in part. (c) Fiscal year ending Oct. 1.

COBALT

Cobalt production in 1924 amounted to 948,704 pounds valued at $1,682,395. Exports of cobalt including metals, oxides and various salts were valued at $1,302,277.

The Canadian cobalt production is made up of the cobalt in the various products sold by the south Ontario smelters plus the cobalt contained in ores and residues exported, and the value given is the selling value at the plant as reported by the producing companies.

Silver-cobalt-nickel ores from the Cobalt district of northern Ontario have provided the larger proportion of the world's supply for cobalt since that camp was discovered in 1903. The Coniagas Reduction Company of Thorold, Ontario, and the Deloro Smelting and Refining Company at Deloro, Ontario, developed processes for the recovery of cobalt from these ores. Recovery of this metal is accomplished by feeding the ore into a blast furnace where a speiss is made containing silver, cobalt, nickel, a small amount of iron and other metals which occur in the ore. The speiss is then roasted in order to free it from arsenic and then chloridized, leached with sulphuric acid to extract the copper and cyanided to dissolve the silver. Silver in the cyanide solution is precipitated by means of aluminium dust. The "speiss residues" then remaining are transferred to another plant where the cobalt and nickel oxides are precipitated. In some cases the speiss residues are exported to foreign countries where the cobalt, nickel and silver are recovered.

Cobalt oxide is marketed either in the black or gray form; the black oxide contains about 70 per cent cobalt metal and the gray, about 75 per cent cobalt metal. Gray oxide is made by giving the black oxide a slight roast in a reverberatory furnace in a reducing atmosphere. Cobalt salts of various kinds are also made, and if the pure metal is required, the black oxide is reduced in the reverberatory furnace using charcoal as the reducing agent.

The market for cobalt which was very poor in 1915 gradually improved during the war. No quotations on the New York market were available during 1918, 1919 and 1920. During 1921 the quotations given in the *Engineering and Mining Journal-Press* ranged from $3 to $3.50 per pound; the former value was used in computing the annual production values. In 1922, the average price $3.25 per pound, was used. In 1923, the quotation, $2.85 was used, but in 1924 the value given in the report was based on the returns actually received by the operators for the products sold; this averaged about $1.77 per pound of metal. The New York quotation for metal in 1924 was $2.75 per pound.

Bounties.—Under the provisions of the *Metal Refining Bounty Act*, passed by the Ontario Legislature in 1907, bounties were paid to refineries amounting to $126,987.08 on cobalt metal, cobalt oxide, and salts of cobalt, and $43,153.85 on nickel oxide, and salts of nickel, or a total for both cobalt and nickel of $170,140.93. The quantities produced and the bounties paid each year are given in detail in the annual reports of the Ontario Bureau of Mines.

The bounty was at the rate of 6 cents per pound on the metallic content of the oxides. The Act which expired in April, 1917, was not re-enacted.

An historical summary of the production in Canada which dates from the year 1904 is shown in the following table. For the years 1904 to 1910 inclusive, the figures given were prepared by the Ontario Bureau of Mines, and represent the estimated cobalt content of the ores shipped from the mines. From 1911 to date, the quantities given are the cobalt content of all smelter products sold or shipped, such as cobalt metal, the oxides, mixed oxides and residues, etc.

Table 36.—*Production of Cobalt from Canadian Ores, 1904-1924

Year	Pounds	Year	Pounds	Year	Pounds
1904	32,000	1911	1,704,000	1918	737,157
1905	236,000	1912	663,093	1919	530,371
1906	642,000	1913	865,937	1920	546,023
1907	1,478,000	1914	871,891	1921	251,986
1908	2,448,000	1915	504,212	1922	616,088
1909	3,066,000	1916	840,536	1923	760,105
1910	2,196,000	1917	1,079,572	1924	948,704

*See preceding paragraph.

Table 37.—Summary of Cobalt Production Statistics for Canada, 1923 and 1924

—	1923			1924		
	Total quantity	Cobalt content	Value as reported by smelters	Total quantity	Cobalt content	Value as reported by smelters
	Tons	Lb.	$	Tons	Lb.	$
Ores and residues treated	7,725	.....	.....	5,253	.....	.....
Output of smelters as metallic cobalt, cobalt oxide, unseparated oxides, cobalt salts, speiss and other residues, and cobalt ores and residues exported	.....	760,105	1,806,842	.....	948,704	1,682,395

Table 38.—Imports into Canada and Exports of Cobalt, 1922, 1923 and 1924

—	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$
IMPORTS—						
Ore	200	233	600	576	.....	.....
Total	**200**	**233**	**600**	**576**	.....	.....
EXPORTS—						
Cobalt metal	111,830	288,776	239,614	671,908	170,513	382,225
Cobalt oxides and salts	430,024	770,511	486,239	886,746	490,505	908,122
Cobalt alloys	4,022	21,398	422	1,997	2,421	11,930
Total	.....	**1,080,685**	.....	**1,460,651**	.....	**1,302,277**

Table 39.—Imports of Cobalt into the United States 1919-1924

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

Year	Ore		Cobalt		Zaffer		Oxide	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$		$
1919	17,045	2,832	60,511	141,450	.....	.....	131,424	184,751
1920	13,039	4,794	143,603	326,864	220	14	202,724	399,605
1921	7,657	3,235	38,442	105,539	.....	.....	164,003	342,426
1922	5,195	7,075	126,364	321,396	.....	.....	217,530	435,895
1923	58,719	56,336	225,639	552,434	.....	.....	258,594	511,903
1924	27,786	37,276	118,952	264,935	.....	.....	226,703	440,898

Table 40.—Monthly Average Prices of Cobalt, 1922, 1923 and 1924

Month	(a) London in shillings per pound			(b) New York in cents per pound		
	1922	1923	1924	1922	1923	1924
January	14/	11/	12/	325	285	300
February	14/	11/	12/	325	285	275
March	14/	11/	12/	325	285	275
April	13/	11/	12/	325	285	275
May	12/	11/	12/	325	285	275
June	12/	11/	12/	325	285	275
July	12/	11/	11/	325	300	275
August	11/	11/	12/	325	300	275
September	11/	12/	12/	325	300	275
October	11/	12/	12/	325	300	275
November	11/	12/	12/	325	300	275
December	11/	12/	12/	325	300	275

(a) From "*The Mining Journal*," London, E.C.
(b) From "*Engineering and Mining Journal-Press*," New York.

COPPER

CANADA

Production of copper during 1924 amounted to 104,457,447 pounds which at the average New York price during the year 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.

Production in 1924 included (a) 35,109,895 pounds of blister copper, (b) 36,979,424 pounds of copper in matte some of which was exported and some refined in Canada, (c) 31,825 pounds contained in copper sulphate, (d) 32,336,303 pounds, the estimated recoveries from ores and concentrates exported. The corresponding figures for 1923 were (a) 31,384,817 pounds, (b) 31,538,710 pounds, (c) 76,784 pounds and (d) 23,881,226 pounds. Refined copper was produced commercially in quantity for the first time in Canada in 1916 at the Trail refinery of the Consolidated Mining and Smelting Company. The copper refinery of this company was not operated during 1923 but it produced a small quantity in 1924. The British America Nickel Corporation which produced refined copper at the Deschenes plant for the first time in 1920, went into liquidation during July, 1924. The total production of refined copper in Canada during the past nine years was as follows:

Calendar year	1916	483	tons
" "	1917	3,901	"
" "	1918	3,809	"
" "	1919	3,467	"
" "	1920	2,590	"
" "	1921	2,143	"
" "	1922	365	"
" "	1923	824	"
" "	1924	1,768	"

Copper sulphate is produced at Trail, B.C., by the Consolidated Mining and Smelting Company and a small amount by the Coniagas Reduction Company, Thorold, Ont. The amounts produced were 643,910 pounds in 1921; 230,835 pounds in 1922; 307,135 pounds in 1923; and 127,301 pounds in 1924.

Copper sulphate is a by-product in the parting of gold and silver by the action of boiling concentrated sulphuric acid, the silver being dissolved as the sulphate and recovered by precipitating it with metallic copper. Copper sulphate may also be produced by treating scrap copper with a spray of dilute sulphuric acid in the presence of air. Copper sulphate forms blue crystals soluble in water. Heated to 240° C., it loses its water of crystallization and becomes a white anhydrous powder. Blue vitriol, or copper sulphate in solution, is used in the preparation of insecticides and germicides, and for many other purposes.

Table 41.—Production of Copper from Canadian Ores, 1886-1924

Year	Pounds	Value	Cents per pound	Year	Pounds	Value	Cents per pound
		$				$	
1886	3,505,000	385,550	11·00	1905	48,092,753	7,497,660	15·590
1887	3,260,424	366,798	11·25	1906	55,609,888	10,720,474	19·278
1888	5,562,864	927,107	16·66	1907	56,979,205	11,398,120	20·004
1889	6,809,752	936,341	13·75	1908	63,702,873	8,413,876	13·208
1890	6,013,671	947,153	15·75	1909	52,493,863	6,814,754	12·982
1891	9,529,401	1,226,703	12·87	1910	55,692,369	7,094,094	12·738
1892	7,087,275	818,580	11·55	1911	55,648,011	6,886,998	12·376
1893	8,109,856	871,809	10·75	1912	77,832,127	12,718,548	16·341
1894	7,708,789	736,960	9·56	1913	76,976,925	11,753,606	15·269
1895	7,771,639	836,228	10·76	1914	75,735,960	10,301,606	13·602
1896	9,393,012	1,021,960	10·88	1915	100,785,150	17,410,635	17·275
1897	13,300,802	1,501,660	11·29	1916	117,150,028	31,867,150	27·202
1898	17,747,136	2,134,980	12·03	1917	109,227,332	29,687,989	27·180
1899	15,078,475	2,655,319	17·61	1918	118,769,434	29,250,536	24·628
1900	18,937,138	3,065,922	16·19	1919	75,053,581	14,028,265	18·691
1901	37,827,019	6,096,581	16·117	1920	81,600,691	14,244,217	17·456
1902	38,804,259	4,511,383	11·626	1921	47,620,820	5,953,555	12·502
1903	42,684,454	5,649,487	13·235	1922	42,879,818	5,738,177	13·382
1904	41,383,722	5,306,635	12·823	1923	86,881,537	12,529,186	14·421
				1924	104,457,447	13,604,538	13·024

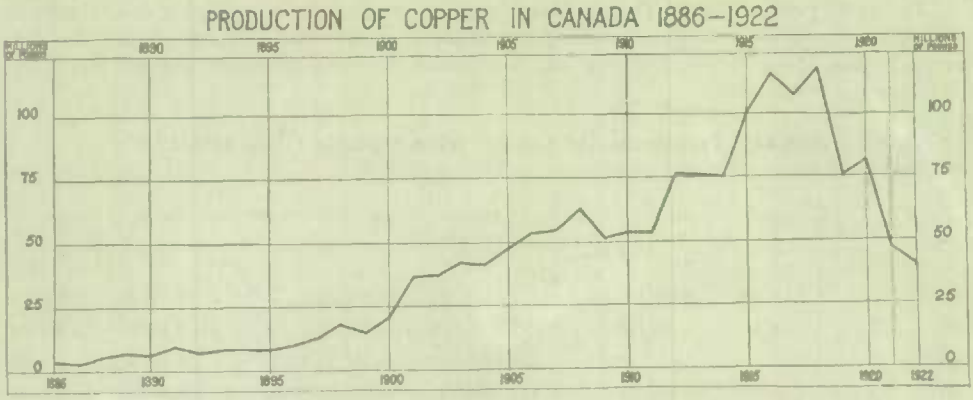


Table 42.—Production of Copper from Canadian Ores, by Provinces, 1922, 1923 and 1924

Province	1922			1923			1924		
	Pounds	Value	Per cent	Pounds	Value	Per cent	Pounds	Value	Per cent
		$			$			$	
Quebec							1,893,008	246,546	1·8
Ontario	10,943,636	1,464,477	25·5	31,656,800	4,565,227	36·5	37,113,193	4,833,622	35·5
Manitoba									
British Columbia	31,936,182	4,273,700	74·5	55,224,737	7,963,959	63·5	65,451,246	8,524,370	62·7
Yukon									
Total	**42,879,818**	**5,738,177**	**100·0**	**86,881,537**	**12,529,186**	**100·0**	**104,457,447**	**13,604,538**	**100·0**

Quebec

Although no production of copper ore was reported for the province of Quebec during 1923, there was an output in 1924 of 1,893,008 pounds of recoverable copper including 1,855,976 pounds derived from the pyritic ores exported and 37,032 pounds in lead ores exported.

Table 43.—Production of Copper from Quebec Ores, 1886-1924

Year	Pounds	Value	Year	Pounds	Value	Year	Pounds	Value
		$			$			$
1886	3,340,000	367,400	1900	2,220,000	359,418	1914	4,201,497	571,488
1887	2,937,900	330,514	1901	1,527,442	246,178	1915	4,197,482	725,115
1888	5,562,864	927,107	1902	1,640,000	190,666	1916	5,703,347	1,551,424
1889	5,315,000	730,813	1903	1,152,000	152,467	1917	5,015,560	1,363,229
1890	4,710,606	741,920	1904	760,000	97,455	1918	5,869,649	1,445,577
1891	5,401,704	695,469	1905	1,621,243	252,752	1919	2,691,695	503,105
1892	4,883,480	564,042	1906	1,981,169	381,930	1920	880,638	153,724
1893	4,468,352	480,348	1907	1,517,990	303,659	1921	352,308	44,045
1894	2,176,430	208,067	1908	1,282,024	169,330	1922		
1895	2,242,462	241,288	1909	1,088,212	141,272	1923		
1896	2,407,200	261,903	1910	877,347	111,757	1924	1,893,008	246,546
1897	2,474,970	279,424	1911	2,436,190	301,503			
1898	2,100,235	252,658	1912	3,282,210	536,346			
1899	1,632,560	287,404	1913	3,455,887	527,679	**Total**	**105,300,661**	**16,745,112**

Ontario

In Ontario, statistics of copper production include the amounts of recoverable copper in copper-nickel matte made in the smelting of the nickel ores, copper in cobalt flotation concentrates exported, and the copper in gold ores and concentrates exported. As thus computed the total production for the year amounted to 37,113,193 pounds; of this amount copper in the matte made contributed 36,979,424 pounds.

The bounty offered by the Ontario Government on copper, 95 per cent pure and on copper sulphate produced from ore mined and refined in the province was never gained, and the Act known as the *Metal Refining Bounty Act* warranting this bounty which expired April 10, 1917, was not re-enacted.

Table 44.—Production of Copper from Ontario Ores, 1886-1924

Year	Pounds	Value	Year	Pounds	Value	Year	Pounds	Value
		$			$			$
1886	165,000	18,150	1899	5,723,324	1,007,877	1912	22,250,801	3,635,971
1887	322,524	36,284	1900	6,740,058	1,091,215	1913	25,885,929	3,952,522
1888			1901	8,695,831	1,401,507	1914	28,948,211	3,937,536
1889	1,466,752	201,678	1902	7,408,202	861,278	1915	39,361,464	6,799,693
1890	1,303,065	205,233	1903	7,172,533	949,285	1916	44,997,035	12,240,094
1891	4,127,697	531,234	1904	4,913,594	630,070	1917	42,867,774	11,651,461
1892	2,203,795	254,538	1905	8,779,259	1,368,686	1918	47,074,475	11,593,502
1893	3,641,504	391,461	1906	10,638,231	2,050,838	1919	24,346,623	4,550,627
1894	5,207,679	497,854	1907	14,104,337	2,821,432	1920	32,059,993	5,596,392
1895	4,576,337	492,414	1908	15,005,171	1,981,883	1921	12,821,385	1,602,930
1896	3,167,256	344,598	1909	15,746,699	2,044,237	1922	10,943,636	1,464,477
1897	5,500,652	621,023	1910	19,259,016	2,453,213	1923	31,656,800	4,565,227
1898	8,375,223	1,907,539	1911	17,932,263	2,219,297	1924	37,113,193	4,833,622
						Total	582,503,121	101,906,878

Manitoba

During the years 1917 to 1920 the province of Manitoba was on record as one of the copper-producing provinces in Canada. The total production for the four years amounted to 9,866,328 pounds having a total value of $2,039,942. The record was as follows—1917—1,116,000 pounds, valued at $303,329; 1918—2,339,751 pounds valued at $576,234; 1919—3,348,000 pounds valued at $625,775 and 1920—3,062,577 pounds valued at $534,604. These amounts were estimated as the recoverable copper in ores shipped by the Mandy Mining Company operating near Schist Lake in The Pas district of Northern Manitoba. During 1921, 1922, 1923, and 1924 with increasing production costs, high freight rates, and other transportation difficulties it was found impossible to operate and no copper ores were shipped.

Much development has been carried on in this district during the past nine years. Towards the end of 1919 the Mandy Mining Company suspended operations, and has since sold its equipment, which has been installed on the Flin Flon group of claims on Flin Flon Lake in the same district.

British Columbia

British Columbia, the greatest copper producing province of the Dominion, was credited in 1924 with a production of 65,451,246 pounds, as against 55,224,737 pounds in 1923, an increase of 19 per cent. The British Columbia output amounted to 62·5 per cent of the total Canadian production for 1924 and 63·5 per cent of the total for 1923.

In the total there are included the quantities of blister copper produced at Anyox by the Granby Consolidated Mining and Smelting Company, the blister copper and the copper contained in copper sulphate made by the Consolidated Mining and Smelting Company at Trail, and copper estimated as recoverable from the ores and concentrates exported. The Britannia mine on the shore of Howe Sound, a short distance north of Vancouver, is one of the largest producers of copper concentrates and ore which are shipped to Tacome, Washington, U.S.A., for smelting.

Table 45.—Production of Copper from British Columbia Ores, 1894-1924

Year	Pounds	Value	Year	Pounds	Value	Year	Pounds	Value
		$			$			$
1894*	324,680	31,039	1905*	37,692,251	5,876,222	1916	63,642,550	17,312,046
1895*	952,840	102,526	1906*	42,990,488	8,287,706	1917	57,730,959	15,691,275
1896*	3,818,556	415,459	1907*	40,832,720	8,168,177	1918	62,865,681	15,482,560
1897*	5,325,180	601,213	1908	37,041,115	4,892,390	1919	44,502,079	8,317,884
1898*	7,271,678	874,783	1909	35,658,952	4,629,245	1920	45,319,771	7,911,019
1899*	7,722,591	1,359,948	1910	35,270,006	4,492,693	1921	34,447,127	4,306,580
1900*	9,977,080	1,615,289	1911	35,279,558	4,366,198	1922	31,936,182	4,273,700
1901*	27,603,746	4,448,896	1912	50,526,656	8,256,561	1923	55,224,737	7,963,959
1902*	29,636,057	3,445,488	1913	45,791,579	6,991,916	1924	65,451,246	8,524,370
1903*	34,359,921	4,547,735	1914	41,219,202	5,606,636			
1904*	35,710,128	4,579,110	1915	56,692,988	9,793,714	Total	1,082,818,304	183,166,337

*Metal content of ores shipped as published by the Provincial Bureau of Mines.

Yukon

There are important deposits of copper bearing ore known to exist in the Yukon Territory some of which were operated during the period from 1906 until 1920. Since the latter year, no production of copper has been reported, and the grand total for the Territory remains at 12,912,507 pounds, or a little greater than that of Manitoba.

Table 46.—Production of Copper from Yukon Ores 1906-1924

Year	Pounds	Value	Year	Pounds	Value
		$			$
906 (and previous)	156,000	23,400	1914	1,367,050	185,946
1907	511,838	102,388	1915	533,216	92,113
1908	112,264	14,828	1916	2,807,096	763,586
1909	.....	.....	1917	2,460,079	668,650
1910	286,000	36,431	1918	619,878	152,663
1911	.....	.....	1919	165,184	30,874
1912	1,772,660	289,670	1920	277,712	48,478
1913	1,843,530	281,489	1921-1924	.....	.....
			Total	12,912,507	2,690,516

Exports and Imports.—During the year 1920, the exports of copper from Canada reached its peak, and in its various forms amounted in value to $15,877,306. In 1924 the total exports amounted in value to $12,598,884. This marked an increase over the previous year when the total exports were valued at $10,104,714. The two major export items were "copper blister" valued at upwards of 6 million dollars, and "copper contained in ore" which accounted for better than 5 million dollars.

Pig copper, amounting to 2,405,800 pounds with a value of $284,780, was exported from Canada during the year. Imports into Canada of manufactured copper were valued at $6,338,-078, a decrease of about 2 million dollars from the 1923 totals.

Table 47 shows a list of copper commodities imported into and exported from Canada during the three years 1922, 1923 and 1924.

Table 47.—Imports into Canada and Exports of Copper, 1922, 1923 and 1924

—	1922		1923		1924	
	Pounds	Value	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	23,403,100	3,334,793	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	445,900	80,701	1,463,800	284,484	757,000	143,322
Copper in blocks, pigs or ingots	1,145,463	159,671	8,167,041	1,215,349	12,083,131	1,591,958
Copper, old and scrap	1,470,900	205,447	3,046,400	432,362	1,896,200	246,632
Copper ore and concentrates	200	121	500	259	.....	.....
Copper, in strips, sheets or plates, not polished, planished or coated	2,293,800	497,013	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	898,976	212,061	1,539,791	415,133	1,509,734	354,741
Copper wire, plain, tinned or plated	192,475	26,331	213,174	55,478	242,870	71,899
Copper wire cloth, or woven wire of copper	.....	13,510	.....	19,858	.....	7,462
Copper wire, single or several, covered with cotton, linen, silk, rubber or other material, including cable so covered	.....	232,872	.....	390,566	.....	296,221
Copper, all other manufactures of, n.o.p.	.....	351,694	.....	429,327	.....	420,611
Copper, precipitate of, crude	450	25	.....	.....	.....	.....
Anodes of nickel, zinc, copper, silver or gold	.....	2,757	.....	1,504	.....	5,288
Copper, sub-acetate of, or verdigris, dry	988	326	3,782	860	683	201
Copper, sulphate of (blue vitriol)	3,097,450	167,503	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	.....	.....	.....	.....	5,114,630	682,369
Copper, sulphate of, dehydrated, for agriculture or spraying purposes	.....	.....	.....	.....	243,988	11,027
Total	.....	**5,284,825**	.....	**8,327,919**	.....	**6,338,078**
Exports—						
Copper, fine, contained in ore, matte, regulus, etc	19,063,100	1,730,681	34,548,000	3,607,931	49,545,800	5,346,489
Copper, blister	32,031,300	4,204,136	39,968,000	5,556,698	47,935,700	6,908,409
Copper, old and scrap	3,324,000	334,673	1,575,000	187,302	2,198,100	226,993
Copper, pig	.....	.....	.....	.....	2,405,300	284,780
Copper in bars, rods, strips, sheets, plates and tubing	6,800	1,247	826,000	104,028	170,400	39,500
Copper wire and cable	.....	208,683	.....	387,359	.....	636,597
Copper mfrs., n.o.p.	.....	53,569	.....	262,296	.....	56,116
Total	.....	**6,532,989**	.....	**10,104,714**	.....	**12,598,884**

Prices—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. In January, the price stood at 12.401 cents, rose to 13.515 cents in March, gradually receded to the low price for the year of 12.327 cents in June and then with a few fluctuations, rose to an average of 14.260 cents in December, the highest price for the year.

The *Internal Trade Branch* of the Dominion Bureau of Statistics has compiled the following statement on the prices of copper.

Post War Copper Prices

Copper is one of the few commodities whose price in recent years has fluctuated about its pre-war level. The average for 1924, according to Dominion Bureau of Statistics records, was actually lower than for 1913. The average 1913 price of American electrolytic copper at Montreal, was $15.72 per cwt. In March 1917 the peak was reached when the price was $38.65. The yearly average prices for 1921, 22, 23 and 24 were $16.32, $16.04, $17.02 and $15.31 respectively. At the commencement of 1924 the trend was upward from $14.70 in January to $16.20 in March, this movement being a continuation of the activity which had commenced at the end of 1923. With March there was a severe reaction caused by a general slowing up of business and also, in the case of metals, due to the movements of French exchange. Speculators in several countries, especially 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 when it rose to $15.50 and although there were some recessions after that, the influence of generally rising values for non-ferrous metals carried it up to $16.30 in December. The index number for copper computed by the Dominion Bureau of Statistics based on 1913 prices was 93.5 in January 1924 and 103.7 in December. For the year it was 97·4.

Copper being an international commodity its price is subject to world-wide conditions of demand and supply, which are in their turn affected by the political and financial situation in the various supplying and consuming countries. Before the war the United States was the biggest producer of copper and Europe the largest consumer. Now the United States is both the greatest producer and consumer. That country produces between 50 and 60 per cent of the total world supply and she consumes about as much. Imports from South American mines augment her supply and she has a surplus for export. Consumption in the States in 1923 was over 80 per cent more than in 1913. Europe in the same year consumed 38 per cent less than in 1913. In 1913 Europe consumed over 60 per cent of the world's output but in 1923 less than 33 per cent of it.

The increased consumption in the United States is chiefly due to the development of the electrical trade and next to it the automobile trade. But the expansion of the copper mining industry in the United States during the war and the increasing output in South America and Africa have kept the supply side as a rule in a weaker position. Europe is the key to the situation and her demands have as yet been disappointing. It is claimed that a vast potential demand exists there for electrical development and upon this European development the future of copper prices seems largely to depend.

Canadian production which was about 38,000 tons in 1913 had increased to 60,000 in 1918, but the war-time capacity has not since been called fully into play, though in 1923 and 1924 production exceeded pre-war figures, being 43,000 tons in 1923 and 53,000 in 1924.

The following survey of the copper market since the war sheds additional light on the present situation.

In 1917 American production was 50 per cent over pre-war. The end of the war in 1918 found Germany and the Allies with large stocks of copper and scrap and America with a greatly increased producing capacity and also large stocks of metal. At the end of 1918 the world demand was not absorbing current output, while on the supply side surplus stocks, as well as current production, were being offered for sale. At the end of 1918 and early in 1919 prices fell. Production was reduced, but though only 50 per cent of capacity, it exceeded consumption. Later in 1919 due to great expectations regarding demands, prices rose sharply. Production and stocks increased in America but European demands were disappointing and prices were again downward. In the early part of 1920 prices showed stronger tendencies because of active trading. American consumption increased and export trade was almost at pre-war levels. Production increased. Beginning with August, however, a price decline commenced which was continued well on into 1921. This slump was part of the general depression which commenced in 1920. It led to a reduction in production. Taking the year 1920 as a whole exports from the United States were 72 per cent of 1913 figures, refiners' production of new copper about 95 per cent of 1913 and apparent consumption (exclusive of deliveries of government stocks) about 160 per cent. World production and consumption were both pretty close to pre-war figures. Stocks of refined copper in the United States were about 556,000,000 pounds (exclusive of government stocks) at the end of 1920 as compared with 619,000,000 in 1919 and 90,000,000 in 1913. 1921 was characterized in the copper industry, as in most others, by great depression. Large copper producers decided upon a policy of restriction of output. There was a wide spread shutting down of mines over the whole American continent. The copper association took 175,000 tons off the market and held them in reserve for export purposes. Demand improved at the end of the year, prices rose, stocks were drawn on and consumption exceeded production. Taking 1921 as a whole exports from the United States were 68 per cent, refiners' production of new copper 63 per cent and apparent consumption 82 per cent of 1913. World production was 59 per cent and world consumption (based on figures obtained by deducting stocks at the end of the year from total production and stocks at the beginning of the year) was over 80 per cent of 1913 figures. Stocks of refined copper had been reduced in the United States to 482,000,000 pounds. Government stocks in the United States which had amounted to about 225,000,000 pounds at the beginning of 1919 had been reduced to about 25,000,000 pounds by the end of 1921. By this date practically all government stocks were absorbed and less than 100,000 tons of scrap remained.

The higher prices prevailing at the end of 1921 caused a reaction in demand which was succeeded by another fall in prices. Early in the year, however, there was a renewal of business activity and, though copper prices oscillated at times, the general movement was toward higher levels from May into the first quarter of 1923. During 1922 exports from the United States were 85 per cent, refiners' production of new copper 82 per cent and apparent consumption 138 per cent of 1913 figures. World production was about 90 per cent and world consumption above 90 per cent of 1913 figures. Stocks of refined copper in the United States had been reduced further to 262,000,000 pounds.

Up to May 1923 copper was in great demand and prices moved up rapidly. This was due to American activity, however, for European demand was relatively poor. Higher prices increased production. There followed a falling off of demand and prices fell almost to the end of the year. During 1923 exports from the United States were 90 per cent, refiners' production of new copper 126 per cent and apparent consumption 182 per cent of 1913. World production was about 130 per cent and consumption 99 per cent of 1913. Stocks of refined copper had increased to 281,000,000 pounds.

Table 48.—Monthly Average Prices of Copper, New York and London, 1922, 1923 and 1924

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

Month	Electrolytic Copper					
	New York in cents per pound			London, £ Sterling per ton of 2,240 pounds		
	1922	1923	1924	1922	1923	1924
January	13·465	14·510	12·401	72·321	71·409	67·193
February	12·864	15·355	12·708	66·125	74·500	68·167
March	12·567	16·832	13·515	65·739	81·464	72·087
April	12·573	16·663	13·206	64·028	81·331	70·150
May	13·111	15·440	12·772	66·554	76·568	67·648
June	13·575	14·663	12·327	69·333	73·238	66·313
July	13·654	14·321	12·390	70·321	72·364	65·815
August	13·723	13·822	13·221	69·932	70·000	67·800
September	13·748	13·323	12·917	70·917	68·275	67·125
October	13·632	12·574	12·933	70·693	64·250	66·620
November	13·598	12·727	13·635	70·216	66·477	68·063
December	14·074	12·823	14·260	70·132	67·611	69·762
Average	**13·382**	**14·421**	**13·024**	**68·859**	**72·291**	**68·062**

Table 49.—*World's Production of Copper 1913, 1920–1924

(From the *Year Book of the American Bureau of Metal Statistics*, 1922 and 1924.)

(Short tons)

Country	1913	1920	1921	1922	1923	1924
NORTH AMERICA—						
United States	614,255	635,248	238,420	511,970	754,000	819,000
Mexico	58,185	49,866	13,576	29,842	60,538	49,150
Canada(*a*)	38,460	39,121	22,632	25,300	40,230	51,008
Cuba	3,747	7,491	8,600	11,788	11,967	12,742
Total, North America	**714,647**	**731,726**	**283,228**	**578,900**	**866,731**	**931,900**
SOUTH AMERICA—						
Bolivia	4,077	10,910	10,674	10,154	11,744	8,200
Chile	46,574	109,075	65,299	142,830	201,042	209,855
Peru	30,609	36,356	36,689	40,133	48,684	38,495
Venezuela	.....	.....	800	1,075	1,175	1,230
Total, South America	**81,260**	**156,341**	**113,462**	**194,192**	**262,645**	**257,780**
EUROPE—						
Austria-Hungary (*b*)	4,518	1,747	4,600	5,050	5,327	4,465
France	.....	1,718	2,395	3,199	9,031	5,511
Germany	27,881	19,015	20,944	18,739	18,739	21,495
Jugo-Slavia	.....	2,684	4,376	5,756	7,536	8,978
Norway	3,021	613	6,311	10,598	8,816	10,913
Russia	37,358	.....	.....	2,205	2,205	3,600
Spain and Portugal	39,683	25,353	36,596	40,234	57,115	60,713
Sweden	4,645	1,793	1,465	67	5,180	3,086
Serbia	7,053	.....	.....	.....	.....	.....
Total, Europe	**124,159**	**52,923**	**76,687**	**85,848**	**113,949**	**118,761**
ASIA—						
Japan	73,283	74,727	59,626	59,663	70,316	69,378
Other Asia	.....	593	1,280	1,162	810	1,378
Total Asia	**73,283**	**75,320**	**60,906**	**60,825**	**71,126**	**70,756**
AUSTRALASIA	49,901	29,327	20,869	13,754	19,995	15,711
AFRICA	25,236	33,708	42,501	58,219	80,410	114,700
OTHER COUNTRIES	4,188	3,307	3,307	3,307	3,307	4,409
Grand Total	**1,072,674**	**1,082,652**	**600,960**	**995,845**	**1,418,163**	**1,514,017**

(*) So far as possible, these statistics are based on blister copper, referred to countries wherein ore originated.
(*a*) For Dominion Bureau of Statistics figures on Canada's production of copper, see Table 41.
(*b*) After 1918, Austria only.

GOLD

Canada

The production of gold from all sources in Canada during the calendar year 1924 was 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; the next greatest output was in 1900 when the Yukon gold production was at its maximum. During that year production reached a total of 1,350,057 fine ounces.

Gold produced in 1924 was derived from (a) alluvial deposits, 55,862 ounces; (b) gold obtained from milling ores, 1,254,737 ounces; (c) gold obtained from Canadian copper and lead smelters, 45,784 ounces and (d) gold estimated as recoverable from various ores and concentrates exported, 168,999 ounces. The corresponding figures for the year 1923 were (a) 80,344 ounces; (b) 981,299 ounces; (c) 34,356 ounces; and (d) 137,342 ounces.

The production of gold by provinces was: Nova Scotia, 1,047 ounces or 0·07 per cent; Quebec 883 ounces or 0·06 per cent; Ontario, 1,241,728 ounces, or 81·40 per cent: Manitoba, 1,180 ounces or 0·08 per cent; British Columbia, 245,719 ounces, or 16·10 per cent; and the Yukon 34,825 ounces or 2·29 per cent. Comparing the production by provinces with the previous year, it is noted that Nova Scotia showed a slight increase caused by the export of arsenic concentrates containing gold; Quebec reported a greater production in the previous year whilst Ontario's production increased by over a quarter of a million ounces due to the increased tonnage handled by many of the gold mines of the Porcupine and Kirkland Lake area. Because of the activity of the Manitoba Metals Corporation there was an increased production in that province. British Columbia also reported more than 45,000 ounces above the previous year's production. The Yukon's production was somewhat lower because of the decreased activities in the placer operations of that district.

PRODUCTION OF GOLD IN CANADA 1858-1922.

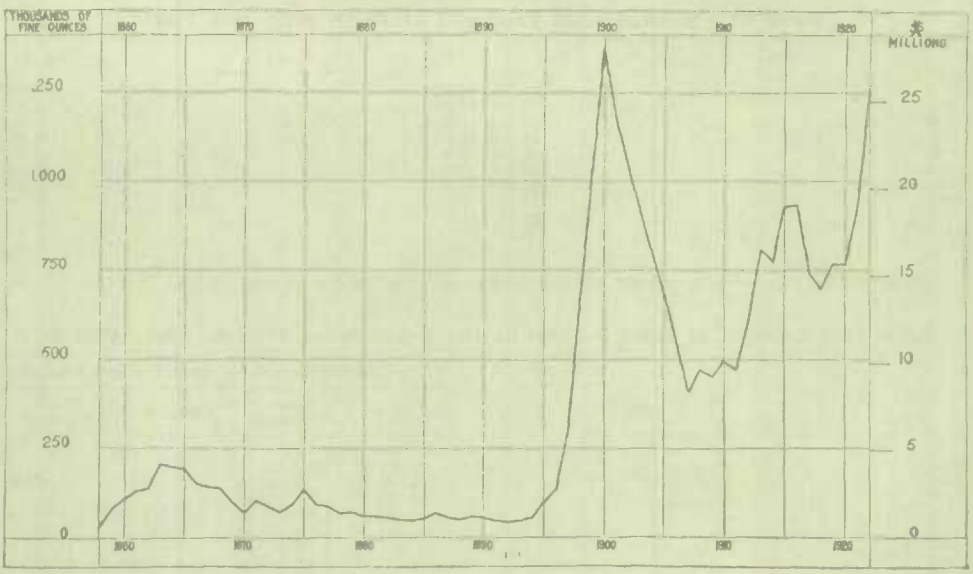


Table 50—Production of Gold from Canadian Sources, 1858-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$			$
1858	34,104	705,000	1881	63,524	1,313,153	1904	796,374	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	2,754,773	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**	**544,783,707**

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

Refined Metal—There were two refineries producing fine gold in Canada in 1924, namely, the Royal Mint, Ottawa, and the Consolidated Mining and Smelting Company of Canada, Limited at Tadanac near Trail, B.C. From all ores treated in 1924, the latter company produced 23,412 fine ounces. This gold was recovered principally from the gold in copper ores but some was also recovered from silver-lead and dry ores. Small quantities of imported ores were also treated by this company.

Gold refined at the Royal Mint at Ottawa from the gold ores of Ontario, British Columbia and the Yukon placers amounted to 111,193 fine ounces. Of this a small amount was recovered from scrap and crude gold from various sources. The total production of gold refined in Canada during 1924 was, therefore, 134,605 fine ounces.

Table 51.—Refined Gold Produced at Trail, B.C., 1904-1924*

Year	Fine oz.	Year	Fine oz.
1904	4,336	1914	11,088
1905	8,602	1915	17,813
1906	9,993	1916	23,608
1907	10,395	1917	49,661
1908	15,346	1918	61,212
1909	18,241	1919	47,283
1910	13,298	1920	42,636
1911	15,270	1921	56,297
1912	12,118	1922	18,940
1913	11,977	1923	11,113
		1924	23,412

*Includes some gold derived from imported ores and from occasional shipments from Ontario, Manitoba, Alberta, and the Yukon.

Table 52.—Receipts of Gold Bullion at the Royal Mint, Ottawa, Ont., 1908-1924

Year	From Canadian Sources		From Foreign Countries	
	Oz. gross	Value gold content	Oz. gross	Value gold content
		$		$
1908	219·19	3,823·03	.....	.....
1909	5,741·43	94,864·81	38·25	673.98
1910	65,009·35	1,079,223·42	.....	.....
1911	89,463·11	1,469,087·43	511·24	9,128.55
1912	104,825·29	1,676,371.78	742·79	12,451.33
1913	212,076·41	3,363,870·30	633·23	11,609.84
1914	29,762·24	471,042.90	4,750·19	98,062.84
1915	89,231·47	1,402,605.19	871,693·79	15,838,222.01
1916	49,195·39	780,074.19	6,687,758·41	121,513,083.93
1917	55,779·96	840,265.33	8,196,151·04	148,919,793.48
1918	302,785·96	4,982,743.81	3,728,224·05	67,739,887.68
1919	654,906·28	10,865,770.57	8,917·92	134,756.38
1920	724,083·34	11,530,413.82	.....	.....
1921	1,054,277·01	16,914,211.58	53·00	826.87
1922	1,376,863·35	22,469,160.42	345·22	5,387.93
1923	779,466·92	12,682,163.78	295·53	4,935.16
1924	169,239·28	2,297,170·32	90·53	1,305·41

Table 53.—Receipts at Dominion Assay Office, Vancouver, B.C., 1908-1924

Year	Weight before melting	Weight after melting	Net value	Year	Weight before melting	Weight after melting	Net value
	Ounces	Ounces	$		Ounces	Ounces	$
1908 (a)	90,175·48	89,117·76	1,478,894.00	1916	180,292·83	175,393·10	2,828,239.65
1909	48,478·58	47,576·27	789,267.94	1917	191,626·04	187,884·48	3,257,220.71
1910	46,064·31	45,228·92	746,101.92	1918	241,762·77	238,245·07	4,099,595.80
1911	39,784·70	39,069·31	647,416.38	1919	209,026·14	205,947·57	3,547,524.93
1912	59,068·82	57,951·98	974,077.14	1920	150,869·17	147,718·25	2,499,174.41
1913 (b)	111,479·94	109,920·49	1,448,625.37	1921	163,070·56	160,803·48	2,834,499.61
1914	166,148·83	163,523·61	2,029,251.31	1922	129,891·63	125,758·41	2,105,989.64
1915	183,924·49	179,751·68	2,736,302.31	1923	129,043·63	124,546·48	2,051,360.65
				1924	114,041·96	107,569·15	1,850,373·74

(a) For 9 months only. (b) The removal of the assay charge in January 1913, accounts for the large increase.

Nova Scotia

Nova Scotia's gold production has been derived almost entirely from quartz ores but gold also occurs in deposits of arsenical pyrites which are sometimes mined for the recovery of arsenic and gold. Production from all sources in 1924 amounted to 1,047 fine ounces including 595 ounces from gold milling ores and 452 ounces, the estimated recoverable gold from ores exported. Gold mining in Nova Scotia reached its peak in 1902 when the output amounted to 30,348 fine ounces. Due partly to the exhaustion of the mines and partly to the high cost of supplies and labour, production has steadily declined in recent years. During 1924, as reported in the *Canadian Mining Journal*, January 2, 1925, shipments of arsenic concentrates from Nova Scotia amounted to 1,106·54 tons containing 24·6 per cent arsenic, and 0·43 ounces of gold per ton. This was all material from old dumps in the gold mining district.

Table 54.—Production of Gold from Nova Scotia Ores, 1862-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$
1862	6,863	141,871	1894	18,834	389,338
1863	13,180	272,448	1895	21,919	453,119
1864	18,883	390,349	1896	23,876	493,568
1865	24,011	496,357	1897	27,195	562,165
1866	23,776	491,491	1898	26,054	538,590
1867	25,763	532,563	1899	29,876	617,604
1868	19,377	400,555	1900	28,955	598,553
1869	16,855	348,427	1901	26,459	546,963
1870	18,740	387,392	1902	30,348	627,387
1871	18,139	374,972	1903	25,533	527,806
1872	12,352	255,349	1904	10,362	214,209
1873	11,180	231,122	1905	13,707	283,353
1874	8,623	178,244	1906	12,223	252,676
1875	10,576	218,629	1907	13,675	282,686
1876	11,300	233,585	1908	11,842	244,799
1877	15,925	329,205	1909	10,193	210,711
1878	11,864	245,253	1910	7,928	163,891
1879	12,980	268,328	1911	7,781	160,854
1880	12,472	257,823	1912	4,385	90,638
1881	10,147	209,755	1913	2,174	44,935
1882	13,307	275,090	1914	2,904	60,031
1883	14,571	301,267	1915	6,636	137,180
1884	15,168	313,554	1916	4,562	94,305
1885	20,945	432,971	1917	2,210	45,685
1886	22,038	455,564	1918	1,176	24,310
1887	20,009	413,631	1919	850	17,571
1888	21,137	436,939	1920	690	14,263
1889	24,673	510,029	1921	439	9,075
1890	22,978	474,990	1922	1,042	21,540
1891	21,841	451,503	1923	655	13,540
1892	18,865	389,965	1924	1,047	21,643
1893	18,436	381,095			
			Total	913,594	18,863,214

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

Quebec

Gold produced from ores mined in the province of Quebec during 1924 totalled 883 fine ounces. This was the amount of recoverable gold in pyritic ores and lead ores exported to the United States for treatment. Present activities in the new Rouyn area of northern Quebec indicate that this province will soon have a steadily increasing production of gold to record. To the end of the year 1924, Quebec was credited with having produced 28,384 fine ounces of gold valued at $586,712.

Table 55.—Production of Gold from Quebec Ores, 1877-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$			$
1877	583	12,057	1894	1,412	29,196	1911	613	12,672
1878	868	17,937	1895	62	1,281	1912	642	13,270
1879	1,160	23,972	1896	145	3,000	1913	701	14,491
1880	1,605	33,174	1897	44	900	1914	1,292	26,708
1881	2,741	56,661	1898	295	6,089	1915	1,099	22,720
1882	827	17,093	1899	238	4,916	1916	1,034	21,375
1883	860	17,787	1900			1917	1,511	31,235
1884	422	8,720	1901	145	3,000	1918	1,939	40,083
1885	103	2,120	1902	391	8,073	1919	1,470	30,388
1886	193	3,981	1903	180	3,712	1920	955	19,742
1887	78	1,604	1904	140	2,900	1921	635	13,127
1888	181	3,740	1905	191	3,940	1922		
1889	58	1,207	1906	165	3,412	1923	667	13,788
1890	65	1,350	1907			1924	883	18,253
1891	87	1,800	1908					
1892	628	12,987	1909	193	3,990			
1893	759	15,696	1910	124	2,565	Total	28,384	586,712

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

Ontario

Ontario's gold production in 1924 exceeded the total for any previous year. For the second time, production rose above a million ounces, the other year being 1922. In 1923, the output was slightly less. From present indications there is little doubt that the record established in 1924 will be exceeded in the years to come. Since 1914, Ontario has become by far the largest producer of gold among the provinces of the Dominion; this remarkable increase was brought about by the successful development of the Porcupine and Kirkland Lake districts and by the extension of milling facilities in these camps. The falling-off in production during 1917-1918 was due to the abnormal conditions created by the war; high costs both of materials and labour restricted development programs; lack of adequate transportation facilities at reasonable rates and other factors hampered production. Gold was paid for in New York funds, because of government limitations on export, and the exchange premium received by the producers proved an important feature of gold-marketing, from the close of the war until the end of 1921. The gradual recovery in the value of the Canadian dollar in the United States exchanges has greatly reduced the premiums paid to the Canadian gold mine operators. In 1920, the United States dollar had an average exchange value in Canadian funds of $1·12270, the average exchange value in 1923 was $1·0197, and in 1924 it stood at $1·0131.

Table 56.—Production of Gold from Ontario Ores, 1887-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$			$
1887	327	6,760	1900	14,391	297,495	1913	219,801	4,543,690
1888			1901	11,844	244,837	1914	268,264	5,545,509
1889			1902	11,118	229,828	1915	406,577	8,404,603
1890			1903	9,096	188,036	1916	492,481	10,180,485
1891	97	2,000	1904	1,935	40,000	1917	423,261	8,749,581
1892	344	7,118	1905	4,402	91,000	1918	411,976	8,516,299
1893	708	14,637	1906	3,202	66,193	1919	505,739	10,454,553
1894	1,917	39,624	1907	3,212	66,398	1920	564,995	11,679,483
1895	3,015	62,320	1908	3,212	66,398	1921	708,213	14,640,062
1896	5,563	115,000	1909	1,569	32,425	1922	1,000,340	20,678,862
1897	9,157	189,294	1910	3,089	63,849	1923	971,704	20,088,904
1898	12,863	265,889	1911	2,062	42,625	1924	1,241,728	25,668,795
1899	20,304	421,591	1912	86,523	1,788,596			
						Total	7,425,119	153,496,829

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

Manitoba

Manitoba mines produced 1,180 fine ounces of gold during 1924, having a value of $24,393; there was a small production in 1923. During 1917 and 1918 shipments of gold-bearing copper ores were made from The Pas district in northern Manitoba to Trail, but because of the drop in the price of copper, and also because of inadequate transportation facilities in the copper-mining district of the province, there has been no production of gold from this source in recent years, until 1924. There is much of interest in the gold area stretching eastward from Lake Winnipeg along Wanipigou and Manigotagan rivers to the Ontario boundary. A considerable amount of prospecting has been done in this district and the indications are that Manitoba will produce gold in quantity in the near future.

Table 57.—Production of Gold from Manitoba Ores 1917-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$
1917	440	9,095	1922	156	3,225
1918	1,926	39,814	1923	31	641
1919	724	14,966	1924	1,180	24,393
1920	781	16,145			
1921	207	4,279	**Total**	**5,445**	**112,558**

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

Saskatchewan and Alberta

No production of gold was reported from these two provinces in 1924. Occasionally, small quantities of gold have been recovered by prospectors in Alberta from the gravels of the Saskatchewan River. To date, the grand total of gold produced by Alberta has amounted to 15,109 fine ounces valued at $312,333.

Table 58.—Production of Gold from Alberta, 1887-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$			$
1887	102	2,100	1900	242	5,000	1913	.....	.....
1888	58	1,200	1901	726	15,000	1914	48	992
1889	967	20,000	1902	484	10,000	1915	195	4,026
1890	193	4,000	1903	48	1,000	1916	82	1,695
1891	266	5,500	1904	24	500	1917	.....	.....
1892	508	10,506	1905	121	2,500	1918	27	558
1893	466	9,640	1906	39	800	1919	24	500
1894	726	15,000	1907	33	675	1920	.....	.....
1895	2,419	50,000	1908	50	1,037	1921	49	1,013
1896	2,661	55,000	1909	25	525	1922	.....	.....
1897	2,419	50,000	1910	89	1,850	1923	.....	.....
1898	1,209	25,000	1911	10	207	1924	.....	.....
1899	726	15,000	1912	73	1,509			
						Total	**15,109**	**312,333**

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

British Columbia

The production of gold in British Columbia during 1924 totalled 245,719 fine ounces valued at $5,079,462 as against 200,140 fine ounces valued at $4,137,261 in 1923. This was an increase of 22·7 per cent and was due largely to the fact that the Trail smelter operated its copper department for part of the year and also because of the increased quantity of gold ores exported to foreign smelters for treatment. Approximately one thousand ounces more gold was obtained from placer workings. Production by the Granby smelter was not as large as in 1922. In the old Cariboo fields there was considerable activity late in 1924. A new dredge was built and sent in to that district and it was anticipated that the gold production from placer diggings would show an upward trend once again. Production in 1924 included (a) alluvial gold 21,037 fine ounces or 8·56 per cent of the total for the province; (b) bullion from milling ores, 15,361 fine ounces or 6·25 per cent; (c) smelter recoveries 41,657 fine ounces or 16·95 per cent; and (d) the estimated recoveries from ores and concentrates exported 167,664 fine ounces or 68·24 per cent. The corresponding quantities for 1923 were (a) 20,320 fine ounces or 10·2 per cent;

(b) 11,036 fine ounces or 5·6 per cent; (c) 33,380 fine ounces or 16·6 per cent and (d) 135,404 fine ounces or 67·6 per cent.

The quantities shown for alluvial gold are as published by the Provincial Mineralogist. Data on gold from milling ores, smelter recoveries and ores exported have been compiled from reports received by the Bureau from smelter and mine operators. In the statistics reported by the Provincial Bureau of Mines for 1924 the quantity given for gold production is based on the metal content of ores shipped, and is somewhat higher than the records of smelter recoveries used by Dominion Bureau of Statistics.

Table 59—Production of Gold from British Columbia Ores, 1858-1924

Year	Fine ounces*	Value	Year	Fine ounces*	Value	Year	Fine ounces*	Value
		$			$			$
1858	34,104	705,000	1881	50,636	1,046,737	1903	284,108	5,873,036
1859	78,129	1,615,072	1882	46,154	954,085	1904	275,975	5,704,908
1860	107,806	2,228,543	1883	38,422	794,252	1905	285,529	5,902,402
1861	128,973	2,666,118	1884	35,612	736,165	1906	269,886	5,579,039
1862	128,528	2,656,903	1885	34,527	713,738	1907	236,216	4,883,020
1863	189,318	3,913,563	1886	43,714	903,651	1908	286,858	5,929,880
1864	180,722	3,735,850	1887	33,558	693,709	1909	250,320	5,174,579
1865	168,887	3,491,205	1888	29,834	616,731	1910	261,386	5,403,318
1866	128,779	2,662,106	1889	28,489	588,923	1911	238,496	4,930,145
1867	120,012	2,480,868	1890	23,918	494,436	1912	251,815	5,205,485
1868	114,792	2,372,072	1891	20,792	429,811	1913	297,459	6,149,027
1869	85,865	1,774,078	1892	19,327	399,525	1914	252,730	5,224,393
1870	64,675	1,336,956	1893	18,360	379,535	1915	273,376	5,651,184
1871	87,048	1,799,440	1894	25,664	530,530	1916	219,633	4,540,216
1872	77,931	1,610,972	1895	61,289	1,266,954	1917	133,742	2,764,693
1873	63,166	1,305,749	1896	86,504	1,788,206	1918	180,163	3,724,300
1874	89,233	1,844,618	1897	131,805	2,724,657	1919	167,252	3,457,406
1875	119,724	2,474,904	1898	142,215	2,939,852	1920	124,808	2,580,010
1876	86,429	1,786,648	1899	203,295	4,202,473	1921	150,792	3,117,147
1877	77,796	1,608,182	1900	228,916	4,732,105	1922	207,370	4,286,718
1878	61,688	1,275,204	1901	257,292	5,318,703	1923	200,140	4,137,261
1879	62,407	1,290,058	1902	288,383	5,961,409	1924	245,719	5,079,462
1880	49,044	1,013,827				Total	9,247,535	191,163,552

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

Table 60.—Production of Gold in British Columbia by Districts, 1923 and 1924

(From *Annual Report of the Minister of Mines for British Columbia.*)

District	1923				1924			
	Gold Placer		Gold Lode		Gold Placer		Gold Lode	
	Ounces	Value	Ounces	Value	Ounces	Value	Ounces	Value
		$		$		$		$
Cariboo:—								
Cariboo and Quesnel	11,128	230,000	42	868	12,000	240,000	.....	.....
Omineca	435	9,000	.....	.....	500	10,000	329	6,800
Cassiar:—								
Atlin, Liard and Stikine	7,570	156,500	1	21	7,516	150,325	5	103
Skeena, etc	.....	.....	155,030	3,204,469	.....	.....	180,458	3,730,067
East Kootenay:—								
Fort Steele	100	2,000	.....	.....	260	5,200	.....	.....
Windermere and Golden	.....	.....	.....	.....	.....	.....	.....	.....
West Kootenay:—								
Ainsworth	.....	.....	15	310	.....	.....	24	496
Nelson	.....	.....	319	6,594	.....	.....	98	2,026
Slocan and Slocan City	.....	.....	361	7,463	.....	.....	365	7,545
Trail Creek	.....	.....	6,983	144,339	.....	.....	42,620	880,956
Revelstoke, etc	50	1,000	.....	.....	50	1,000	.....	.....
Yale:—								
Grand Forks, Greenwood and Osoyoos	240	5,000	10,934	226,006	.....	.....	19,589	405,150
Similkameen, Nicola and Vernon	240	5,000	2	41	200	4,000	2	41
Yale, Ashcroft and Kamloops	145	3,000	562	11,616	100	2,000	136	2,811
Lillooet:—								
Lillooet	387	8,000	.....	.....	386	7,725	.....	.....
Southern Coast:—								
Vancouver Island	25	500	120	2,480	25	500	.....	.....
Mainland	.....	.....	4,876	100,787	.....	.....	4,090	84,540
Total	**20,320**	**420,000**	**179,245**	**3,704,994**	**21,037**	**420,750**	**247,716**	**5,120,535**

YUKON

Yukon's gold production in 1924, derived from alluvial sands of the Dawson and White Horse Districts showed a considerably reduced total from the figures for 1923. The output for 1924 amounted to 34,825 fine ounces valued at $719,897 as against 60,144 fine ounces valued at $1,243,287 in 1923. Royalty was paid on 43,530·79 crude ounces which included 34,825 fine ounces of gold valued at $719,897 and 7,853 fine ounces of silver valued at $5,244, the total value being $725,141. For 1923 the corresponding figures were 74,867·81 crude ounces containing 60,024 fine ounces of gold valued at $1,240,806 and 13,476 fine ounces of silver valued at $8,742, a total value of $1,249,548.

The following table shows statistics of gold produced in the Yukon during the past 39 years. Between the years 1896 and 1906 the figures were based upon receipts of gold at United States mints and receiving offices, credited to the Canadian Yukon.

Since 1902 a royalty of two and one-half per cent of all gold produced has been collected by the Canadian Government which places a nominal value of $15 per crude ounce recovered. The statistics shown for these years are based on the returns supplied by the *Mining Lands and Yukon Branch* of the Department of the Interior, in which the fine gold is estimated as 80 per cent of all crude gold, fine silver as 12 per cent, and the remaining 8 per cent is recorded as worthless base metals.

The Vancouver Assay Office, which is operated by the Department of Mines, Ottawa, receives and melts a considerable portion of the placer gold from the Yukon. During 1924 there was deposited from this Territory 44,365·96 ounces valued, after all charges had been deducted, at $717,156 or $16·17 per ounce as against 73,360·82 ounces valued at $1,201,133 or $16.37 per ounce in 1923.

Table 61.—Production of Gold from the Yukon, 1885-1924

Year	Fine ounces (*)	Value	Year	Fine ounces (*)	Value	Year	Fine ounces (*)	Value
		$			$			$
1885	4,837	100,000	1899	774,000	16,000,000	1913	282,838	5,846,780
1886			1900	1,077,553	22,275,000	1914	247,940	5,125,374
1887	3,386	70,000	1901	870,750	18,000,000	1915	230,173	4,758,098
1888	1,935	40,000	1902	701,437	14,500,000	1916	212,700	4,396,900
1889	8,466	175,000	1903	592,594	12,250,000	1917	177,667	3,672,703
1890	8,466	175,000	1904	507,938	10,500,000	1918	102,474	2,118,325
1891	1,933	40,000	1905	381,001	7,876,000	1919	90,705	1,875,039
1892	4,233	87,500	1906	270,900	5,600,000	1920	72,778	1,504,455
1893	8,514	176,000	1907	152,381	3,150,000	1921	65,994	1,364,217
1894	6,047	125,000	1908	174,150	3,600,000	1922	54,456	1,125,705
1895	12,094	250,000	1909	191,565	3,960,000	1923	60,144	1,243,287
1896	14,513	300,000	1910(a)	221,091	4,570,362	1924	34,825	719,897
1897	120,937	2,500,000	1911	224,197	4,634,574			
1898	483,750	10,000,000	1912	268,447	5,549,296	Total	8,719,829	180,254,513

(*) Calculated from the value: one dollar=0·048375 ounces.
(a) Including a small production from lode mines, from 1910 to 1923 inclusive.

Table 62—Receipts from the Yukon, at the Dominion Government Assay Office, Vancouver, B.C., 1908-1924

Year	Weight before melting	Net value	Average value	Year	Weight before melting	Net value	Average value
	Ounces	$	$		Ounces	$	$
1908 (a)	60,132·00	1,000,296	16·63	1916	95,005·82	1,525,724	16·06
1909	5,003·12	83,871	16·75	1917	79,532·35	1,262,207	15·87
1910	3,594·87	62,094	17·27	1918	121,310·37	1,921,198	15·84
1911	2,073·61	34,944	16·88	1919	111,138·65	1,813,883	16·32
1912	2,211·88	36,481	16·41	1920	74,456·01	1,206,579	16·21
1913 (b)	15,235·29	247,189	16·22	1921	82,219·92	1,340,225	16·30
1914	56,564·83	915,914	16·21	1922	69,161·19	1,126,702	16·29
1915	87,040·87	1,418,497	16·28	1923	73,360·82	1,201,133	16·37
				1924	44,365·96	717,156	16·17

(a) For nine months only.
(b) The removal in 1913 of the assay charge accounts for the great increase.

Table 63.—Production of Crude Gold in the Yukon by Months, 1922, 1923 and 1924

(Gross weight of dust, nuggets, and bullion in ounces)

Month	1922	1923	1924
January	18·90	969·26	1,381·51
February	815·64	1,040·36	52·07
March	295·52	2·39	1,468·51
April	82·30	.....	100·10
May	.....	.....	129·66
June	14,360·08	10,352·94	8,651·62
July	10,288·07	9,176·99	6,831·51
August	8,062·47	9,953·42	6,225·10
September	15,635·29	11,924·54	4,971·71
October	11,697·89	24,881·87	9,168·36
November	4,613·04	4,794·17	3,080·63
December	2,092·53	1,771·87	1,470·01
Total	**67,961·73**	**74,867·81**	**43,530·79**

From 1898 to March 31, 1925, a royalty to the extent of $4,878,959.52 was collected on the gold production of this district. The yearly amounts collected, as well as the annual production of gold as ascertained by the Department of the Interior, are shown below. The difference between these figures and those shown in the table of annual production, which are based on mint receipts of Yukon gold is probably due to three factors: (1) the fixing of the value of the gold for royalty purposes at $15 per ounce, (2) the probability that, in the earlier years of royalty collection, considerable quantities of gold dust left the camps unrecorded and escaped royalty payments, and (3) the fact that in the last few years there has been a small production from lode mines.

Table 64.—Gold Production in the Yukon and the Royalty Collected, 1898-1925

(Supplied by Controller H. H. Rowatt, of the Mining Lands Branch of the Department of the Interior.)

Fiscal year	Total gold production	Total exemption	Royalty collected on	Royalty paid
	$	$	$	$
Ending June, 1898	3,072,773	339,845	2,732,928	273,292.82
Ending June, 1899	7,582,283	1,699,657	5,882,626	588,262.37
Ending June, 1900	9,809,464	2,501,744	7,307,720	730,771.99
Ending June, 1901	9,162,082	1,927,666	7,234,416	592,660.98
Ending June, 1902	9,566,340	1,199,114	8,367,226	331,436.79
Ending June, 1903	12,113,015	.....	12,113,015	302,893.48
Ending June, 1904	10,790,663	.....	10,790,663	272,217.96
Ending June, 1905	8,222,054	.....	8,222,054	206,760.87
Ending June, 1906	6,540,007	.....	6,540,007	163,963.25
Ending March, 1907	3,304,791	.....	3,304,791	82,622.42
Ending March, 1908	2,820,162	.....	2,820,162	70,504.65
Ending March, 1909	3,260,282	.....	3,260,282	81,507.07
Ending March, 1910	3,594,251	.....	3,594,251	89,844.10
Ending March, 1911	4,126,728	.....	4,126,728	103,168.19
Ending March, 1912	4,024,237	.....	4,024,237	100,606.29
Ending March, 1913	5,018,412	.....	5,018,412	125,460.52
Ending March, 1914	5,301,508	.....	5,301,508	132,537.69
Ending March, 1915	4,649,634	.....	4,649,634	116,241.04
Ending March, 1916	4,458,278	.....	4,458,278	111,457.19
Ending March, 1917	3,960,207	.....	3,960,207	99,007.92
Ending March, 1918	3,266,019	.....	3,266,019	81,650.55
Ending March, 1919	1,947,082	.....	1,947,082	48,677.07
Ending March, 1920	1,660,450	.....	1,660,450	41,501.12
Ending March, 1921	1,246,486	.....	1,246,486	31,273.76
Ending March, 1922	1,230,987	.....	1,230,987	30,774.68
Ending March, 1923	1,032,762	.....	1,032,762	25,819.04
Ending March, 1924	1,136,368	.....	1,136,368	28,409.23
Ending March, 1925	625,459	.....	625,459	15,636 48
Total	**133,522,784**	.....	**125,854,758**	**4,878,959.52**

Table 65.—Imports into Canada and Exports of Gold, 1922, 1923 and 1924

—	1922	1923	1924
IMPORTS—	$	$	$
Gold—			
Fringe	38,939	42,283	40,468
Manufactures of Gold and silver—			
Leaf	63,276	81,252	69,495
Sweepings	5,471	4,849	5,508
Manufactures, n.o.p.	89,684	125,582	142,008
Electroplated ware	442,593	509,131	604,500
EXPORTS—			
Gold-bearing quartz, dust, nuggets and bullion obtained direct from mining operations	3,953,938	12,541,745	28,358,442

Table 66.—World's Production of Gold, (a) 1913, 1920-1924

(From the *Year Book of the American Bureau of Metal Statistics*, 1924)

(Fine ounces)

—	1913	1920	1921	1922	1923	1924
NORTH AMERICA—						
United States	4,299,784	2,476,166	2,422,006	2,363,075	2,502,63[illegible]	2,511,243
Canada	802,973	765,007	926,329	1,263,364	1,233,341	1,516,360
Mexico	829,783	735,078	684,634	748,291	776,808	792,401
Total North America	**5,932,540**	**3,976,251**	**4,032,969**	**4,374,730**	**4,512,781**	**4,820,004**
Central America and West Indies	**131,661**	**145,125**	**120,937**	**120,937**	**96,750**	***100,000**
SOUTH AMERICA—						
Bolivia	} 8,467	242	290	4 7	407	
Chili		43,538	45,139	79,828	64,397	
Brazil	109,072	125,775	134,482	146,668	144,675	
Colombia	143,757	280,575	290,250	275,737	275,738	
Ecuador	19,666	36,281	36,259	42,456	42,456	
Peru	23,813	62,757	77,385	81,436	120,372	
Guiana—British	65,475	9,675	12,828	10,876	6,173	
Dutch	22,757	12,506	11,285	1[illegible],992	12,734	
French	147,571	43,538	48,375	48,772	44,624	
Venezuela	21,517	18,839	30,253	17,361	17,361	
Other countries	1,572	4,858	3,967	3,967	4,208	
Total South America	**563,666**	**638,584**	**690,513**	**719,590**	**733,142**	***750,000**
EUROPE—						
Austria-Hungary	105,425		161	546	739	
Czecho-Slovakia		8,761	11,413	8,294	4,82[illegible]	
France	102,912	900	8,906	16,493	16,943	
Great Britain	864	32				
Roumania			41,499	42,984	43,225	
Russia and Siberia	1,282,313	57,225	43,177	146,740	250,673	
Other countries	24,290	9,148	8,231	9,744	10,1[illegible]9	
Total Europe	**1,515,804**	**76,066**	**113,297**	**224,761**	**331,531**	***410,000**
AUSTRALASIA—						
New South Wales	149,657	48,907	51,173	25,222	18,833	18,685
Queensland	265,735	115,230	40,376	80,584	88,7[illegible]6	95,703
South Australia	6,556	1,697	2,660	1,000	950	787
Victoria	434,932	168,979	104,512	106,872	95,403	67,167
West Australia	1,314,013	617,842	553,731	538,245	504,5[illegible]	485,118
New Zealand	343,595	124,375	135,720	144,117	155,000	*150,000
Tasmania	33,400	6,246	5,340	3,431	3,684	3,450
Other countries	21,393	12,502	9,779	12,260	12,289	*12,000
Total Australasia	**2,569,311**	**1,095,778**	**903,291**	**911,731**	**879,396**	**832,910**
ASIA—						
British India	580,109	499,068	432,723	438,015	422,307	433,750
China	176,999	125,000	100,000	100,000	100,000	*100,000
Chosen (Korea)	173,306	76,000	130,893	127,892	121,433	*122,000
British East Indies	65,402	29,025	24,188	29,025	29,0[illegible]5	*29,000
Dutch East Indies	165,852	90,920	94,168	104,295	110,885	*100,000
Formosa	39,406	13,500	28,455	21,958	21,958	*22,000
Japan	174,846	248,181	237,106	241,993	255,460	*250,000
Other countries	24,506	29,366	30,037	20,924	16,779	*20,000
Total Asia	**1,407,516**	**1,111,060**	**1,078,170**	**1,084,102**	**1,077,847**	**1,076,750**
AFRICA—						
Belgian Congo	44,334	96,804	65,715	68,351	91,300	*91,300
Madagascar	60,769	16,686	14,660	[illegible]8,582	16,139	*16,000
Rhodesia	690,541	553,067	586,908	655,296	649,08[illegible]	639,000
British West Africa	384,836	230,948	203,606	213,395	200,565	*200,500
Transvaal, Cape Colony and Natal	8,798,713	8,158,455	8,128,722	7,009,858	9,149,073	9,597,634
Other countries	45,623	26,905	44,984	43,587	48,86[illegible]	*50,000
Total Africa	**10,024,816**	**9,082,865**	**9,044,595**	**8,009,069**	**10,155,075**	**10,584,434**
Grand Total	**22,145,314**	**16,125,729**	**15,983,772**	**15,444,830**	**17,786,479**	**18,574,098**

(a) 1913-1922, as reported by the Director of the Mint, with some changes. 1924, as compiled by *American Bureau of Metal Statistics*, conjectural figures (*) based on the 1923 outputs being inserted where necessary. Production of the Philippine Islands is included with the United States.

IRON ORE

Canada

Shipments of iron ore totalling 1,480 tons were made from Canadian mines during 1924 which had a value of $3,936, as compared with 30,759 tons valued at $114,944 shipped during 1923. This production for 1924 included 1,408 tons of ilmenite valued at $3,771 which was exported from Quebec, 44 tons of iron briquette screenings shipped from Moose Mountain, Ltd., in Ontario to a Canadian steel company, and 28 tons of magnetite shipped to a Vancouver firm from Vananda Island, B.C.

Pig iron derived from Canadian ores smelted in Canada totalled 3,710 short tons which, valued at $25 per ton amounted in value to $92,750. The 1923 production was 20,739 short tons valued at $432,298.

Nova Scotia did not produce any iron ore, but during the year the British Empire Steel Corporation brought in from their mines at Wabana, Newfoundland, 174,602 tons valued at $371,622. This company also exported to Europe 919,968 tons valued at $2,034,113, making a total for the year of 1,094,570 tons, valued at $2,405,735. Shipments from Newfoundland in 1923 amounted to 808,236 tons valued at $1,826,129, of which 451,483 tons worth $1,017,071 were shipped to Nova Scotia and the balance to Europe.

Table 67.—Shipments of Iron Ore from Canadian Mines, by Provinces, 1886-1924

(Short tons)

Year	Nova Scotia	New Brunswick	Quebec	Ontario	British Columbia	Canada
1886	44,388	.....	.....	16,032	3,941	64,361
1887	43,532	.....	13,404	16,598	2,796	76,330
1888	42,611	.....	10,710	16,894	8,372	78,587
1889	54,161	.....	14,533	.....	15,487	84,181
1890	49,206	.....	22,305	5,000	.....	76,511
1891	53,649	.....	14,380	.....	950	68,979
1892	78,258	.....	22,690	.....	2,300	103,248
1893	102,201	.....	22,076	.....	1,325	125,602
1894	89,379	.....	19,492	.....	1,120	109,991
1895	83,792	.....	17,783	.....	1,222	102,797
1896	58,810	.....	17,630	15,270	196	91,906
1897	23,400	.....	22,436	2,770	2,099	50,705
1898	19,079	.....	17,873	21,111	280	58,343
1899	28,000	.....	19,420	25,126	2,071	74,617
1900	18,940	.....	19,000	82,950	1,110	122,000
1901	18,619	.....	15,489	272,538	7,000	313,646
1902	16,172	.....	18,524	359,288	10,019	404,003
1903	40,335	.....	12,035	209,634	2,290	264,294
1904	61,293	.....	16,152	141,601	.....	219,046
1905	81,952	.....	12,681	193,464	.....	291,097
1906	97,820	.....	9,933	141,078	.....	248,831
1907	89,839	.....	12,748	207,769	2,500	312,856
1908	11,802	.....	10,103	216,177	.....	238,082
1909	.....	.....	4,150	263,893	.....	268,043
1910	18,134	5,336	4,503	231,445	.....	259,418
1911	22	31,120	3,616	175,586	.....	210,344
1912	30,857	71,520	1,185	112,321	.....	215,883
1913	20,436	86,416	5,102	195,680	.....	307,634
1914	.....	4,775	.....	240,079	.....	244,854
1915	.....	3,683	.....	394,429	.....	398,112
1916	.....	.....	3,209	271,967	.....	275,176
1917	.....	.....	17,150	198,152	.....	215,302
1918	130	.....	8,159	201,119	2,200	211,608
1919	.....	.....	321	195,649	1,200	197,170
1920	.....	.....	960	126,912	1,200	129,072
1921	.....	.....	.....	58,499	1,010	59,509
1922	.....	.....	526	16,190	1,255	17,971
1923	.....	.....	69	30,447	243	30,759
1924	.....	.....	1,408	44	28	1,480
Total	**1,279,817**	**202,850**	**411,755**	**4,655,712**	**72,214**	**6,622,348**

Table 68.—Shipments of Iron Ore from Wabana Mines, Newfoundland, 1895-1924

Year	To Nova Scotia	To United States	To Great Britain and Europe	Total shipments
	Short tons	Short tons	Short tons	Short tons
1895	2,686	.....	.....	2,686
1896	17,410	22,798	.....	40,208
1897	12,143	33,039	5,651	50,833
1898	34,622	.....	78,640	113,262
1899	26,311	98,485	214,322	339,118
1900	195,507	153,867	14,776	364,150
1901	457,061	84,292	279,102	820,458
1902	376,322	96,702	341,421	814,445
1903	273,283	90,711	287,793	651,787
1904	342,710	6,025	298,694	647,429
1905	596,819	6,490	255,846	769,155
1906	628,153	141,851	213,867	983,873
1907	672,561	123,972	167,074	963,607
1908	713,777	59,532	200,033	973,337
1909	697,068	241,207	171,722	1,109,997
1910	808,762	247,336	203,528	1,259,626
1911	737,261	207,193	237,009	1,181,463
1912	956,458	191,779	183,673	1,331,910
1913	1,048,433	229,402	328,086	1,605,921
1914	417,409	43,513	172,998	633,920
1915	802,128	.....	66,323	868,451
1916	1,012,060	.....	.....	1,012,060
1917	883,346	.....	.....	883,346
1918	848,574	.....	.....	848,574
1919	499,972	.....	.....	499,972
1920	624,596	.....	36,708	661,304
1921	178,519	.....	206,010	384,529
1922	311,482	.....	811,845	1,123,327
1923	451,183	.....	356,753	808,236
1924	174,602	.....	919,968	1,094,570
Total	**14,711,515**	**2,078,197**	**6,051,843**	**23,841,554**

PIG IRON

(Ton = 2,000 lb.)

At 664,215 short tons the production of pig iron in Canada in 1924 was 33 per cent under the 985,401 tons of 1923, and 55 per cent over the 428,923 tons produced in 1922. About one-third (223,524 tons) was sold for $4,518,887; at the same average selling value per ton, the value of the 1924 output would be $13,343,603.

By grades, the production consisted of 400,628 tons of basic iron, 194,503 tons of foundry iron, 69,065 tons of malleable iron and 19 tons of direct castings as compared with 615,983 tons basic iron, 262,400 tons foundry, 106,935 tons of malleable iron and 83 tons direct castings in 1923. Ontario produced 465,888 tons or 70 per cent of the total as against 68 per cent in the previous year; the balance was made in Nova Scotia.

Taken by months the production dropped slightly from the 71,346 tons of January to 67,523 tons in February, then rose steadily until the record of 95,185 tons was reached in May, after which the tonnage fell off to 25,842 tons in August and remained around that level until the end of the year.

Per capita production of pig iron averaged 144 pounds in 1924 as compared with 215·5 pounds in 1923, a total of 95·6 pounds in 1922 and 151·4 pounds in 1921.

Blast furnaces for the production of pig iron were operated in conjunction with steel furnaces and rolling mills at Sydney, N.S., and in Ontario at Hamilton and Sault Ste. Marie. In addition to these, there are also blast furnaces standing at Port Colborne, Midland, Port Arthur, Parry Sound and Deseronto, with two others, unfinished, at Ojibway near Windsor.

To the furnaces located at the three first mentioned places the following materials for making pig iron were charged: 8,231 tons of Canadian ore valued at $38,557; 1,184,575 tons of foreign ore at $4,774,136; 1,313 tons of pyrite cinder at $3,263; 32,732 tons of scrap at $376,680 and 42,935 tons of mill cinder, scale and slag at $82,851. Other general materials charged were 315,534 tons of limestone at $446,950; 2,220 tons of other flux at $2,464; 219,870 tons of coke made from Canadian coal at $1,248,925 and 438,323 tons of coke made from foreign coal at $3,179,930.

Adding the imports of 34,386 tons of pig iron to the production of 664,215 tons and deducting therefrom the exports of 16,740 tons, it is found that 681,861 tons were made available for use in Canada. Of this total 420,924 tons were charged to steel furnaces for making ingots and direct castings, and the balance was sold direct to the foundries, etc.

A review of the price trend during 1924 shows that iron and its products declined steadily from January to November. The index based on 1913 average prices as 100, was 168·5 in January and 154·8 in November. The range in 1923 was from 158·9 in January to 174·4 in June; in December, 1923, it stood at 168·7. This group declined 14 points in 1924. The recovery in December, 1924, amounted to about 3 points.

Inactivity in the construction industry and dullness in business conditions generally which characterizes 1924, were distinctly reflected in iron and steel prices—No. 1 foundry pig iron at Montreal was $30.95 per ton in January and $27.70 in November. In December, however, it rose to $30.20 per ton. Basic pig iron at the mill was $26 in January, $21 in November and $23 in December. Steel billets at Montreal were $41.50-$52 per ton in January, $34-$48 in November and $39-$48 in December.

Electric furnaces for the production of ferro-alloys were operated at Hamilton, Niagara Falls and Welland. The output amounted to 29,568 tons in 1924, a drop of 9 per cent from the 32,436 tons of the previous year.

Detailed statistics of the iron and steel industry in Canada are given in a special Bureau report entitled *Iron and Steel and Their Products.*

Table 69.—Summary of Iron and Steel Statistics, 1922, 1923 and 1924

—	—	1922	1923	1924
	Short tons			
Iron ore shipped from mines	"	17,971	30,758	1,480
Canadian iron ore charged to blast furnaces	"	23,398	37,812	8,231
Imported " " "	"	778,141	1,759,466	1,184,575
Iron ore charged to steel furnaces	"	24,980	58,120	34,840
Pig-iron made in blast furnaces	"	428,923	985,401	664,215
" exported	"	17,236	60,799	16,740
" imported	"	58,796	37,955	34,386
Ferro-alloys made	"	23,239	32,436	29,568
" imported	"	3,771	9,326	8,763
" exported	"	20,350	23,981	30,030
Pig-iron and ferro-alloy consumption	"	477,143	.....	.....
" used in steel furnaces	"	313,000	594,810	420,974
Steel ingots and castings made	"	539,974	990,942	738,939
Steel rails made	"	140,970	231,684	224,795
Canadian coke used in iron blast furnaces	"	172,250	336,369	219,870
Imported " " "	"	300,269	552,995	438,323
Number of completed blast furnaces	No.	20	20	20
Number of men employed at blast furnaces	"	521	778	591
Wages paid at blast furnaces	$	685,593	1,231,740	759,235
Value of pig-iron produced	$	8,819,242	21,355,595	13,343,603
" iron and steel goods exported	$	41,800,812	67,035,808	58,621,047
" iron and steel goods imported	$	126,467,856	173,720,299	137,979,471

LEAD

The production of lead in Canada 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 about 57·7 per cent in quantity and 78 per cent in value.

Production in 1924 included 168,467,628 pounds from British Columbia, the greater part of which was from the famous Sullivan mine in East Kootenay; 5,055,368 pounds from Ontario, nearly all of which was in the form of pig lead, produced at Galetta, Carelton County, a small amount contained in silver-lead-bismuth bullion exported from south Ontario smelters, and 1,962,503 pounds estimated as recoverable from ores exported from Quebec and the Yukon Territory.

The ores of British Columbia and Quebec contain both lead and zinc. Thus, in addition to quantities noted in Table 71 there were 22,372,621 pounds of lead contained in zinc ores so termed because zinc was the predominating metal. Most of such shipments were from the Sullivan mine of the Consolidated Mining and Smelting Company of Canada, Limited.

Previous to 1904, lead ores mined in Canada were either exported as ore or smelted in Canadian furnaces and exported in the form of base bullion for refining. A lead refinery employing the Betts electrolytic process has been in operation at Trail, B.C., since 1904, treating the product from lead blast furnaces.

The production of refined lead at Trail amounted in 1924 to 62,726 tons as against 47,971 tons in 1923 and 39,276 tons in 1922, a total of 28,820 tons in 1921 and 13,237 tons in 1920.

The Kingdon Mining, Smelting and Manufacturing Company, Limited, which is now smelting ores from the Kingdon mine at Galetta, Ontario, has been in operation since early in 1919 producing a high-grade pig lead.

Table 70.—Production* of Lead from Canadian Ores, 1887-1924

Year	Pounds	Value	Cents per pound	Year	Pounds	Value	Cents per Pound
		$				$	
1887	204,800	9,216	5·400	1906	54,608,217	3,089,187	5·657
1888	674,500	29,812	4·420	1907	47,738,703	2,542,086	5·325
1889	165,100	6,488	3·930	1908	43,195,733	1,814,221	4·200
1890	105,000	4,704	4·480	1909	45,857,424	1,692,139	3·690
1891	88,665	3,857	4·350	1910	32,987,508	1,216,249	3·687
1892	808,420	33,064	4·090	1911	23,784,969	827,717	3·480
1893	2,135,023	79,636	3·730	1912	35,763,476	1,597,554	4·467
1894	5,703,222	187,636	3·290	1913	37,662,703	1,754,705	4·659
1895	16,461,794	531,716	3·230	1914	36,337,765	1,627,568	4·479
1896	24,199,977	721,159	2·980	1915	46,316,450	2,593,721	5·600
1897	39,018,219	1,396,853	3·580	1916	41,497,615	3,532,662	8·513
1898	31,915,319	1,206,399	3·780	1917	32,576,281	3,628,020	11·137
1899	21,862,436	977,250	4·470	1918	51,398,002	4,754,315	9·250
1900	63,169,821	2,760,521	4·370	1919	43,827,699	3,053,037	6·966
1901	51,930,958	2,249,387	4·334	1920	35,953,717	3,214,262	8·940
1902	22,956,381	934,095	4·069	1921	66,679,592	3,828,742	5·742
1903	18,139,283	768,562	4·237	1922	93,307,171	5,817,702	6·235
1904	37,531,244	1,617,221	4·309	1923	131,234,466	7,985,523	7·179
1905	56,864,915	2,676,632	4·707	1924	175,485,499	14,221,345	8·104
				Total	**1,450,118,067**	**84,984,997**	

* Previous to 1913 the figures reported show the metal content of the shipments and are somewhat in excess of the actual amount recovered. Since 1912 the data given represent the quantity of lead produced in Canada from domestic ores, together with the estimated lead recovery from lead ores and concentrates exported. From 1887 to 1908, average prices at New York; 1909 and 1910, average prices at Toronto; from 1911 to date, average prices in Montreal were used in making up the values shown; since 1920 the quotations used have been furnished by the Consolidated Mining and Smelting Co., Montreal, Que.

PRODUCTION OF LEAD FROM CANADIAN ORES 1887-1922.

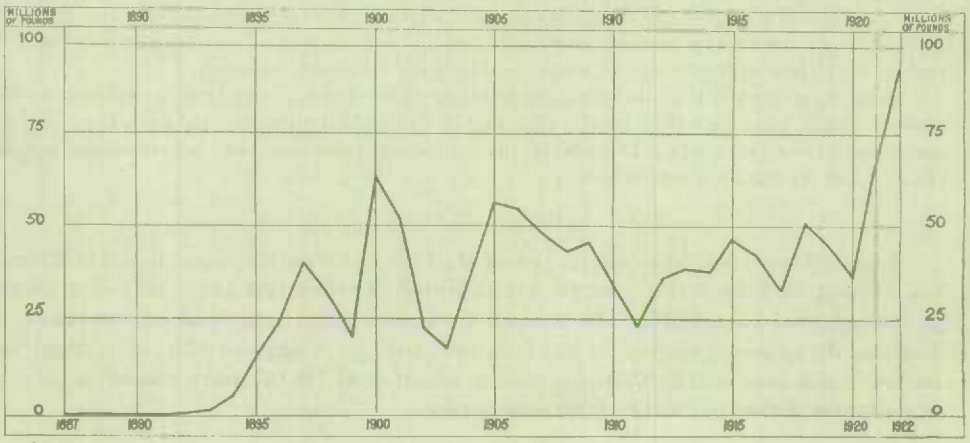


Table 71.—Shipments of Lead Ores and Concentrates from Canadian Mines in 1924

—	Lead ores	Lead concentrates	Dry ores
Tons shipped	18,054	135,135	207
Reported value of shipments $	1,097,297	11,179,340	14,062
Metal Content of Shipments—			
Gold fine ounces.	521	1,030	28
Silver " "	1,260,098	3,065,456	22,689
Lead pounds	8,587,659	171,591,827	7,638
Zinc "	1,439,446	16,311,181	1,050

Table 72.—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
				Total	**888,984,406**

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

Quebec

Lead production in the province of Quebec dates from the year 1915 when some 40,000 pounds were produced, all of which was derived from the lead-zinc deposits of Notre Dame des Anges. The maximum output of 2·28 million pounds was made in 1919 due to the demands for lead during the war. During 1922 there was no production from these mines. However, in 1923 shipping was resumed and it was estimated that a total of 520,041 pounds was recovered from ores exported during that year. In 1924 this figure was almost doubled at 1,058,983 pounds.

Ontario

Many years ago, two lead mines were operated in Frontenac county but it was not until 1913 that any statistical records of production were kept. During that year the deposits in Carleton county were opened up and some 33,000 pounds of lead were recovered. This property has been rapidly developed until at the present time the shaft is down to the 1,000-foot level and in 1924 production amounted to 5,019,485 pounds, which constituted a record for the Kingdon property. At the lower levels zinc also occurs; the zinc is separated from the lead in the mill and stored until a sufficient supply is obtained to make an export shipment.

Small quantities of lead are recovered from the silver-lead-bismuth bullion exported by the south Ontario smelters which handle the ores of the Cobalt district. In 1924, the recovery amounted to 35,883 pounds. The sum of the production from these two sources make a total of 5,055,368 pounds for the province.

British Columbia

Lead is derived from the zinc-lead ores of the East and West Kootenays in British Columbia. During 1924 the smelter production from British Columbia ores amounted to 168,467,628 pounds valued at $13,652,617. This included the lead recovered in the lead smelter bullion at Trail and the estimated recoverable lead from ores exported. Compared with 1923 output when the production amounted to 99,541,818 pounds valued at $7,146,107, there was an increase of 69·3 per cent in quantity and 91·0 per cent in value.

Table 73.—Production of Lead from Canadian Ores, by Provinces, 1887-1924

Year	Quebec		Ontario		British Columbia		Yukon	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$		$
1887					204,800	9,216		
1888					674,500	29,813		
1889					165,100	6,488		
1890	105,000	4,704						
1891	88,665	3,857						
1892					808,420	33,064		
1893	3,931	146			2,131,092	79,490		
1894					5,703,222	187,636		
1895					16,461,794	531,710		
1896					24,199,977	721,159		
1897	177,084	6,340			38,841,135	1,390,513		
1898	221,760	8,382			31,603,559	1,198,017		
1899					21,862,436	977,250		
1900	11,200	490			63,158,621	2,760,031		
1901	318,052	13,784			51,582,906	2,235,603		
1902	420,000	17,090			22,536,381	917,005		
1903			50,000	2,110	18,089,283	766,443		
1904			885,000	38,135	36,646,244	1,579,086		
1905			284,212	13,378	56,580,703	2,663,254		
1906			2,200,000	124,454	52,408,217	2,964,733		
1907					47,738,703	2,542,086		
1908					43,195,733	1,814,221		
1909					45,857,424	1,692,139		
1910					32,987,508	1,216,249		
1911					23,784,969	827,717		
1912					35,763,476	1,597,554		
1913			33,000	1,537	37,626,899	1,753,037	2,804	131
1914					36,289,845	1,625,422	47,920	2,146
1915	40,401	2,262	88,985	4,983	45,377,064	2,541,116	810,000	45,360
1916	698,760	59,485	685,932	58,393	39,157,701	3,333,496	955,222	81,318
1917	1,378,001	153,468	1,586,711	176,712	29,483,725	3,283,602	127,844	14,238
1918	2,110,059	195,180	1,684,366	155,804	47,594,328	4,402,475	9,249	856
1919	2,280,000	158,825	1,487,586	103,625	40,060,113	2,790,587		
1920	905,472	80,949	2,255,520	201,643	32,792,725	2,931,670		
1921	595,881	34,215	3,312,493	190,203	60,298,603	3,462,346	2,472,615	141,978
1922			2,890,397	180,216	87,093,266	5,430,265	3,323,508	207,221
1923	520,041	37,334	4,401,494	315,983	99,541,818	7,146,107	6,771,113	486,098
1924	1,058,983	85,820	5,055,368	409,687	168,467,628	13,652,617	903,520	73,221
Total	**10,933,299**	**862,331**	**26,901,084**	**1,976,872**	**1,396,859,918**	**81,093,223**	**15,423,795**	**1,052,567**

Imports and Exports.—The imports 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 other items listed in the reports on the *Trade of Canada* were less than in 1923. 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. In 1923 pig lead and lead in ore amounting to 55,092,600 pounds with a value of $3,032,144 were exported, whereas in 1924 exports totalled 121,862,000 pounds with a value of $7,650,970. These figures in themselves show the results of the operations of the lead properties that have been recently developed.

Table 74.—Imports into Canada and Exports of Lead, 1922, 1923 and 1924

	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$
IMPORTS—						
Old and scrap, pig and block	2,001,987	105,527	2,751,455	145,094	693,344	50,847
Bars and sheets	263,612	17,957	407,840	31,321	115,836	12,682
Litharge	1,514,400	122,592	1,672,100	160,928	956,700	89,731
Acetate and nitrate of lead	217,487	20,330	179,881	17,727	207,364	19,115
Other manufactures	.....	199,330	.....	199,793	.....	334,372
Pipe lead	96,716	6,458	85,351	6,568	48,961	4,183
Shots and bullets	10,324	4,173	10,705	1,255	10,529	1,324
Tea lead	225,729	21,530	215,345	19,622	203,324	22,080
Lead pigments:—						
Dry white lead	190,472	14,255	49,579	4,273	193,843	17,778
White lead, ground in oil	56,760	6,001	117,034	9,518	205,824	19,050
Dry red lead and orange mineral	966,846	74,921	867,759	76,510	704,284	64,719
Total	.....	**593,074**	.....	**672,609**	.....	**535,881**
EXPORTS—						
Lead in ore	10,941,800	550,088	7,948,100	535,937	13,752,400	784,750
Pig-lead	41,481,900	1,877,050	47,144,500	2,496,207	108,709,600	6,866,220
Total	**52,423,700**	**2,427,138**	**55,092,600**	**3,032,144**	**121,862,000**	**7,650,970**

Prices.—During 1924 the highest point for the price of lead was reached in December when the price stood at 9·207 cents per pound on the New York market. In January of the same year the price quoted was 7·972 cents. There was a gradual increase to March when slightly over 9 cents was recorded. The price then declined until July when it stood at 7·117 cents per pound. A gradual increase occurred from that time on, till the end of the year. The high price of lead has been caused by the increased use of the metal in the automobile and other allied industries which have been growing steadily. Reports indicate a coming world shortage of lead as new properties are not being found to keep pace with the normal consumption and for that reason the price of lead is expected to advance. This is of great advantage to Canada as many of her lead deposits which have heretofore not paid dividends on their operations are now being opened up and considerable interest is being displayed in any lead deposits of commercial size.

Table 75.—Monthly Average Prices of Lead in Montreal, New York and London, 1922, 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					
	1922	1923	1924	1922	1923	1924	1922		1923		1924	
							£	s. d.	£	s. d.	£	s. d.
January	6·152	7·245	7·84	4·700	7·633	7·97	23	13 4	27	2 4	3	10 7
February	5·897	7·561	8·18	4·700	8·050	8·554	20	13 8	28	10 4	34	11 9
March	5·930	7·798	8·79	4·720	8·252	9·013	21	5 4	28	16 3	37	3 3
April	5·908	7·243	7·8	5·115	8·101	8·963	22	19 10	26	19 1	3	16 5
May	6·139	6·841	7·04	5·420	7·306	7·269	24	9 3	25	12 3	29	8 6
June	6·190	6·760	7·32	5·745	7·116	7·020	24	13 8	25	8 7	31	2 9
July	6·235	6·480	7·49	5·729	6·237	7·117	24	17 4	24	3 9	32	18 4
August	6·226	6·593	7·64	5·824	6·582	7·827	24	11 7	24	4 5	3	14 7
September	6·178	6·865	7·74	6·110	6·856	8·000	24	2 7	25	13 9	33	0 5
October	6·235	7·205	8·23	6·530	6·831	8·235	25	11 0	27	16 3	35	4 4
November	6·775	7·682	9·20	7·047	6·846	8·689	26	3 11	30	7 0	39	8 6
December	6·957	7·870	9·86	7·163	7·369	9·207	26	1 7	31	0 10	4	11 8
Average	**6·235**	**7·179**	**8·10**	**5·734**	**7·267**	**8·097**	**24**	**1 11**	**27**	**2 11**	**34**	**8 5**

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

Table 76.—World's Production of Lead, 1913, 1920-1924

(From the *Year Book of the American Bureau of Metal Statistics, 1924*)

(Short tons)

Country	1913	1920	1921	1922	1923	1924
NORTH AMERICA—						
United States	435,665	476,125	402,479	470,000	530,000	590,000
Canada*	18,822	18,187	34,381	45,842	53,899	86,583
Mexico	68,324	93,925	66,851	133,180	184,242	177,852
Total North America	**522,811**	**588,237**	**503,711**	**649,022**	**768,141**	**854,435**
SOUTH AMERICA—						
Argentina	.....	3,857	2,756	3,986	4,000	5,000
Other South America	2,729	3,047	2,385	2,561	1,600	7,800
Total South America	**2,729**	**6,904**	**5,141**	**6,547**	**5,600**	**12,800**
EUROPE—						
Austria	26,558	4,379	3,689	4,106	4,600	5,404
Belgium	59,056	17,681	32,793	48,032	56,328	59,104
France	31,756	16,600	17,058	15,370	19,194	23,148
Germany (including Upper Silesia)	207,176	65,036	82,676	81,090	56,451	67,467
Greece	20,177	5,547	6,140	4,853	4,667	5,333
Italy	23,885	17,578	13,763	11,960	18,885	24,318
Czecho-Slovakia and Jugo-Slavia	.....	7,367	7,725	11,821	13,448	13,779
Poland (Upper Silesia excluded)	2,976	1,653	1,113	110	.....	.....
Russia	1,678	.....	.....	.....	.....	.....
Spain	219,110	193,118	149,760	131,394	140,559	154,322
Sweden	1,361	991	616	418	338	330
United Kingdom	20,304	12,275	2,727	5,551	7,512	5,938
Total Europe	**614,037**	**342,225**	**318,069**	**314,705**	**322,072**	**359,323**
ASIA—						
Turkey	15,318	1,102	9,199	5,952	1,543	5,626
India (Burma)	6,535	26,679	37,737	43,919	51,239	57,969
Japan	4,162	4,607	3,459	3,570	3,307	2,205
Total Asia	**26,015**	**32,388**	**50,395**	**53,441**	**56,089**	**65,800**
Australia	**126,207**	**7,642**	**63,071**	**118,064**	**137,364**	**140,645**
AFRICA—						
Rhodesia	.....	16,353	19,808	22,962	12,343	7,003
Tunis	.....	12,574	13,911	14,457	15,754	17,345
Total Africa	.....	**28,927**	**33,719**	**37,419**	**28,097**	**24,348**
Grand Total	**1,291,799**	**1,006,323**	**974,097**	**1,179,198**	**1,317,363**	**1,457,351**

*Dominion Bureau of Statistics reports the Canadian production of lead as follows: 1913—18,831 tons; 1920—17,977 tons; 1921—33,330 tons; 1922—46,653 tons; 1923—55,617 tons; 1924—87,743 tons.

MERCURY

There has been no production of mercury recorded since 1897. The small production reported in 1895, 1896, and 1897, was derived from the deposits at the western end of Kamloops Lake, B.C. These deposits consist of quartz veins containing pockets of cinnabar, in a zone of decomposed tertiary volcanic rocks.

Mercury has also been reported as occurring in the ores of the Cobalt district, and in the neighbourhood of Field, B.C., and Sechart, on the west coast of Vancouver Island.

The imports of mercury during 1924 were 85,459 pounds, valued at $60,675, as compared with 135,953 pounds valued at $95,922 in 1923.

Table 77.—Production of Mercury in Canada, 1895-1924

Year	Flasks	Price per flask	Value
		$	$
1895	71	33·00	2,343
1896	58	33·44	1,940
1897	9	36·00	324
1898–1924	.....	.....	.....

Table 78.—Imports into Canada of Mercury, 1921, 1922, 1923 and 1924

Year	Pounds	Value
		$
1921	30,894	20,570
1922	59,296	47,742
1923	135,953	95,922
1924	85,459	60,675

Table 79.—Monthly Average Price of Mercury, 1922, 1923 and 1924

(At New York, per flask of 75 pounds)

Month	1922	1923	1924
	$	$	$
January	49·960	72·731	59·500
February	48·295	70·636	59·565
March	50·204	70·808	64·269
April	52·280	69·200	74·308
May	54·885	68·000	76·962
June	55·115	67·769	73·720
July	55·000	66·980	72·173
August	57·593	65·212	72·096
September	67·640	63·000	72·423
October	72·560	61·769	70·654
November	71·521	61·917	68·708
December	72·300	60·000	72·750
Average	**58·946**	**66·502**	**69.761**

MOLYBDENUM

Molybdenite deposits are known to occur in Nova Scotia, Quebec, Ontario, Manitoba and British Columbia but the principal production has come from the Quyon mine in Pontiac county in Quebec.

The Moss mine at Quyon, Quebec, reported a production of 20,452 pounds of molybdenum concentrates containing 91·62 per cent MoS_2, or 18,739 pounds o fmolybdenum sulphide which, at 50 cents per pound, was worth $9,370. This was the first Canadian production since 1919. All the molybdenite ore produced in Canada has been concentrated in Canadian mills erected for the purpose.

The war stimulated the demand for molybdenum ores to an appreciable extent but with the cessation of hostilities, the producers were left with considerable stocks on hand for which there was no immediate market, owing to the limited uses of the metal. The ore produced was mostly low-grade material carrying less than 2 per cent MoS_2, but there was some which ran from 2 to 15 per cent MoS_2, and some higher grade hand-picked material produced.

Prices.—The market price for molybdenum ore, 85 per cent MoS_2, in January, 1924, was 80 cents per pound of contained sulphide. This price was maintained until the latter part of the year when it declined to between 65 cents and 75 cents per pound.

Table 80.—Production of Molybdenite in Canada, 1902-1924

Year	Ores mined	Ores treated	Ores and concentrates shipped		MoS_2 content of shipments	MoS_2 production (probable recovery)	
	Tons	Tons	Tons	Value (a)	Pounds	Pounds	Value (b)
				$			
1902	3	.....	3·3	400	(c)	(c)	(c)
1903	600	.....	85·0	1,275	(c)	(c)	(c)
1904–1913	.....	.....	.....	.....	.....	.....	.....
1914	166	.....	16·5	2,063	3,814	3,814	$ 2,063
1915	2,242	216	39·0	28,920	29,210	29,210	28,450
1916	13,522	9,100	610·0	188,316	156,461	156,461	158,461
1917	26,871	22,605	1,554·3	320,006	330,316	288,705	288,705
1918	34,030	33,935	461·3	428,807	378,482	378,029	434,733
1919	7,280	6,783	46·0	69,203	83,002	83,002	69,203
1920–1923	.....	.....	.....	.....	.....	.....	.....
1924	700	668	10·0	9,370	18,739	18,739	9,370

(a) Value as given by the operators. (b) Estimated at the average market value of molybdenite.
(c) No figures available.

NICKEL

Production of nickel during 1924 amounted to 69,536,350 pounds which valued at the average New York price of 28 cents per pound was worth $19,470,178. Compared with an output of 62,453,843 pounds valued at $18,332,077 in 1923 when the price per pound was 29·353 cents, this marked a distinct advance. It was also greater than the total for any year since 1918 when the maximum production of 92·5 million pounds was reached.

During the year the tonnage of nickel-bearing ore raised in the Sudbury district amounted to 1,411,978 tons. The smelters treated 1,307,963 tons and produced 65,944 tons of matte carrying 69,276,313 pounds of nickel and 36,979,424 pounds of copper.

Corresponding data for 1923 showed 1,187,355 tons of ore raised, 1,140,160 tons of ore smelted and matte production totalling 58,084 tons carrying 62,057,800 pounds of nickel and 31,539,000 pounds of copper.

The average quantities of metal recovered from ores treated in 1924 were: nickel, 2·65 per cent, and copper, 1·41 per cent. In 1923 the recoveries were 2·72 per cent of nickel and 1·38 per cent of copper.

During July, 1924, the British America Nickel Corporation went into liquidation, and as a consequence the properties formerly operated by this company remained idle during the rest of the year.

Table 81.—Production of Nickel from Canadian Ores, 1889-1924

Year	Pounds of nickel	Cents per pound	Value	Year	Pounds of nickel	Cents per pound	Value
			$				$
1889	830,477	60	498,286	1908	19,143,111	43	8,231,538
1890	1,435,742	65	933,232	1909	26,282,991	36	9,461,877
1891	4,035,347	60	2,421,208	1910	37,271,033	30	11,181,310
1892	2,413,717	58	1,399,956	1911	34,098,744	30	10,229,623
1893	3,982,982	52	2,071,151	1912	44,841,542	30	13,452,463
1894	4,907,430	38½	1,870,958	1913	49,676,772	30	14,903,032
1895	3,888,525	35	1,360,984	1914	45,517,937	30	13,655,381
1896	3,397,113	35	1,188,990	1915	68,308,657	30	20,492,597
1897	3,997,647	35	1,399,176	1916	82,958,564	35	29,035,497
1898	5,517,690	33	1,820,838	1917	84,330,280	40	33,732,112
1899	5,744,000	36	2,067,840	1918	92,507,293	40	37,002,917
1900	7,080,227	47	3,327,707	1919	44,544,883	40	17,817,953
1901	9,189,047	50	4,594,523	1920	61,335,706	40	24,534,282
1902	10,693,410	47	5,025,903	1921	19,293,060	35	6,752,571
1903	12,505,510	40	5,002,204	1922	17,597,123	35	6,158,993
1904	10,547,883	40	4,219,153	1923	62,453,843	29·353	18,332,077
1905	18,876,315	40	7,550,526	1924	69,536,350	28	19,470,178
1906	21,490,955	42	8,948,834				
1907	21,189,793	45	9,535,407	**Total**	**1,011,421,699**		**359,681,277**

PRODUCTION OF NICKEL IN CANADA 1889-1922

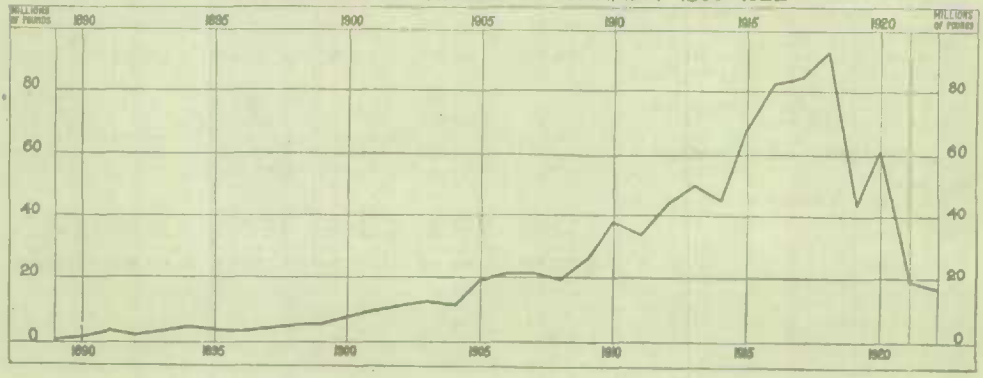


Table 82.—Proportion of Nickel and Copper in Sudbury Matte, 1912-1924

Year	Percentage		
	Nickel	Copper	Total
1912	53·5	26·3	79·8
1913	52·7	27·4	80·1
1914	49·0	31·1	80·1
1915	50·3	29·0	79·3
1916	51·6	28·0	79·6
1917	50·6	26·9	77·5
1918	52·6	26·0	78·6
1919	51·6	28·3	79·9
1920	52·7	27·6	80·3
1921	49·4	32·4	81·8
1922	50·1	31·3	81·4
1923	53·4	27·2	80·6
1924	52·6	27·9	80·5

Table 83.—Sales of Nickel from the Silver-Cobalt-Nickel Smelters of Southern Ontario 1912-1924

Year	Metallic Nickel		Nickel Oxides(a)	
	Pounds	Value	Pounds	Value
		$		$
1912			91,377	9,137
1913			268,304	30,122
1914			392,512	34,883
1915	55,325	22,130	(b)282,025	31,262
1916	79,360	31,538	(b)555,868	101,358
1917	265,896	108,334	(b)657,549	122,963
1918	243,186	88,720	(b)962,309	215,277
1919	397,884	137,435	(b)340,389	32,862
1920	204,537	71,287	(b) 24,112	6,312
1921	10,973	3,442	(b)105,535	4,034
1922	106,318	31,035	(b) 37,317	3,952
1923	33,593	10,075	71,484	9,246
1924	14	4	60,662	9,414

(a) Does not include mixed oxides of cobalt and nickel. See Table 37.
(b) Nickel-sulphate included with nickel oxides.

Table 84.—Imports into Canada and Exports of Nickel 1922, 1923 and 1924

	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$
IMPORTS—						
Nickel, nickel silver and German silver, in ingots or blocks, n.o.p.	42,286	13,257	35,045	12,410	21,761	8,591
Nickel in bars and rods, strips, sheets and plates	937,483	143,675	492,177	153,564	624,173	111,827
Nickel silver and German silver, in bars, rods, strips, sheets, plates or anodes	386,764	100,730	298,902	82,407	229,182	59,609
German, Nevada and nickel silver, manufactures of, not plated	.....	203,838	.....	207,242	.....	193,283
Nickel-plated household hollow-ware	.....	25,849	.....	32,656	.....	39,345
Nickel-plated ware, n.o.p.	.....	1,314,688	.....	1,240,762	.....	1,219,515
Total Nickel and its Products	.....	**1,802,037**	.....	**1,729,041**	.....	**1,632,170**
EXPORTS—						
Nickel, fine, contained in ore, matte or speiss	16,768,200	2,536,347	28,971,000	4,077,000	36,712,200	5,176,907
Nickel, fine	14,449,700	4,287,941	22,897,900	4,649,251	25,985,800	5,090,059
Total	**31,217,900**	**6,824,288**	**51,868,900**	**8,726,251**	**62,698,000**	**10,266,966**

Prices.—The average price of electrolytic nickel in New York during 1921 according to quotations published by the "*Engineering and Mining Journal-Press*" was 44 cents per pound for ingots and 41 cents for shot. These quotations were merely nominal owing to the depressed condition of the market. During 1922 new uses were being developed for nickel. Whereas, prior to and during the war a very large proportion of the metal was consumed by armament manufacturing, the cessation of war activities followed by the Washington conference on the limitations of armaments, led producers to investigate new outlets for nickel. These have been found in part in the adaptability of nickel for the cooking-utensil trade, and in the manufacture of resistance wires in electric heating appliances, as a material for coinage, as a constituent of numerous alloys and in the growing use of the metal in the motor car industry. This increased consumption and the lower prices prevailing, have been the important factors in the renewed activity. The average price was 35 cents per pound in 1922; 29·3 cents per pound in 1923, and 28 cents per pound in 1924.

Table 85.—World's Production of Nickel, 1921-1924

(In terms of metal)

(Short tons)

(From "*The Mineral Industry of the British Empire and Foreign Countries, 1921-1925*")

Country	1921	1922	1923	1924
Canada	9,647	8,799	31,226	34,768
Germany (Russia)	.....	.....	(a) 3	.....
Italy	13	(b)	49	.....
Norway	24	102	68	.....
United States (c)	111	208	100	.....
New Caledonia (d)	1,670	3,906	2,939	(e) 4,005
Total	**11,465**	**13,015**	**34,385**	**38,773**

(a) Ore, nickel content not stated.
(b) Less than ½ ton.
(c) Nickel content of salts and nickel produced as a by-product in the electrolytic refining of copper.
(d) Exports.
(e) From "*The Mineral Industry 1924*".

PLATINUM AND PALLADIUM

The most important sources of the metals of the platinum group in Canada are the nickel-copper ores of Sudbury, Ontario, but due to the fact that these metals occur in very small quantities per ton of ore and also that their recovery can only be made in the refining of the copper and nickel, the most of the platinum from these ores has been recovered by the refineries operating in foreign countries. It was not until 1918, when the International Nickel Company of Canada built its refinery at Port Colborne, that these metals were recovered in Canada. The British America Nickel Corporation Limited, opened its refinery at Deschênes, Quebec, in the following year. In both these plants, the precious metals are recovered as residues which are exported for further treatment. During 1924 the Mond Nickel Company reported their production of the rare metals recovered at their refinery in Swansea, Wales. No record of recoveries at this plant had been obtained in previous years. This is the principal reason for the apparently increased platinum and palladium production during 1924.

For many years metals of the platinum group have been recovered at the New Jersey plant of the International Nickel Company from residues obtained in the refining of the Sudbury nickel-copper mattes; but as residues from other sources were treated with those of Canadian ores, the total recovery could not be regarded as of Canadian origin; nevertheless, it is believed that the Sudbury mattes have been the source of by far the greater part of the platinum group metals recovered. This New Jersey plant operated for a month or two only during 1922 and was then dismantled.

Platinum is also found in the alluvial sands of British Columbia, but the output which up to the present has been won by individual placer operators, is of small importance.

Table 86.—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 ozs.	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 ozs.	7	.....	.....	5	.....	.....
	Value	$816	.....	.....	$ 569	.....	.....
Canada	**Fine ozs.**	**1,217**	**1,732**	(a) **304**	**9,186**	**8,923**	(b) **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 $27,503,—69 oz. Osmium valued at $4,924,—78 oz. Rothenium valued at $2,106 and 79 oz. Iridium valued at $16,590.

Table 87.—Production of Platinum in Canada from Alluvial Sands, 1887-1924

Year	Value	Year	Value	Year	Fine ounces	Value
	$		$			$
1887	5,600	1897	1,600	1913	18	489
1888	6,000	1898	1,500	1914	.....	.....
1889	3,500	1899	825	1915	23	1,063
1890	4,500	1900	.....	1916	15	600
1891	10,000	1901	457	1917	57	3,823
1892	3,500	1902	190	1918	39	2,506
1893	1,800	1903	.....	1919	25	2,105
1894	950	1904	420	1920	17	791
1895	3,800	1905	500	1921	23	1,558
1896	750	1906	.....	1922	12	1,154
		1907-1912	.....	1923	7	816
				1924	5	509

Table 88.—Recovery at the International Nickel Company's Works*—New Jersey, U.S.A., 1907-1922

Year	Matte treated	Gold	Silver	Platinum	Palladium	Rhodium	Others
	Tons	Ounces	Ounces	Ounces	Ounces	Ounces	Ounces
1907	17·840	993·572	63,400·70	226·800	607·300	(a)	.....
1908	18·839	5,238·181	139,329·29	172·316	328·287	(a)	.....
1909	18·407	2,113·669	63,138·66	546·627	1,270·598	(a)	.....
1910	24·309	2,649·799	60,256·83	258·325	522·804	(a)	.....
1911	26·840	2,203·052	70,954·38	655·552	753·363	(a)	.....
1912	27·653	2,476·558	62,169·66	496·850	680·130	(a)	.....
1913	38·733	2,336·405	77,924·03	192·863	207·713	191·067	.....
1914	40·267	2,695·957	75,928·18	748·440	756·360	515·801	.....
1915	31·428	3,444·785	101,793·17	452·430	543·240	57·475	.....
1916	56·405	3,495·123	110,285·21	1,016·581	1,344·915	257·070	.....
1917	59·209	1,954·934	92,963·67	970·695	1,354·459	325·407	.....
1918	62·250	1,968·703	107,076·78	649·737	786·654	472·579	.....
1919	19·528	634·043	35,689·79	616·716	762·217	227·294	(b) 76·613
1920	30·740	613·338	81,882·78	488·901	739·158	390·336	(b)102·363
1921	(c)2,217·000	6·901	1,242·74	281·582	382·626	256·110	(b) 10·655
1922	(c)3,112·000	206·542	12,211·66	137·882	300·839	103·874	(b) 20·563

*Plant dismantled during 1922.
(a) Figures not given separately.
(b) Includes Osmium, Iridium and Ruthenium.
(c) These quantities bear no relation to the amounts of precious metals recovered.

Platinum is also recovered in a small way at the Royal Mint in the form of platinum black, a dull black powder of metallic platinum, which is obtained from the treatment of dental and old jewellery scrap. The following table shows the recoveries since 1919.

Table 89.—Recovery of Platinum Black, Iridium Precipitate, and Palladium at the Royal Mint, Ottawa, 1919-1924

Year	Platinum		Iridium		Palladium	
	Ozs. gross	Value	Ozs. gross	Value	Ozs. gross	Value
1919	29·281	$ 2,711·59	20·782	$ 2,268·12	0·696	$ 87·00
1920	7·220	$ 400·56	.....	.....	.....	.....
1921	18·843	$ 1,160·73	.....	.....	.....	.....
1922	12·386	$ 1,102·35	.....	.....	.....	.....
1923	4·520	$ 393·47	.....	.....	.....	.....
1924	16,186	$ 1,408·99	.....	.....	.....	.....

Table 90.—Imports into Canada and Exports of Platinum, 1922, 1923 and 1924

	1922		1923		1924	
	Ounces	Value	Ounces	Value	Ounces	Value
		$		$		$
IMPORTS—						
Crucibles	.....	3,976	.....	10,177	.....	11,567
Wire and bars, strips, sheets or plates	.....	91,425	.....	117,607	.....	167,225
Retorts, pans, condensers, etc.	.....	887	.....	40,471	.....	579
Total	.....	**96,288**	.....	**168,255**	.....	**179,371**
EXPORTS—						
Jewellers sweepings	.....	216,118	.....	274,467	.....	344,074
Ores and concentrates	35	3,626	349	33,838	467	47,723
Old and scrap	151	13,328	126	8,988	237	24,372
Total	.....	**233,072**	.....	**317,293**	.....	**416,169**

Table 91.—Monthly Average Prices of Platinum, 1922, 1923 and 1924

(From the *Engineering and Mining Journal-Press*, 1924)

(In dollars per fine ounce.)

Month	1922	1923	1924
	$	$	$
January	97·260	112·462	122·115
February	89·545	113·273	124·739
March	87·500	110·846	121·692
April	87·500	116·840	115·577
May	85·529	115·007	115·731
June	87·212	115·615	116·000
July	90·180	116·000	118·231
August	98·370	116·000	120·000
September	117·280	116·000	118·923
October	109·440	116·923	118·000
November	108·000	124·479	117·792
December	113·600	125·000	117·000
Average	**97·618**	**116·537**	**118·817**

Table 92.—Platinum Metals Consumed in the United States as Reported by Refiners and by Industries, 1923-1924

(In Troy Ounces)

(From *Mineral Resources of the United States, 1924–Part 1*, Pages 9–22).

Industry	Platinum	Iridium	Palladium	Others	Total	Percentage of total
1923						
Chemical	8,637	190	485	266	9,578	5
Electrical	18,596	1,675	3,666	.....	23,937	13
Dental	16,288	153	10,116	.....	26,557	14
Jewelry	105,699	3,073	14,948	190	123,910	65
Miscellaneous	3,156	1,403	986	1,256	6,801	3
Total	**152,376**	**6,494**	**30,201**	**1,712**	**190,783**	**100**
1924						
Chemical	10,507	122	436	403	11,468	7
Electrical	16,588	1,269	3,099	.....	20,956	13
Dental	11,092	131	10,049	.....	21,272	13
Jewelry	87,151	2,204	12,480	746	102,581	62
Miscellaneous	5,012	634	2,122	973	8,741	5
Total	**130,350**	**4,360**	**28,186**	**2,122**	**165,018**	**100**

Prior to the war, the world's supply of platinum was derived almost entirely from the Ural Mountains in Russia, but when hostilities commenced in the fall of 1914 the Russian production was reduced almost one-third. The subsequent internal troubles further crippled the platinum industry in that country and there has been only a relatively small production during the last few years.

Table 93.—World's Production of Crude Platinum from Placers, 1914-1923

(In Troy Ounces)

(From *Mineral Resources of the United States, 1924–Part 1*, Page 60).

Country (a)	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
Australia—										
New South Wales (b)	244	56	82	259	607	213	796	249	80	586
Papua (c)	(c)	(c)	(c)	(c)	(c)	(c)	100	360	100	115
Tasmania (d)	1,019	247	222	332	1,607	1,670	2,009	1,751	1,174	673
British India (e)	37	18	9	4	(f)	.....	.....	.....	.....	.....
Canada (g)	30	100	60	80	40	30	25	15	15	10
Colombia (h)	17,500	18,000	25,000	32,000	35,000	35,000	35,000	35,500	40,000	42,000
Japan (i)	.....	.....	70	127	51	155	258	231	150	224
Russia (h)	241,200	124,000	63,900	50,000	25,000	30,000	35,000	20,000	22,000	20,000
Union of South Africa (k)	(j)	(j)	(j)	(j)	(j)	(j)	(j)	510	762	1,784
United States	570	742	750	605	647	824	613	977	1,008	6 0 9

(a) In addition to the countries listed, Brazil exported 700 grams (23 ounces) in 1915.
(b) New South Wales Dept. Mines Ann. Repts.
(c) Territory of Papua Mines Dept. Rept. (production osmiridium, year ending June 30). Prior to 1920 annual production had not exceeded 10 ounces.
(d) Tasmania Dept. Mines Ann. Repts. (Tasmania production all osmiridium).
(e) India Geol. Survey Records.
(f) Production 0·31 ounce.
(g) Estimate by J. M. Hill: Canada Dept. Mines Ann. Repts. give the following figures (believed low): 1914, none: 1915, 23: 1916, 15: 1917, 57: 1918, 39: 1919, 25: 1920, 17: Dominion Bureau of Statistics: 1921, 23: 1922, 12: 1923—7.
(h) Estimate by J. M. Hill.
(i) Agricultural and commercial statistics of Japan.
(j) Data not available.
(k) Department Mines and Industry Ann. Rept. (osmiridium).

In addition to the above, there is of course a considerable quantity of platinum recovered yearly from scrap and old material.

SILVER

Canada

Special Note.—Prior to 1922, the method used in compiling the statistics on the silver production of Canada was to include, except for Ontario, the quantities of silver produced from Canadian ores either in Canadian or foreign smelters. For Ontario, the sales of silver bullion from the mines and smelters were considered as the year's production. In order to bring the practice for Ontario into harmony with that used in computing the silver output for the other provinces, adjustments amounting to 1,222,450 ounces were made for 1922 to take account of the stocks of silver bullion on hand at the end of 1921 which had not been previously included in the reports on the mineral production of Canada.

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, 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.

The production in 1924 included (a) silver contained in silver and gold bullion 10,120,311 fine ounces or 51·3 per cent of the total for Canada; (b) silver contained in blister copper and lead bullion, 5,074,010 fine ounces or 25·6 per cent and (c) silver estimated to have been recovered from ores, concentrates, etc., exported 4,542,002 fine ounces or 23·1 per cent. The corresponding figures for 1923 were (a) 9,472,908 fine ounces or 50·9 per cent; (b) 3,892,837 fine ounces or 20·9 per cent and (c) 5,235,999 fine ounces or 28·2 per cent.

Although no official statistics of the production of silver had been published prior to 1887, the annual reports of the operating companies showed that from 1869 to 1885 the total production amounted to about four million ounces of silver with a probable value of $4,800,000. The producing mines were situated in the Port Arthur district in Ontario. From 1887 to 1893 the production ranged in value between $300,000 and $400,000 and was derived chiefly from Ontario and Quebec. The next three years saw a rapid increase in production due to the development of the silver-lead deposits of British Columbia, and in 1897 a production of over $3,000,000 was recorded. From that year until 1905 the production varied between $2,000,000 and $3,500,000 rising rapidly during the next six years to $17,580,455 in 1910, as a result of the discovery of the rich ores of the Cobalt district. Since then there has been a falling-off in quantity, but owing to the higher price of the metal, the value of the annual production increased to a maximum of $20,693,704 in 1918. It will be noticed in the table of production that the output for 1919 though only 50 per cent of that of 1910 or 1911, when the production was at its maximum, was more than equal in value.

Ontario has been the main producer of silver in Canada since 1906, its contribution increasing from 41 per cent of the total for Canada in 1905 to a maximum of 94 per cent in 1911. By 1914 it had fallen to 88·4 per cent and it then gradually decreased each year until 1921 when it stood at 25 per cent. It rose again in 1922 to 48·2 per cent, excluding the corrective figures included in that year. In 1923 it amounted to 56·6 per cent and in 1924, to 57·1 per cent.

The production of silver from British Columbia was greater in 1924 than in any other year on record and exceeded the output for 1923 by about two million ounces. This province contributed 41·3 per cent of the total Canadian production during the year. The balance of the production, about 1·6 per cent, was made up from small quantities contained in the gold bullion recovered from Nova Scotia and Manitoba gold ores; the silver in pyritic and lead-zinc ores exported from Quebec; the silver estimated as recoverable from the lead ores exported from the Keno Hill district of the Yukon Territory and the silver associated with the placer gold recovered from the same Territory.

Table 94.—Production of Silver in Canada, 1887-1924

Year	Fine ounces	Value	Cents per ounce	Year	Fine ounces	Value	Cents per ounce
		$				$	
1887	8,473,379	5,659,455	66·79	1907	12,779,799	8,348,659	65·33
1888	355,083	347,271	98·00	1908	22,106,233	11,686,239	52·86
1889	437,232	410,998	94·00	1909	27,529,473	14,178,504	51·50
1890	383,318	358,785	93·60	1910	32,869,264	17,580,455	53·49
1891	400,667	419,118	104·60	1911	32,559,044	17,355,272	53·30
1892	414,523	409,549	98·00	1912	31,955,560	19,440,165	60·83
1893	310,651	272,130	86·00	1913	31,845,803	19,040,924	59·79
1894	428,738	330,128	77·00	1914	28,449,821	15,593,631	54·81
1895	847,697	534,049	63·00	1915	26,625,960	13,228,842	49·68
1896	1,578,275	1,030,299	65·28	1916	25,459,741	16,717,121	65·66
1897	3,205,343	2,149,503	67·06	1917	22,221,274	18,091,895	81·417
1898	5,558,446	3,323,395	59·79	1918	21,383,979	20,693,704	96·772
1899	4,432,333	2,593,929	58·26	1919	16,020,657	17,802,474	111·122
1900	3,411,644	2,032,658	59·58	1920	13,330,357	13,450,330	100·900
1901	4,468,225	2,740,362	61·33	1921	13,543,198	8,485,355	62·654
1902	5,539,192	3,265,354	58·95	1922	18,626,439	12,576,758	67·521
1903	4,291,317	2,238,351	52·16	1923	18,601,744	12,067,509	64·873
1904	3,198,581	1,709,642	53·45	1924	19,736,323	13,180,113	66·781
1905	3,577,526	2,047,095	57·22				
1906	6,000,023	3,621,133	60·35	**Total**	**473,976,882**	**395,011,154**	

PRODUCTION OF SILVER IN CANADA 1887-1922.

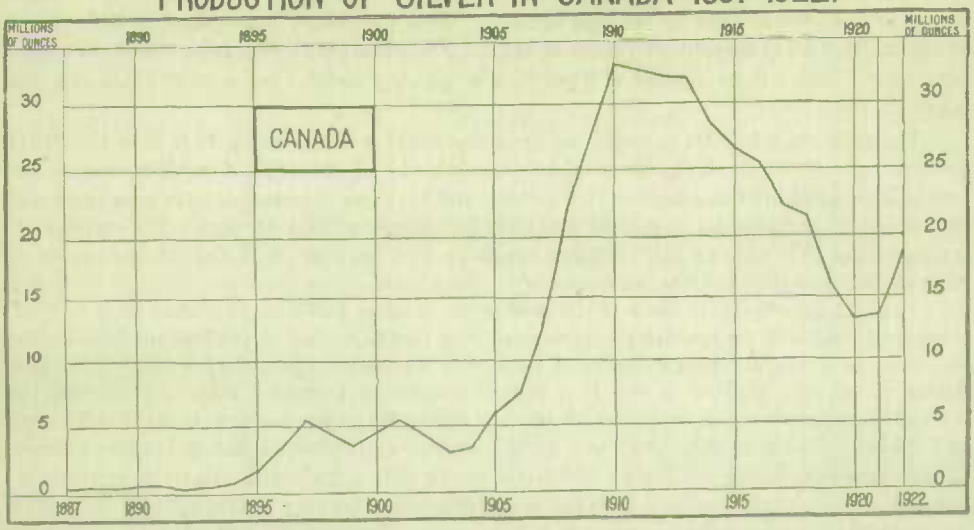


Table 95.—Production of Silver from Canadian Ores,* by Provinces, 1887-1924

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	148,388	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	101,910	168,113	41,581	36,425	77,160	67,592	.....	.....
1893	.....	126,439	.....	8,689	.....	105,000	.....	.....
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	85,000	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	151,000	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	185,000	96,985
1903	28,000	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	63,665	42,522
1907	16,000	10,452	9,982,363	6,521,178	2,745,448	1,793,519	35,988	23,510
1908	13,299	7,030	19,398,545	10,254,847	2,631,389	1,391,058	63,900	33,304
1909	13,233	6,815	24,822,009	12,784,126	2,649,141	1,364,387	45,000	23,176
1910	7,593	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	663,493	447,997
1923	33,006	21,412	10,540,943	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	2,285,001	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 in 1923 and 1924.

Quebec

During 1924 the production of silver in Quebec was derived for the greater part from the lead-zinc ores and to a less extent from pyritic ores that were sent out of the country for treatment in foreign smelters. The total credited to the province was 83,814 fine ounces valued at $55,972.

Ontario

The production of silver in Ontario in 1924 was 11,272,567 fine ounces valued at $7,527,933 as against 10,540,943 fine ounces valued at $6,838,226 in 1923. The total for 1924 included (a) 5,577,875 ounces bullion made in the Cobalt district or 49·6 per cent of the total Ontario production; (b) 4,309,595 ounces or 38·2 per cent recovered by the smelters of southern Ontario; and (c) 282,208 ounces or 2·4 per cent contained in gold bullion, and nuggets sold for exhibition purposes and in products from the nickel refineries; the balance of 1,102,889 ounces or 9·8 per cent was recovered from Ontario ores, slags and matte treated in the United States and Europe. The corresponding figures for the year 1923 were (a) 6,278,759 fine ounces or 59·7 per cent; (b) 3,028,458 ounces or 28·7 per cent; (c) 205,610 ounces or 1·9 per cent and (d) 1,028,116 ounces or 9·7 per cent.

As indicated above, practically the whole of Ontario's silver production was derived from the Cobalt ores with small quantities obtained from the products of the nickel refineries and from gold bullion. Recovery during the year from these sources was as follows:—silver contained in gold bullion, 208,562 ounces as against 151,535 ounces in 1923; silver produced by the refineries of the International Nickel Company, the British America Nickel Corporation and the Mond Nickel Company, 122,889 ounces as against 54,075 ounces in 1923.

The following table shows the percentage of production from the Cobalt Camp, from the Ontario smelters, and from ores exported to the United States.

Table 96.—Percentage of Silver Production Credited to each Group Treating Ontario Ores, 1916-1924

Group	1916	1917	1918	1919	1920	1921	1922	1923	1924
	%	%	%	%	%	%	%	%	%
Cobalt district	39·5	51·1	55·0	48·7	58·6	51·8	74·4	60·8	51·2
Ontario smelters	44·7	33·9	29·0	36·4	33·7	41·1	19·3	30·5	39·4
Total for Ontario	84·2	85·0	84·0	85·1	92·3	92·9	93·7	91·3	90·6
U.S. smelters	15·8	15·0	16·0	14·9	7·7	7·1	6·3	8·7	9·4
Total	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**

Manitoba

Silver production in Manitoba was very small in 1924, there being only about 140 ounces recorded as having been recovered from the gold bullion produced by the Manitoba Metals Corporation, Limited. Copper deposits were developed during the war and from 1918 to 1920 shipments of copper ore containing silver were sent to Trail; in the three years, production from this source amounted to about 50,000 ounces. Owing to the drop in the price of copper and to the high cost of freight rates, practically no shipments of copper ores have been made in recent years.

Table 97.—Production of Silver in Manitoba, 1919-1924

Year	Fine ounces	Value
		$
1919	20,700	23,069
1920	15,510	15,649
1921	33	20
1922	20	14
1923	5	3
1924	140	93

British Columbia

The chief sources of silver in British Columbia have been the silver-lead-zinc ores of the East and West Kootenay Districts supplemented by the silver contained in the gold-copper ores of Rossland and the Boundary and Coast districts. During the last two or three years this production has been remarkably increased by shipments of rich ores from the Premier mine near Stewart.

Production in 1924 amounted to 8,153,003 fine ounces valued at $5,444,657 as against 6,113,327 fine ounces valued at $3,965,899 fine ounces in 1923. Production in 1924 included (a) silver contained in blister copper, 848,142 ounces or 10·4 per cent; (b) silver in lead and gold bullion 4,168,464 ounces or 51·3 per cent; (c) silver in lead and zinc ores and concentrates exported 379,254 ounces or 4·6 per cent and (d) silver in gold, silver and copper ores exported, 2,757,143 ounces or 33·7 per cent. Corresponding figures for 1923 were (a) 1,109,905 ounces or 17·9 per cent; (b) 2,782,932 fine ounces or 45·6 per cent; (c) 13,227 ounces or 0·3 per cent; (d) 2,207,263 ounces or 36·2 per cent.

Yukon Territory

The production of silver from the Yukon Territory in 1924 amounted to 226,755 fine ounces derived chiefly from the silver-lead ores exported. This was a marked falling-off from the previous year when the output amounted to 1,914,438 fine ounces valued at $1,241,953. Owing to the cold climate, trouble is experienced in the mining of the silver in the Keno Hill district. Ores mined late in one season are hauled down by a tractor and piled on the river banks there to await the spring break-up when they can be taken to the customs smelters in the United States. Because of this severe climatic condition, it is proposed now to build a concentrating plant underground in one of these mines in order to get away from the troubles of running a concentrator in zero weather.

The quantity of silver from placer gold is decreasing. In 1922 it was only 12,233 fine ounces as against 14,831 fine ounces in 1921. In 1923 it amounted to 13,476 fine ounces and in 1924 only 7,853 fine ounces were credited to the placer workings of the Yukon for the whole year.

The following table gives the percentages of recovery from the several sources during the years 1916 to 1924.

Table 98.—Percentage of the Silver Output in the Yukon won from Lode and Placer Mining, 1916-1924

Year	From lode mining	From placer mining
	%	%
1916	87·0	13·0
1917	66·8	33·2
1918	68·2	31·8
1919	26·0	74·0
1920	14·6	85·4
1921	96·2	3·8
1922	98·2	1·8
1923	99·3	0·7
1924	96·5	3·5

Table 99.—Imports into Canada and Exports of Silver, 1922, 1923 and 1924

	1922	1923	1924
	$	$	$
IMPORTS—			
Silver—			
Bullion in bars and blocks	657,760	723,040	665,280
Coins	.....	.....	1,275
Sterling	178,223	234,047	209,430
Manufacture of gold and silver—			
Leaf	63,276	81,252	69,495
Sweepings	5,471	4,849	5,508
Manufactures, n.o.p.	89,684	125,582	142,008
Electroplated ware	442,593	509,131	604,500
EXPORTS—			
In ore, concentrates, bullion	11,684,028	11,137,724	12,082,954

Prices.—During 1924, the monthly average New York price for silver varied from 63·447 cents per ounce in January to 64·139 cents per ounce in April up to 70·827 cents, the highest price for the year, reached in October. For the last month of the year the price averaged 68·096 cents per ounce.

In order of importance, the chief silver-producing countries in the world are; Mexico, United States, Canada and Peru. In 1923, these accounted for 82·0 per cent of the total world's production. In all these countries important increases in silver production have been recorded and, except in the United States, all the silver produced has been marketed at current rates. In the United States, production was stimulated by the price of $1 per ounce, fixed by the Pittman Act. After the purchases during 1922 under this Act, there remained a quantity in the neighbourhood of 60,000,000 ounces still to be purchased. The Pittman Act authorized the Government of the United States to buy back at one dollar per ounce from American producers three hundred and fifty million ounces of silver which had been sold from the treasury vaults at the same price to Great Britain during the war. As these purchases naturally kept the silver produced in the United States from entering the world's markets, the termination of the Act was viewed with some alarm by producers of other countries but close students of the silver market predicted it would have but slight effect and the trend of the market seemed to have proven them right.

Table 100.—Monthly Average Prices of Silver, 1922, 1923 and 1924

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

Month	New York (Cents per fine ounce)			London (Pence per standard ounce)		
	1922	1923	1924	1922	1923	1924
January	65·450	65·668	63·447	35·035	31·928	33·549
February	65·290	64·313	64·359	33·891	30·875	33·565
March	64·440	67·556	63·957	33·269	32·310	33·483
April	66·575	66·855	64·139	34·080	32·346	33·065
May	71·154	67·043	65·524	36·023	32·611	33·870
June	71·149	64·861	66·690	35·900	31·611	34·758
July	70·245	63·015	67·159	35·644	30·942	34·509
August	69·417	62·793	68·519	34·957	30·952	34·213
September	69·515	64·203	69·350	35·305	31·698	34·832
October	68·015	63·649	70·827	34·498	31·718	35·387
November	65·177	63·818	69·299	32·882	32·774	33·775
December	63·905	64·705	68·096	31·383	33·375	32·620
Average	**67·528**	**64·873**	**66·781**	**34·406**	**31·929**	**33·969**

Table 101.—World's Production[1] of Silver, 1913, 1920-1924

(From the 1924 "*Year Book of the American Bureau of Metal Statistics*,"[2])

(Fine ounces)

Country	1913	1920	1921	1922	1923	1924
NORTH AMERICA—						
United States	66,801,500	55,361,573	53,052,441	56,240,048	66,163,338	64,221,655
Canada	31,524,708	13,330,357	13,543,198	18,626,439	18,601,744	20,243,846
Mexico	55,486,431	66,516,354	64,465,347	81,076,899	90,810,855	91,437,944
Total North America	**153,812,639**	**135,208,284**	**131,060,986**	**155,943,386**	**175,575,937**	**175,903,445**
Central America and West Indies	**2,135,641**	**2,700,000**	**2,000,000**	**2,500,000**	**3,000,000**	**3,500,000**
SOUTH AMERICA—						
Argentina	35,271	30,000	25,000	25,000	30,000	*30,000
Bolivia and Chile	3,932,594	4,828,086	5,000,000	8,082,700	8,550,317	9,000,000
Brazil	28,364	30,000	33,000	25,720	28,613	30,000
Colombia	587,683	480,000	500,000	3,150	3,150	*3,000
Ecuador	22,642	35,000	75,000	75,000	75,000	*75,000
Peru	9,617,094	9,196,282	9,853,910	13,169,765	18,654,362	18,800,000
Other countries	51,111	12,000	13,700	16,850	13,200	*14,000
Total South America	**14,274,759**	**14,611,368**	**15,500,610**	**21,398,185**	**27,354,642**	**27,952,000**
EUROPE—						
Austria-Hungary	2,104,107	13,985	15,000	8,583	14,178	.....
France	1,005,266	321,500	392,873	347,220	213,035	.....
Czecho-Slovakia	.....	680,069	703,056	875,187	900,200	.....
Great Britain	128,543	76,344	12,229	29,885	34,635	.....
Germany	6,182,445	3,305,020	3,387,420	3,615,525	3,667,447	.....
Greece	803,750	220,935	192,900	184,123	200,000	.....
Italy	423,888	297,452	219,392	215,405	306,582	.....
Norway	300,602	323,172	202,115	205,760	297,931	.....
Portugal	205,822	.....	96,450	62,821	64,300	.....
Russia	.....	50,000	40,000	150,000	192,000	.....
Serbia	28,758	15,000	15,946	26,813	24,563	.....
Spain	4,031,417	2,956,546	2,679,349	2,778,210	2,842,060	.....
Sweden	33,339	22,569	13,342	9,645	15,046	.....
Turkey	1,509,133	100,000	100,000	8,037	8,037	.....
Total Europe	**16,757,070**	**8,382,592**	**8,070,072**	**8,517,214**	**8,780,896**	**10,000,000**
AUSTRALASIA—						
New South Wales	14,504,889	675,332	4,241,890	9,912,927	12,067,954	.....
Queensland	604,979	274,235	195,328	273,036	469,302	.....
Victoria	10,195	6,231	5,204	6,978	6,304	.....
New Zealand	975,616	454,000	454,000	376,000	514,655	.....
Tasmania	765,187	623,359	348,658	794,585	638,602	.....
Other states	190,680	131,697	117,600	121,208	109,048	.....
Total Australasia	**17,057,546**	**2,164,854**	**5,362,680**	**11,484,734**	**13,805,865**	**11,000,000**
ASIA—						
India	125,209	2,906,397	3,587,587	4,244,304	4,863,066	5,800,000
China	.....	50,000	40,000	100,000	100,000	100,000
Chosen (Korea)	15,048	1,200	2,958	10,835	39,281	40,000
Dutch East Indies	465,980	1,027,956	1,021,904	1,109,657	1,408,973	1,500,000
Japan	4,700,390	4,889,540	4,185,504	3,886,301	3,554,750	3,534,943
Other countries	51,763	25,179	29,962	23,890	23,437	25,000
Total Asia	**5,358,390**	**8,900,272**	**8,868,005**	**9,374,987**	**9,989,507**	**10,999,943**
AFRICA—						
Algeria	.....	150,000	.....	.....	.....	.....
Belgian Congo	1,454	10,674	5,819	6,559	8,745	9,000
Rhodesia	121,537	164,865	161,383	179,399	161,492	166,675
Transvaal, Cape Colony and Natal	952,928	892,593	830,329	1,115,676	1,373,930	1,399,626
Other Countries	.....	15,116	13,362	13,362	1,000	5,000
Total Africa	**1,075,919**	**1,233,248**	**1,010,893**	**1,314,996**	**1,545,167**	**1,580,301**
Grand Total	**210,471,964**	**173,200,618**	**171,873,246**	**210,533,502**	**240,052,014**	**240,935,689**

[1]*Note*—The basis of this table is the information published by the Director of the Mint. However revisions and additions have been made so that the totals do not agree with the Mint figures. For 1924 the figures are based on actual reports or reliable estimates, except where the asterisk is used indicating that the figure is conjectural.

[2] Dominion Bureau of Statistics reports the Canadian production of silver as follows: 1913—31,845,803 fine ounces; 1919—16,020,657 fine ounces; 1920—13,330,357 fine ounces; 1921—13,543,198 fine ounces; 1922—18,626,439 fine ounces; 1923—18,601,744 fine ounces, and 1924—19,736,323 fine ounces.

TIN

Tin ores have not yet been found in sufficient quantities in Canada to be of economic importance.

The occurrence of tin ore has been reported from several localities, the most important perhaps being the discovery of cassiterite, near New Ross, Lunenburg county, N.S. Reports upon it may be found in the Summary Reports of the Geological Survey Branch of the Department of Mines for 1907, 1908, 1910, 1911, and 1912.

Cassiterite occurs in a few scattered crystals in pegmatite dykes in the drainage basin of McDougal creek, Lardeau division, B.C., and it has been found also in black sands in the Atlin district, B.C., and in the alluvial sands of Dublin gulch, Mayo district, Y.T.

The occurrence of tin has been noted in some bodies of sulphide minerals found in the vicinity of West Hawk and Star lakes, near the boundary line between Ontario and Manitoba. Attention is called to these occurrences not on account of their commercial importance, but for the interesting manner of occurrence and the mineral associations.

Ores of tin were formerly imported from South America and reduced in Canada by the Electro Tin Products Company of Brantford, Ontario. The plant consisted of roasting furnaces, electric smelting and slag-cleaning furnaces.

Table 102.—Imports of Tin into Canada 1922, 1923 and 1924.

	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
		$		$		$
Tin in blocks, pigs and bars	3,681,800	1,165,532	4,220,100	1,746,720	4,003,600	1,971,035
Tin foil	2,110,215	467,246	1,296,143	377,073	1,318,168	402,370
Strip waste	11,875	247	12,577	370	49,973	74
Collapsible tubes	.....	22,903	.....	18,880	.....	19,844
Tinware, etc. (a)	.....	485,807	.....	536,488	.....	626,846
Tin, crystals	.....	(b)	.....	(b)	.....	(b)
Bichloride of tin	36,258	9,143	138,238	19,790	90,749	23,060
Total	.....	2,150,878	.....	2,699,321	.....	3,043,229

(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 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 or 6·607 cents per pound. The increase amounted to 63·7 per cent in quantity and 57·1 per cent in value.

In 1924, production included 54,888,000 pounds of fine zinc produced at Trail, B.C.; 2,909,008 pounds estimated as recoverable from the zinc-lead-ores exported from Quebec, and 41,112,069 pounds estimated as recoverable from ores and concentrates shipped from British Columbia. The major part of the total Canadian production was credited to the Sullivan mine of Kimberly, B.C., owned and operated by the Consolidated Mining and Smelting Company at Trail, B.C. Ores on this property, although known for some time, were very complex in nature and it took several years of research by the Consolidated Mining Company of Trail to perfect a process whereby the zinc and lead could be separated economically into their respective concentrates. About two years ago the result of these researches satisfied the management and it was decided to build a concentrator at Kimberly. As a result of all this preliminary work, progress has been highly satisfactory and the production of the concentrator has exceeded expectations.

Production has over-taxed the refinery capacity of the Trail smelter so that large quantities of zinc concentrates had to be exported for treatment. Since that time the Trail smelter and refinery capacity have been enlarged to handle this increased output and it is expected that before the close of 1925 it will be possible to take care of the total output from Kimberly concentrator in the smelter at Trail.

The increase in the price of zinc caused by the fear of shortage and also by the increase in demands from European smelters has put Canada in a very enviable position with regard to the zinc market.

The lead mine of Galetta, Ontario, produced some zinc concentrates which will be sold for export to Belgium in 1925. The Sterling zinc mine situated on Cape Breton Island is being developed by a large American company. The silver-lead-zinc property at Notre Dame des Anges, Quebec, is also a source of some commercial zinc. Old dumps have been worked over and concentrates have been made and exported with the result that during 1924, recoveries from this district totalled about 3 million pounds. This was an increase of over 2·5 million pounds over the amount recorded in 1923.

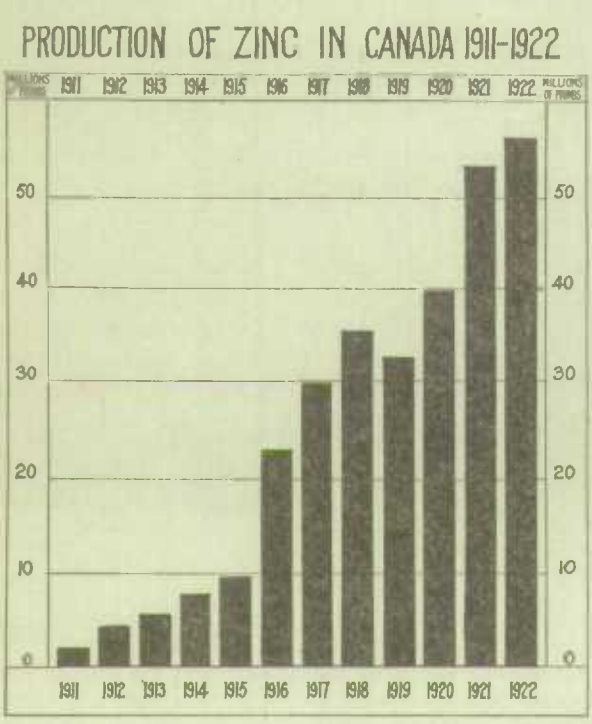


Table 103.—Production of Zinc in Canada, 1911-1924

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	5,640,195	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 1924 the actual zinc recovered at Trail, B.C.

Table 104.—Production of Refined Zinc at Trail, B.C., 1916-1924

Year	Short tons
1916	2,974
1917	9,985
1918	12,574
1919	12,326
1920	18,517
1921	26,494
1922	28,145
1923	30,025
1924	27,444

Imports and Exports.—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. The 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 105.—Imports into Canada and Exports of Zinc and Brass, 1922, 1923 and 1924

	1922		1923		1924	
	Pounds	Value	Pounds	Value	Pounds	Value
IMPORTS		$		$		$
Zinc and Zinc Products—						
Zinc, in blocks, pigs and sheets	3,897,090	299,995	3,201,082	288,128	3,073,644	259,847
Zinc, as spelter	1,060,283	67,737	685,356	54,408	1,230,251	84,486
Zinc white (80% Zn.)	22,065,276	1,338,568	18,976,437	1,206,560	16,264,059	1,063,370
Zinc dust (90% Zn.)	313,652	27,390	394,378	41,167	359,219	30,668
Zinc, sulphate and chloride of (44% Zn.)	586,050	27,285	601,630	21,991	941,039	41,153
Zinc, manufactures of		78,398		104,487		176,564
Total		**1,839,373**		**1,716,741**		**1,656,088**
Brass and Brass Products—						
Brass, in blocks, pigs and ingots (30% Zn.)	185,400	21,671	125,500	17,418	313,200	38,291
Brass, old and scrap (30% Zn.)	2,200,000	221,378	1,724,600	177,198	3,092,400	272,307
Brass, tubing (30% Zn.)	1,410,141	321,074	1,714,819	474,279	1,699,613	396,074
Brass, plain wire (30% Zn.)	551,081	117,496	495,444	132,635	424,525	99,332
Brass, bars and rods	1,842,900	268,689	1,260,700	235,003	727,800	115,231
Brass, strips, sheets or plates	1,515,300	276,361	1,588,100	330,014	815,100	162,793
Brass, wire cloth, n.o.p		317,290		246,126		154,796
Brass, cup for manufacture of shells		63,281		125,417		119,793
Brass, caps for electric batteries		4,743		5,097		12,870
Brass, hand-pumps		28,091		21,394		16,970
Brass, nails, tacks, etc		2,666		2,248		3,467
Brass and copper rivets, burrs and washers		27,716		24,203		26,634
Brass, valves		164,014		226,485		159,387
Brass, other manufactures, n.o.p		1,722,345		2,075,433		1,828,039
Carburettors of brass		278,002		344,188		237,482
Total		**3,834,817**		**4,437,138**		**3,643,166**
EXPORTS	Tons		Tons		Tons	
Zinc—						
Ore	40	1,095	531	5,310	63,931	1,626,031
Spelter	28,518	3,054,644	19,258	2,513,763	20,016	2,519,755
Total		**3,055,739**		**2,519,073**		**4,145,786**
	Pounds		Pounds		Pounds	
Brass—						
Old and scrap	6,726,500	459,846	6,760,100	563,730	6,090,200	429,704
Rods, sheets and tubing	400	74	1,000	302	5,800	1,134
Valves		150,953		190,060		177,883
Mfrs. of brass, n.o.p		38,753		49,633		54,837
Total		**649,626**		**803,725**		**663,558**

Prices.—The price of zinc on the St. Louis market in 1924 averaged 6·344 cents per pound as against 6·607 cents in 1923. The highest quotation during 1924 was in the month of December when 7·374 cents was reached, and the lowest was in the month of June when the figure stood at 5·792 cents. The Canadian market is centred in Montreal and Toronto to which points The Consolidated Mining and Smelting Company is the most important shipper. The average yearly Montreal quotation for zinc was 7·873 cents per pound and the fluctuations corresponded closely to prices changes in the United States markets.

Table 106.—Monthly Average Prices of Zinc (Spelter), 1922, 1923 and 1924

Month	(a) Montreal (In cents per pound)			(b) St. Louis (In cents per pound)			Ordinary Brands, in London, (Per long ton)					
	1922	1923	1924	1922	1923	1924	1922			1923		
							£	s.	d.	£	s.	d.
January	6·472	8·544	8·024	4·691	6·815	6·426	26	6	5	35	14	8
February	6·211	8·840	8·38	4·485	7·152	6·756	24	4	3	35	12	3
March	6·288	9·412	8·162	4·658	7·706	6·488	25	9	4	36	14	5
April	6·531	8·879	7·72	4·906	7·197	6·121	26	11	6	34	5	6
May	6·691	8·013	7·33	5·110	6·625	5·793	27	6	0	31	1	2
June	6·906	7·650	7·30	5·346	6·031	5·792	27	17	10	29	10	11
July	7·274	7·740	7·40	5·694	6·089	5·898	29	0	10	29	6	8
August	7·734	8·086	7·64	6·212	6·325	6·175	31	3	4	32	7	8
September	7·864	8·190	7·65	6·548	6·438	6·181	31	15	0	33	9	4
October	7·274	7·992	7·79	6·840	6·293	6·324	34	10	6	32	19	11
November	8·639	8·014	8·25	7·104	6·347	6·796	38	0	2	32	18	11
December	8·637	7·850	8·84	6·999	6·260	7·374	37	15	1	32	12	2
Average	**7·219**	**8·267**	**7·873**	**5·716**	**6·687**	**6·344**	**30**	**0**	**0**	**33**	**1**	**2**

Month	1924		
	£	s.	d.
January	34	15	3
February	36	10	4
March	35	5	11
April	32	11	9
May	30	12	11
June	31	15	9
July	32	3	10
August	32	10	10
September	32	18	6
October	33	10	3
November	35	0	5
December	36	18	8
Average	**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.*"

Table 107.—World's Production of Zinc, 1913, 1920-1924

(From the 1924 "*Year Book of the American Bureau of Metal Statistics,*".)

(Short tons)

Country	1913	1920	1921	1922	1923	1924
United States	352,952	479,669	215,614	373,678	531,202	535,846
Canada[1]	.....	18,508	26,494	27,782	30,025	27,443
Belgium	225,050	92,880	72,917	123,777	162,082	179,662
France	74,815	22,140	26,640	43,775	54,381	61,287
Germany (including Silesia)	307,238	107,435	99,207	121,705	127,892	130,190
Great Britain	73,000	27,550	6,515	20,529	35,033	43,098
Italy	.....	1,297	427	2,901	4,060	6,585
Austria-Hungary	23,921	.....	.....	.....	.....	.....
Jugo-Slavia and Czecho-Slovakia	.....	6,612	6,614	9,921	11,023	11,023
Netherlands	26,804	2,238	7,060	14,327	18,126	20,051
Norway	10,234	2,024	2,205	2,039	2,205	2,205
Poland (excluding Silesia)	8,398	5,909	7,745	10,031	13,546	17,050
Spain	3,650	10,634	7,427	6,910	12,039	13,558
Sweden	2,204	6,458	3,858	1,757	1,430	3,858
Australia	4,614	10,825	1,883	26,339	46,091	52,205
Japan	992	17,356	11,435	13,637	15,432	15,432
Total	**1,113,872**	**811,535**	**496,041**	**799,112**	**1,064,557**	**1,119,493**

[1]Dominion Bureau of Statistics reports the Canadian production of Zinc in Canada as follows: 1913—2,820 tons; 1920—19,932 tons; 1921—26,545 tons; 1922—28,145 tons; 1923—30,208 tons; 1924—49,455 tons.

NON-METALLICS

ABRASIVES

Corundum.—No production of corundum in Canada was reported during the year 1924. Corundum is found in an area embracing several townships in Renfrew and Hastings counties in the province of Ontario. The industry made its appearance there in 1900, production reaching a maximum of 2,914 tons in 1906. From 1907 to 1913, although the yearly production was smaller, it remained fairly constant. In August, 1918, operations were indefinitely suspended, but during the years 1919, 1920 and 1921 old tailings were treated for the recovery of grain corundum. In 1921, grain corundum amounting to 403 tons valued at $55,965, was exported to the United States, but no shipments have been reported since that time.

Imports into Canada of grindstones, burrstones, emery and other abrasive materials amounted in value to $1,175,641 in 1924. Exports during the same year were valued at $2,666,405; the greater part of this sum represented sales of the artificial abrasive, carborundum. Grindstones and stones for the manufacture of grindstones exported, were valued at about $50,000; natural abrasives, $15,000; and artificial abrasives, made up into wheels, stones, etc., totalled $13,000 in value. There was also an item of 2 tons of corundum valued at $251 exported, but no report has been received advising as to whether this amount was mined or not.

Table 108.—Production of Corundum in Canada, 1900-1924

(Short tons)

Year	Corundum-bearing rock treated	Grain corundum graded	Per cent recovery	Shipments of grain corundum				Average price in cents per pound
				Sold in Canada	Exported	Total shipments	Total value	
	Tons	Tons		Tons	Tons	Tons	$	
1900	.....	60	.....	3	.....	3	300	5·00
1901	4,134	434	10·7	85	302	387	46,415	5·97
1902	7,996	805	10·1	106	662	768	84,465	5·49
1903	(a) 8,877	839	9·5	85	618	703	77,510	5·51
1904	28,187	1,654	5·9	116	877	993	109,545	5·51
1905	23,571	1,681	7·1	140	1,504	1,644	149,153	4·48
1906	45,719	2,914	6·4	162	2,112	2,274	204,973	4·50
1907	60,532	2,682	4·4	164	1,728	1,892	177,922	4·70
1908	2,678	106	4·0	99	990	1,089	100,398	4·60
1909	35,894	1,579	4·4	129	1,362	1,491	162,492	5·45
1910	37,183	1,686	4·5	106	1,764	1,870	198,680	5·31
1911	41,975	1,641	3·9	92	1,380	1,472	161,873	5·50
1912	36,879	1,620	4·4	63	1,897	1,960	239,091	6·10
1913	12,290	763	6·2	23	1,154	1,177	137,036	5·82
1914	12,111	695	5·7	14	534	548	72,176	6·59
1915	1,724	116	6·7	21	241	262	33,138	6·33
1916	1,864	67	3·6	8	59	67	10,305	7·68
1917	4,659	188	4·0	16	172	188	32,153	8·55
1918	3,184	137	4·3	.....	137	137	26,112	9·90
1919	1,300	26	2·0	.....	.....	.....	.....	.....
1920	(b) 13,025	322	2·5	20	176	196	24,547	6·25
1921	(b) 11,256	407	3·6	.....	403	403	55,965	6·94
1922-1924	.....	.....	.....	.....	.....	.....	.....	.....
Total	**395,038**	**20,422**	.....	**1,452**	**18,072**	**19,524**	**2,101,251**	.....

(a) In addition to this amount which was milled in Canada, 267 tons of ore was mined and shipped to the United States for treatment there.
(b) Tailings only.

Garnets.—The production of garnets during 1924 amounted to 360 tons, with a value of $7,200, as compared with a production of 1,250 tons valued at $100,000 in 1923. The product was shipped to Niagara Falls, N.Y., for use as an abrasive material.

Grindstones, Pulpstones and Scythestones.—The production of grindstones, pulpstones and scythestones in Canada in 1924 amounted to 2,691 tons valued at $130,824 as compared with the 1923 production of 2,014 tons valued at $80,083. Of the year's shipments, Nova Scotia contributed 338 tons valued at $12,525; the production in New Brunswick amounted to 2,113 tons valued at $99,299, and British Columbia reported 240 tons valued at $19,000.

Table 109.—Production of Grindstones, Pulpstones and Scythestones, in Canada, 1922, 1923 and 1924

Province	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Nova Scotia	102	3,692	256	7,906	338	12,525
New Brunswick	903	40,050	1,758	72,177	2,113	99,299
British Columbia					240	19,000
Total	**1,005**	**43,742**	**2,014**	**80,083**	**2,691**	**130,824**

Table 110.—Production of Grindstones, etc., in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value
		$			$
1886	4,020	46,545	1906	5,363	59,814
1887	5,292	64,008	1907	5,414	60,376
1888	5,764	51,129	1908	3,843	48,128
1889	3,404	30,863	1909	4,275	54,664
1890	4,884	42,340	1910	3,973	47,196
1891	4,479	42,587	1911	4,566	52,942
1892	5,283	51,187	1912	4,412	52,090
1893	4,600	38,379	1913	4,837	51,325
1894	3,757	32,717	1914	3,976	54,504
1895	3,475	31,932	1915	2,580	35,768
1896	3,713	33,310	1916	3,478	52,782
1897	4,572	42,340	1917	2,523	45,754
1898	4,935	44,775	1918	3,072	83,005
1899	4,511	43,265	1919	2,020	60,516
1900	5,539	53,450	1920	2,444	88,136
1901	4,581	45,690	1921	1,281	64,067
1902	4,633	44,118	1922	1,005	43,742
1903	5,538	48,302	1923	2,014	80,083
1904	4,649	42,782	1924	2,691	130,824
1905	5,540	62,375			
			Total	**156,936**	**2,057,810**

Tripolite.—Shipments of tripolite in 1924 amounted to 33 tons valued at $838, as against the 1923 production of 130 tons valued at $3,250.

Tripolite is a silicious material closely related to quartz and is used extensively as an abrasive. It is usually given a preliminary calcine in rotary furnaces before shipment. The entire Canadian production is derived from a deposit of this commodity at Silica Lake, Colchester County, Nova Scotia.

In 1924, for the first time, production of volcanic ash from the province of Saskatchewan was reported. This amounted to 245 tons valued at $1,103.

Table 111.—Production of Tripolite in Canada, 1896-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1896	644	9,960	1906			1916	620	12,139
1897	15	150	1907	30	225	1917	600	18,000
1898	1,017	16,660	1908	30	195	1918	500	12,500
1899	1,000	15,000	1909			1919	565	11,300
1900	336	1,950	1910	22	134	1920	260	8,600
1901	850	15,300	1911	20	122	1921	341	11,268
1902	1,052	16,470	1912	38	230	1922	219	5,781
1903	835	16,700	1913	620	12,138	1923	130	3,250
1904	320	6,400	1914	650	13,000	1924	33	838
1905	300	3,600	1915	317	12,119			
						Total	**11,364**	**224,029**

Table 112.—Imports into Canada and Exports of Abrasives, 1922, 1923 and 1924

	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
IMPORTS—						
Grindstones		319,941		482,340		593,670
Burrstones in blocks, etc. No.	400	910	519	6,908	145	791
Emery in bulk, crushed or ground		41,943		57,267		53,208
Emery and carborundum wheels and manufactures		209,356		151,065		76,971
Pumice and pumice stone ground		26,405		28,222		28,127
Iron sand or globules for polishing and sawing		11,820		20,855		17,985
Sandpaper, emery paper, etc.		270,231		293,965		279,586
Artificial abrasives		163,542		243,408		125,303
Total		**1,044,148**		**1,284,030**		**1,175,641**
EXPORTS—						
Grindstones, manufactured		17,018		37,101		49,630
Stone for the manufacture of grindstones Tons			170	1,190	120	1,080
Abrasives—						
Natural, n.o.p. Cwt.	52,752	128,934	47,710	115,342	8,042	15,081
Artificial, crude, including carborundum Cwt.	266,526	1,299,818	887,343	2,819,558	790,983	2,587,350
Artificial, made up into wheels, stones, etc.		14,650		27,127		13,264
Total		**1,460,420**		**3,000,318**		**2,666,405**

ACTINOLITE

Production of actinolite in 1924 amounted to 90 tons valued at $1,225 as against a total in 1923 of 53 tons worth $583. Production of Canadian actinolite has been confined to the townships of Kaladar and Elzevir in the counties of Hastings and Addington, in the province of Ontario. This mineral is used as an ingredient in coal-tar roofing compounds; great care is taken in the grinding so that the fibre will not be destroyed.

Table 113.—Production of Actinolite in Canada, 1897-1924

Year	Tons	Value	Year	Tons	Value
		$			$
1897	205	1,845	1915	220	2,420
1898-1900			1916	250	2,750
1901	521	3,126	1917	120	1,320
1902	550	4,400	1918	228	2,508
1903	550	3,108	1919	80	880
1904-1909			1920	100	1,160
1910	30	330	1921	78	975
1911	67	736	1922	50	575
1912	92	1,000	1923	53	583
1913	66	720	1924	90	1,225
1914	119	1,304	**Total**	**3,469**	**30,965**

ASBESTOS

The production of asbestos in 1924 amounted to 225,744 tons valued at $6,710,830 as against 231,482 tons valued at $7,522,506 for 1923. Although this marked a decrease of 2·5 per cent in quantity and 10·7 per cent in value, the production of asbestos in Canada in 1924 was the second greatest ever recorded. The average value per ton received by the operators was $29·73, while in 1923 receipts averaged $32·50.

Asbestos rock mined during the year amounted to 3,323,505 tons. In the same period the mills handled 2,760,470 tons or 83 per cent of the tonnage raised, and produced 226,469 tons of marketable asbestos or 8 per cent of the mill in-put.

Exports of asbestos other than sand and waste decreased 27,821 tons in 1924 to a total of 109,730 tons and the exports of sand and waste increased approximately 17,000 tons to 95,019 tons. The decrease in export of the former grade was no doubt due to the consumption of this material at the new asbestos manufacturing plant located at Asbestos, Quebec.

Lower prices also prevailed for Rhodesian asbestos in 1924 as the quantity produced during the year was about 6,000 tons higher than in 1923, while the total value decreased 3·7 per cent.

Table 114.—Production of Asbestos in Canada, 1880-1924

Year	Short tons	Value	Year	Short tons	Value
		$			$
1880*	380	24,700	1903	41,677	929,757
1881*	540	35,100	1904	48,465	1,226,352
1882*	810	52,650	1905	68,263	1,503,259
1883*	955	68,750	1906	82,185	2,060,143
1884*	1,141	75,097	1907	90,426	2,505,042
1885*	2,440	142,441	1908	90,773	2,573,335
1886*	3,458	206,251	1909	87,300	2,301,775
1887	4,619	226,976	1910	102,215	2,573,603
1888	4,404	255,007	1911	127,414	2,943,108
1889	6,113	426,554	1912	136,301	3,137,279
1890	9,860	1,260,240	1913	161,086	3,849,925
1891	9,279	999,878	1914	117,573	2,909,806
1892	6,082	390,462	1915	136,842	3,574,985
1893	6,331	310,156	1916	154,149	5,228,869
1894	7,630	420,825	1917	153,781	7,230,383
1895	8,756	368,175	1918	158,259	8,970,797
1896	12,250	429,856	1919	159,236	10,975,369
1897	30,442	445,368	1920	199,573	14,792,201
1898	23,785	491,197	1921	92,761	4,906,230
1899	25,536	485,849	1922	163,706	5,552,723
1900	29,141	748,431	1923	231,482	7,522,506
1901	40,217	1,259,759	1924	225,744	6,710,830
1902	40,416	1,148,319			
			Total	**3,163,786**	**114,250,318**

* Exports.

Table 115.—Output and Sales of Asbestos in Canada, 1923 and 1924

Classification	1923				1924			
	Total output	Sold or shipped			Total output	Sold or shipped		
		Quantity	Total sales value at mill	Average value per ton		Quantity	Total sales value at mill	Average value per ton
	Tons	Tons	$	$	Tons	Tons	$	$
Crude No. 1	1,029	603	275,101	456·22	995	980	403,304	411·54
Crude No. 2	3,066	3,246	794,834	244·86	2,805	3,808	762,166	200·15
Fiberized crude	220	5	1,306	261·20	190	71	12,080	170·14
Spinning stocks	10,439	11,708	1,456,904	124·44	8,623	10,205	1,112,796	109·04
Shingle stocks	28,861	25,533	1,215,892	47·62	15,734	19,292	903,775	46·85
Mill board stocks	6,549	7,268	189,200	26·03	12,667	11,753	355,772	30·27
Paper stocks	62,702	69,743	2,292,804	32·87	60,615	58,634	1,852,926	31·60
Paper fillers	67,791	62,689	980,964	15·65	64,866	61,451	914,931	14·88
By-products (asbestos sand, finish, floats)	56,002	50,687	315,501	6·22	59,974	59,550	393,080	6·60
Total	**236,659**	**231,482**	**7,522,506**	**32·50**	**226,469**	**225,744**	**6,710,830**	**29·73**

Table 116.—Exports of Canadian Asbestos by Countries of Destination, 1922, 1923 and 1924

Commodity and Destination	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
ASBESTOS—						
Great Britain	2,334	271,298	3,459	215,034	6,614	374,680
United States	83,562	3,961,811	109,025	5,596,569	72,233	3,904,161
Australia	25	6,000	180	9,900	473	24,130
Austria			400	30,000		
Belgium	4,853	343,491	7,223	411,250	2,798	150,065
France	3,080	282,222	5,016	409,410	5,610	452,151
Germany	6,867	779,808	6,289	575,211	9,133	785,703
Italy	416	32,566	505	52,882	2,430	151,778
Japan	2,770	159,870	4,936	287,521	9,222	358,596
Netherlands	987	142,499	353	28,276	1,068	88,580
Spain	50	4,500				
Other countries	170	9,505	165	11,825	110	7,975
Total	**105,114**	**5,993,570**	**137,551**	**7,628,777**	**109,730**	**6,297,819**
SAND AND WASTE—						
Great Britain	139	1,689	1,174	18,925	3,100	53,983
United States	56,266	554,514	75,540	892,360	89,582	1,123,231
Other countries	480	6,020	1,237	19,960	2,337	42,056
Total	**56,885**	**562,223**	**77,951**	**931,245**	**95,019**	**1,219,270**
ASBESTOS MANUFACTURES INCLUDING ASBESTOS ROOFING—						
Great Britain		10,184		2,054		1,007
United States		74,430		61,160		30,972
British South Africa		821				
France				2,631		32
Morocco						
New Zealand		249		193		125
Other countries		10,142		6,460		12,696
Total		**95,826**		**72,498**		**44,132**

Table 117.—World's Production of Asbestos, 1913, 1920-1924

(Long tons)

Country	1913	1920	1921	1922	1923	1924
Canada[1]	118,361	178,190	82,822	146,166	206,680	201,557
Southern Rhodesia[2]	259	16,806	17,437	12,722	18,182	23,339
Union of South Africa[2]	859	6,147	4,810	3,919	7,312	6,459
Australia[2]		825	1,182	741	217	
Cyprus[2]	(a) 1,168	(a) 896	(a) 897	2,285	2,151	3,903
India[2]		1,818	316	242	247	
New Zealand[2]		2		*	*	
China[2]		5	13	(a) 194	(a) 6,956	
Finland		252	750	*	*	
Germany[2]		28	*	*	*	
Italy[4]	172	103	413	492	1,513	
Philippine Islands[2]				*	*	
Russia[2]	17,218	1,454	7,080	5,065	4,801	
Spain[3]			19	5	*	
United States[3]	982	1,471	742	60	277	(5) 300
France[2]		438	500	*	*	*
Japan			*	919	*	*
Total	**139,019**	**208,495**	**116,981**	**172,810**	**248,338**	**235,558**

*Data not available.
Source—
[1]Dominion Bureau of Statistics, Canada.
[2]Imperial Mineral Resources Bureau (to 1921). Later figures from official reports of the different countries.
[3]Mineral Resources of United States, 1923.
[4]Asbestos.
[5]The Mineral Industry, 1924
(a) Exports.

BARYTES

The production of barytes in 1924 decreased quite considerably from the 1923 output. In 1924 the production amounted to 151 tons valued at $3,308 as compared with 409 tons valued at $8,548 in 1923. The total production came from the Johnston mine, Lake Ainslie, Inverness county, Nova Scotia, and was shipped to Montreal for use in paint manufacture.

Table 118.—Production of Barytes in Canada, 1885-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1885	300	1,500	1899	720	4,402	1913	641	5,410
1886	3,864	19,270	1900	1,337	7,605	1914	612	6,189
1887	400	2,400	1901	653	3,842	1915	550	6,875
1888	1,100	3,850	1902	1,096	3,957	1916	1,368	19,393
1889			1903	1,163	3,931	1917	3,490	54,027
1890	1,842	7,543	1904	1,382	3,702	1918	640	10,165
1891			1905	3,360	7,500	1919	468	8,154
1892	315	1,280	1906	4,000	12,000	1920	751	22,983
1893			1907	1,344	3,000	1921	270	9,567
1894	1,081	2,830	1908	4,312	19,021	1922	289	9,537
1895			1909	179	1,120	1923	409	8,548
1896	145	715	1910			1924	151	3,308
1897	571	3,080	1911	50	400			
1898	1,125	5,533	1912	464	5,104	**Total**	**40,442**	**287,681**

Table 119.—Production in Canada and Imports of Barytes, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION	289	9,537	409	8,548	151	3,308
IMPORTS—						
Barium peroxide	82	26,033	60	16,495	37	11,883
Blanc fixe and satin white	2,549	88,541	1,946	68,502	351	21,742
Barytes	2,954	64,186	2,420	53,670	2,323	48,693

Production of bituminous sands in Canada has not yet been established on a commercial scale; practically all material shipped to date has been used for demonstration and experimental purposes. Deposits are located in the Fort McMurray district of the province of Alberta. The Scientific and Industrial Research Council of Alberta, the McMurray Asphaltum and Oil, Limited, and the Federal Mines Department were actively engaged in research work in connection with these sands. Shipments to date have amounted to 531 tons valued at $2,127.

COAL

The production of coal from Canadian mines in 1924 dropped off 3·35 million tons from that in 1923, the total for the year being 13,638,197 short tons. In spite of a loss of 1,040,397 tons as compared with the tonnage for 1923, Nova Scotia, with an output of 5,557,441 tons recovered the premier position among the coal-producing provinces, while Alberta, which in 1923 produced 6,854,397 tons of coal, reported an output of 5,189,729 tons in 1924. British Columbia, third in output tonnage but amongst the leaders in the export of coal, more nearly maintained its position, producing 2,193,667 tons in 1924, as compared with 2,823,306 tons in 1923. By classes, the output of coal included: 9,483,732 tons of bituminous coal, 590,168 tons of subbituminous and 3,564,297 tons of lignite.

The value of the coal output in 1924 amounted to $53,593,988 or an average of $3.93 per ton as against $72,058,986 or an average value per ton of $4.24 in 1923.

Employment in the coal-mining industry remained uncertain. During the months from April to September the number of men employed dropped to a low level. Labour troubles in District 18, in which some of the principal coal mines of British Columbia and Alberta are located, greatly reduced the output from these mines. Seven coal mine strikes in the East occurred during the year. In these 12,691 men were involved, with a total loss of time amounting to 318,993 working days. In western Canada there were 8 disputes and while only 8,523 men were affected, the total loss of time amounted to 1,236,112 working days. In all there were 15 strikes in which 21,214 men participated, losing in the aggregate 1,555,105 working days. In

the preceding year, while there were 25 disputes, only 20,986 men were affected and the total loss in working time amounted to only 308,430 days. In 1922 the trend in employment in coal mining was much the same as in 1924, the loss of time due to strikes in that year amounting to 1,222,288 days.

To assist the industry, the Dominion Government made provision for the payment of a subvention of $150,000 in order that domestic coal might be marketed in central Canada. Depression in the iron and steel industry, the principal mainstay of the eastern Canadian coal mines, was a check to production.

Table 120.—Output of Coal from Canadian Mines, 1785–1924

Year	Short tons	Value	Average per ton	Year	Short tons	Value	Average per ton
		$	$			$	$
1785-1880	16,426,253	28,190,518	1·72	1903	7,960,364	15,942,833	2·00
1881	1,537,106	2,688,621	1·75	1904	8,254,595	16,592,231	2·01
1882	1,848,148	3,248,446	1·76	1905	8,667,948	17,520,263	2·02
1883	1,818,684	3,109,635	1·71	1906	9,762,601	19,732,019	2·02
1884	1,984,959	3,593,831	1·81	1907	10,511,426	24,381,842	2·32
1885	1,920,977	3,417,807	1·78	1908	10,886,311	25,194,573	2·31
1886	2,116,653	3,739,840	1·77	1909	10,501,475	24,781,236	2·36
1887	2,429,330	4,388,206	1·81	1910	12,909,152	30,909,779	2·39
1888	2,602,552	4,674,140	1·80	1911	11,323,388	26,467,640	2·34
1889	2,658,303	4,894,287	1·84	1912	14,512,829	36,019,044	2·48
1890	3,084,682	5,676,247	1·84	1913	15,012,178	37,334,940	2·49
1891	3,577,749	7,019,425	1·96	1914	13,637,529	33,471,801	2·45
1892	3,287,745	6,363,757	1·94	1915	13,267,023	32,111,182	2·42
1893	3,783,499	7,359,080	1·95	1916	14,483,395	38,817,481	2·68
1894	3,847,070	7,429,468	1·93	1917	14,046,759	43,199,831	3·08
1895	3,478,344	6,739,153	1·94	1918	14,977,926	55,192,896	3·68
1896	3,745,716	7,226,462	1·93	1919*	13,919,096	55,622,670	3·99
1897	3,786,107	7,303,597	1·93	1920*	16,946,764	82,496,538	4·86
1898	4,173,108	8,224,288	1·97	1921*	15,057,493	72,451,650	4·81
1899	4,925,051	10,283,497	2·09	1922*	15,157,431	65,518,497	4·32
1900	5,777,319	13,742,178	2·38	1923*	16,990,571	72,058,986	4·24
1901	6,486,325	12,699,243	1·96	1924*	13,638,197	53,593,988	3·93
1902	7,466,681	15,210,877	2·04				
				Total	375,186,812	1,056,634,535	2·82

*The tonnage shown is the total output from all mines. Prior to 1919 the tonnage shown includes only sales, colliery consumption, and coal used by the operators.

Tonnage Lost.—Tonnage lost through absenteeism, lack of orders, car shortage, mine disability, and other causes, has been shown in tabular form for all the coal mines of Canada. This table shows the percentage of the possible output produced, by provinces, with analyses of the tonnage lost through each cause.

It will be readily understood that in any statement of tonnage lost by operating mines the method of computing the data must be more or less arbitrary. A plan has been worked out by the Bureau which is now being applied in every coal-producing province, and the following outline of the procedure is given in order that the reader may clearly understand how the data in the "Tonnage Lost" table are obtained.

For each month the actual output and the actual number of days' work done by all employees on the colliery pay-rolls are determined and from these two figures the output per man-day is deduced. The number of individual shifts lost by the men whose names are on the colliery payroll for the month is recorded, and the total number of shifts so lost is multiplied by the actual tonnage produced per man-day during the month. This lost tonnage plus the actual output of the mine during the month is regarded as the possible output and the percentages given in the table showing the proportions produced and lost, are computed from these figures. The tonnage lost is then analysed according to the cause of loss and the percentage figures are included in the table.

Computed on the foregoing basis, the tonnage lost in Canadian coal mines during 1924 amounted to 33 per cent of the total output, while the corresponding figure for 1923 was 26 per cent, lack of orders being the main reason for the large percentage of tonnage lost as compared with the foregoing year.

Table 121.—Tonnage Lost in the Coal Mines of Canada in 1922, 1923 and 1924 Showing by Provinces the Relative Percentages Produced and Lost with an Analysis of the Percentage Lost.

Province		Per cent produced	Per cent lost	Percentage Lost Through				
				Absenteeism	Lack of orders	Car shortage	Mine disability	Other causes
Nova Scotia	1922	73	27	5·1	11·9	0·7	0·5	8·8
	1923	72	28	7·8	9·5	0·8	1·0	8·9
	1924	65	35	3·2	21·7	0·6	1·5	8·0
New Brunswick	1922	79	21	5·0	13·0	.....	.....	3·0
	1923	89	11	8·1	.....	0·1	1·0	1·8
	1924	83	17	3·9	10·5	0·1	0·2	2·3
Saskatchewan	1922	77	23	0·3	19·5	0·4	0·5	2·3
	1923	75	25	0·9	17·8	1·1	1·6	3·6
	1924	65	35	0·3	32·6	0·2	0·0	1·9
Alberta	1922	78	22	1·3	13·3	0·9	0·4	6·1
	1923	73	27	1·2	18·4	3·2	0·7	3·5
	1924	66	34	0·6	13·9	0·7	0·5	18·3
British Columbia	1922	84	16	3·2	9·0	2·4	.....	1·4
	1923	81	19	1·9	16·1	0·2	0·1	0·7
	1924	80	20	1·9	14·4	0·3	0·1	3·3
Canada	**1922**	**77**	**23**	**3·1**	**12·2**	**1·1**	**0·4**	**6·2**
	1923	**74**	**26**	**4·0**	**14·3**	**1·7**	**0·8**	**5·2**
	1924	**67**	**33**	**2·4**	**17·9**	**0·6**	**0·8**	**11·3**

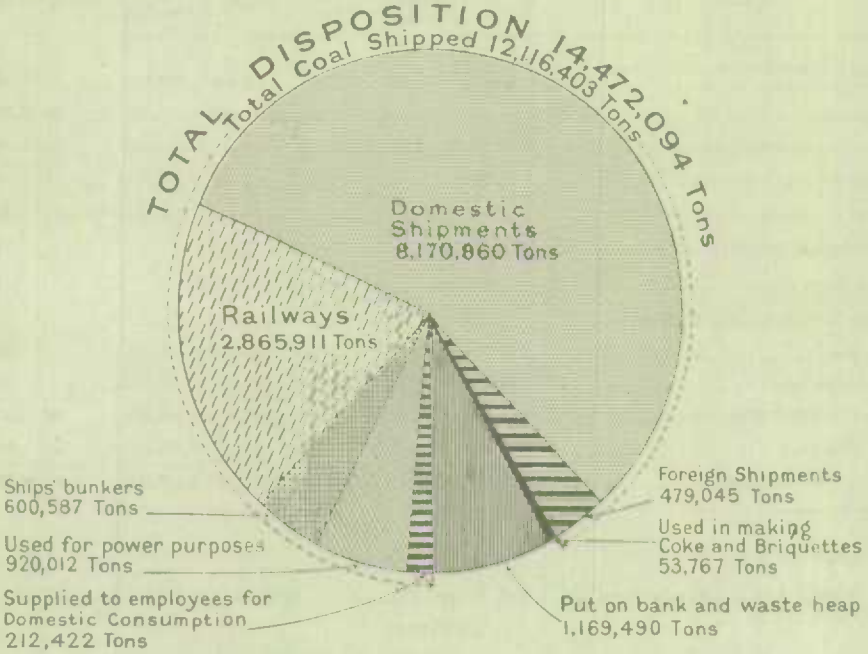
Disposition.—Disposition of coal from Canadian mines in 1924 showed decreases in almost every item; the total disposition marked a loss of 3,300,325 tons from the total in 1923. A word of explanation may be given in connection with the item "put on bank" and "lifted from bank". The data show the quantities put on bank at all mines during the year and the gross amount removed from bank during year. The amount of coal used in making coke in 1924 was approximately half of that consumed in 1923; this reflected the operations in the iron and steel industry in which metallurgical coke is such an important raw material, particularly in the manufacture of pig iron.

Table 122.—Disposition of Coal from Canadian Mines, 1923 and 1924

(Short tons)

—	1923			1923		
	Total coal	Total value	Average value per ton	Total coal	Total value	Average value per ton
		$	$		$	$
Supplied to employees for domestic consumption	249,798	645,392	2·58	212,422	675,935	3·18
Used for power purposes—						
(a) Shops	11,440	35,237	3·08	5,590	21,296	3·81
(b) Colliery boilers	1,006,880	3,101,062	3·08	845,830	2,676,622	3·16
(c) Companies' railroads	87,836	270,526	3·08	67,281	269,177	4·00
(d) Harbour tugs and dredges	694	2,140	3·08	1,311	5,770	4·40
Shipped. (See Table 125)—						
(a) Ships' bunkers	606,521	3,178,825	5·24	600,587		
(b) Railroads	4,923,962	23,048,877	4·68	2,865,911	49,685,456	4·10
(c) Other	9,700,337	41,318,156	4·26	8,649,905		
Used in making coke at the colliery	100,537	519,773	5·17	53,767	271,722	5·05
Used in making briquettes	37,363	106,587	2·85	.....	.....	.....
Put on bank	730,151	2,903,775	3·98	892,278	3,145,490	3·53
Put on waste heap	316,900	851	0·00	277,212	6,710	0·02
Total Disposition	**17,772,419**	**75,131,201**	**4·23**	**14,472,094**	**56,758,178**	**3·92**
Lifted from bank	781,848	3,072,215	3·93	833,897	3,164,190	3·79
Total Output	**16,990,571**	**72,058,986**	**4·24**	**13,638,197**	**53,593,988**	**3·93**

DISPOSITION OF COAL FROM CANADIAN MINES
1924



CONSUMPTION OF COAL IN CANADA
1924

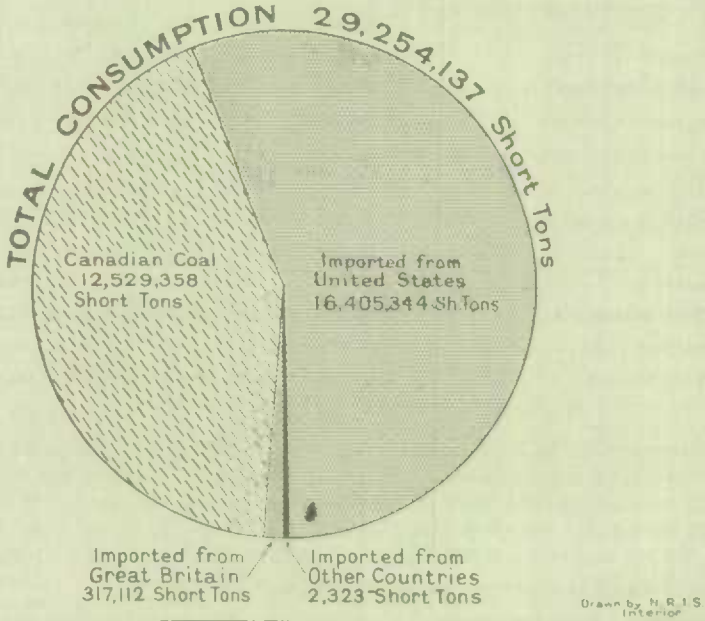


Table 123.—Disposition of Coal from Canadian Mines, by Provinces, 1923

(Short tons)

—	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon	Canada
Supplied to employees for domestic consumption	162,987	3,508	3,998	51,626	27,679	.....	249,798
Coal shipped (See Table 125)	5,884,084	264,558	407,422	6,447,023	2,227,293	440	15,230,820
Used under colliery boilers	490,376	7,963	20,720	268,921	218,880	20	1,006,880
Used by company's railroads	59,383	86	2,967	7,605	17,795	.....	87,836
Used for manufacture of coke at colliery	.....	.....	.....	.....	100,537	.....	100,537
Used in making briquettes	.....	.....	.....	37,363	.....	.....	37,363
Used in shops, etc	11,440	.....	.....	.....	.....	.....	11,440
Used by harbour tugs and dredges	694	.....	.....	.....	.....	.....	694
Put on bank	534,709	34,385	5,163	55,718	100,176	.....	730,151
Put on waste heap	14,614	137	2,695	74,818	224,636	.....	316,900
Total Disposition	**7,158,287**	**310,637**	**442,965**	**6,943,074**	**2,916,996**	**460**	**17,772,419**
Lifted from bank	560,449	34,020	4,865	88,677	93,690	147	781,848
Total Output	**6,597,838**	**276,617**	**438,100**	**6,854,397**	**2,823,306**	**313**	**16,990,571**

Table 124.—Disposition of Coal from Canadian Mines by Provinces, 1924

(Short tons)

—	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon	Canada
Supplied to employees for domestic consumption	124,511	3,010	3,972	54,095	26,834	.....	212,422
Coal shipped (See Table 125)	4,870,471	211,245	448,769	4,851,273	1,734,144	501	12,116,403
Used under colliery boilers, etc	458,172	3,316	20,811	196,548	166,933	20	845,830
Used by company's railroads	44,648	.....	3,329	5,299	14,005	.....	67,281
Used for manufacture of coke at colliery	.....	.....	.....	.....	53,767	.....	53,767
Used in shops, etc	5,590	.....	.....	.....	.....	.....	5,590
Used by harbour tugs and dredges	1,311	.....	.....	.....	.....	.....	1,311
Put on bank	729,760	11,957	2,414	59,671	88,476	.....	892,278
Put on waste heap	6,267	73	2,394	74,245	193,633	600	277,212
Total Disposition	**6,240,730**	**229,631**	**481,689**	**5,241,131**	**2,277,792**	**1,121**	**14,472,094**
Lifted from bank	683,289	12,510	2,571	51,402	84,125	.....	833,897
Total Output	**5,557,441**	**217,121**	**479,118**	**5,189,729**	**2,193,667**	**1,121**	**13,638,197**

Shipments.—The table on shipments of coal shows both the domestic and foreign destinations of the various kinds sold. Shipments amounted to 12,116,403 tons in 1924 or 20·4 per cent less than in 1923 when 15,230,820 tons were shipped. Domestic shipments amounted to 8,170,860 tons as compared with 8,746,809 tons in the preceding year. Railroads consumed only 2,865,911 tons or 2,000,000 tons less than in the previous year and shipments to foreign markets dropped to about half the amount exported in 1923.

Table 125.—Shipments of Coal from Canadian Mines by Grades and Destinations, 1923 and 1924

(Short tons)

Destination	1923				1924			
	Run-of-mine	Screened	Slack	Total	Run-of-mine	Screened	Slack	Total
Prince Edward Island	13,990	68,047	380	82,417	7,053	57,780	509	65,342
Nova Scotia	574,835	571,775	709,353	1,855,963	290,505	493,627	570,571	1,354,703
New Brunswick	462,061	220,573	52,517	735,151	360,918	219,423	88,499	668,870
Quebec	1,290,477	28,151	221,656	1,540,284	1,226,932	60,994	367,841	1,655,767
Ontario	24,371	45,075	8,320	77,766	2,740	18,326	7,011	28,077
Manitoba	176,413	537,433	71,102	784,948	153,880	510,380	73,817	738,077
Saskatchewan	234,900	1,078,818	110,598	1,424,316	247,819	1,051,886	120,237	1,419,942
Alberta	229,761	807,304	293,881	1,330,946	253,618	851,974	285,256	1,393,848
British Columbia	91,750	576,429	246,399	914,578	67,052	595,102	243,579	905,733
Yukon	.....	440	.....	440	.....	501	.....	501
Total Domestic Shipments	3,098,558	3,934,045	1,714,206	8,746,809	2,550,547	3,862,993	1,757,320	8,170,860
Railroads	4,540,483	238,059	145,420	4,923,962	2,469,159	237,284	159,468	2,865,911
Ships' Bunker	260,144	338,072	8,305	606,521	268,468	324,539	7,580	600,587
Total Railroads and Ships' Bunkers	4,800,627	576,131	153,725	5,530,483	2,737,627	561,823	167,048	3,466,498
United States	323,965	196,268	63,173	583,406	29,627	156,913	38,481	225,021
Newfoundland	107,465	153,444	10,476	271,385	102,619	139,210	12	241,841
West Indies	.....	106	.....	106	81	.....	.....	81
Europe	86,536	1,120	.....	87,656	.....	.....	.....	.....
Other Places	3,031	7,383	561	10,975	3,601	7,605	.....	11,206
Lost at Sea	.....	.....	.....	.....	896	.....	.....	896
Total Foreign Shipments	520,997	358,321	74,210	953,528	136,824	303,728	38,493	479,045
Total	8,420,182	4,868,497	1,942,141	15,230,820	5,424,998	4,728,544	1,962,861	12,116,403

Imports.—Data regarding imports of anthracite and bituminous coal into Canada are supplied to the Bureau twice a month by the Department of Customs. The figures show for each custom port of entry the total quantity of each kind of coal imported during the period. These data are not comparable with the imports statistics published in the *Monthly Reports on the Trade of Canada*, which reports show only the quantity of coal actually cleared from customs for consumption in Canada. It often happens that large quantities of bituminous coal are brought into Canada but are not cleared from customs until required for use owing to the fact that there is a duty of 53 cents a ton collected on all bituminous coal, round and run-of-mine, imported.

Since Canada's coal resources lie in the maritime provinces and in the three western provinces, central Canada has so far been largely dependent upon the United States for its supply of fuel. Since 1922, owing to the great strike which tied up United States mines and some of those in Canada in that year, considerable quantities of coal have been imported from Great Britain.

During 1924, importations of anthracite from Great Britain amounted to 275,277 tons as against 261,659 tons in 1923. This increase was no doubt caused through the popular domestic use of high grade Welsh coal. On the other hand the imports of bituminous coal fell away to a very large extent; whereas some 268,000 tons were imported in 1923, only about 42,000 tons came to Canada from Great Britain in 1924. Imports of anthracite coal in egg and nut sizes from the United States in 1924 amounted to 3,681,644 tons as against 4,510,006 tons in 1923. Of this imported coal the greater part came to Ontario and Quebec—the two central provinces of Canada which have to depend to a large extent on imported coal.

Tables 126, 127 and 128 show for anthracite and bituminous coal respectively the importations by provinces and by grades of coal for the past three years. These data have been supplemented in Table 129 by a compilation showing the average importations of anthracite and bituminous coal from all sources by grades and by provinces during the five years 1920-1924. Similar data for the principal fuel-consuming areas in central Canada are shown in Table 130.

Table 126.—Imports of Coal into Canada from Great Britain, by Kinds and Grades and by Provinces, 1923 and 1924

(Short tons)

Destination	1923				1924			
	Anthracite		Bituminous		Anthracite		Bituminous	
	Egg, nut, etc.	Dust	Round and run-of-mine	Slack	Egg, nut, etc.	Dust	Round and run-of-mine	Slack
Nova Scotia	18,570	.....	7,871	.....	12,461	.....	246	.....
New Brunswick	35,787	.....	5,513	17,927	28,579	.....	15	.....
Quebec	183,702	21,356	42,552	194,946	229,142	.....	18,708	21,134
Ontario	2,244	.....	.....	.....	6,251	1,844	.....	.....
British Columbia	.....	.....	1	.....	.....	.....	1,793	.....
Canada	**240,303**	**21,356**	**55,937**	**212,873**	**278,433**	**1,844**	**20,762**	**21,134**

Table 127.—Imports of Anthracite Coal into Canada from United States by Kinds and Grades and by Provinces, 1922, 1923 and 1924

(Short tons)

Destination	1922		1923		1924	
	Egg, nut, etc.	Dust	Egg, nut, etc.	Dust	Egg, nut, etc.	Dust
Prince Edward Island	4,589	.....	4,303	.....	3,571	.....
Nova Scotia	21,363	56	35,169	.....	37,616	.....
New Brunswick	40,252	.....	54,291	265	58,681	251
Quebec	633,237	156,210	1,359,735	251,616	933,390	157,181
Ontario	1,573,545	70,016	2,999,919	142,603	2,615,688	65,310
Manitoba	10,975	3,740	54,290	1,566	30,324	3,898
Saskatchewan	111	120	2,125	166	1,687	33
British Columbia	34	.....	174	.....	687	.....
Canada	**2,284,106**	**230,142**	**4,510,006**	**396,216**	**3,681,644**	**226,673**

Table 128.—Imports of Bituminous Coal into Canada from United States by Kinds and Grades and by Provinces, 1922, 1923 and 1924

(Short tons)

Destination	1922		1923		1924	
	Round and run-of-mine	Slack	Round and run-of-mine	Slack	Round and run-of-mine	Slack
Prince Edward Island	619	736	1,263	.....	3,597	.....
Nova Scotia	5,245	988	26,340	18,086	60,209	6,959
New Brunswick	23,982	37,240	50,882	27,960	42,657	29,880
Quebec	1,052,360	264,309	2,187,348	735,643	993,281	532,235
Ontario	7,917,917	1,529,676	11,048,490	3,019,512	8,138,908	2,598,940
Manitoba	29,491	45,357	34,328	77,806	43,384	100,225
Saskatchewan	385	1,099	421	1,186	(b) 1,028	1,533
Alberta	538	609	564	546	826	383
British Columbia	9,664	3,798	(a) 14,075	6,174	(c) 33,714	15,305
Yukon	32	.....	5	.....	24	.....
Canada	**9,040,233**	**1,883,812**	**13,363,716**	**3,886,913**	**9,317,628**	**3,285,460**

(a) Includes 2331 tons lignite coal.
(b) Includes 139 tons lignite coal.
(c) Includes 25,763 tons lignite coal.

Table 129.—Average Imports of Coal into Canada by Kinds and Grades and by Provinces for the Five Years 1920-1924

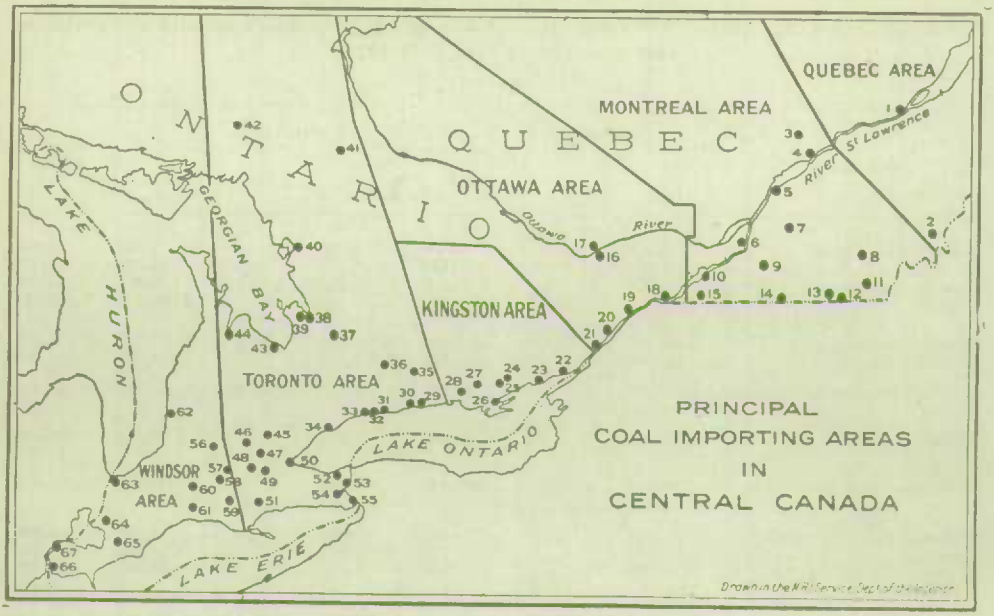
(Short tons)

Destination	Anthracite			Bituminous			Total
	Egg, nut, etc.	Dust	Total	Round and run-of-mine	Slack	Total	
Prince Edward Island	4,930	.....	4,930	1,246	147	1,393	6,323
Nova Scotia	47,672	20	47,692	21,477	5,319	26,826	74,518
New Brunswick	74,876	103	74,979	28,801	30,814	59,615	134,594
Quebec	1,169,912	216,939	1,386,851	1,977,222	590,794	2,568,016	3,954,867
Central Ontario	2,513,976	86,885	2,600,811	7,453,607	1,976,521	9,430,128	12,030,939
Head of Lakes	155,559	1,630	157,189	1,838,707	192,569	2,031,276	2,188,465
Total Ontario	2,669,485	88,515	2,758,000	9,292,314	2,169,090	11,461,404	14,219,404
Manitoba	27,767	3,388	31,155	31,324	58,870	90,194	121,349
Manitoba and Head of Lakes	183,326	5,018	188,344	1,865,487	247,818	2,113,305	2,301,649
Saskatchewan	868	72	940	603	1,060	1,663	2,603
Alberta	81	35	116	615	566	1,181	1,297
British Columbia	489	.....	489	17,209	5,838	23,047	23,536
Yukon	.....	.....	.....	15	.....	15	15
Canada	3,996,080	309,072	4,305,152	11,370,826	2,862,528	14,233,354	18,538,506

Table 130.—Average Imports of Coal into Central Canada by Principal Areas for the Five Years 1920-1924

(Short tons)

Area	Anthracite			Bituminous			Total
	Egg, nut, etc.	Dust	Total	Round and run-of-mine	Slack	Total	
Quebec	97,522	16,633	114,155	149,644	49,027	198,671	312,826
Montreal	1,059,715	198,650	1,258,365	1,791,195	514,548	2,305,743	3,564,108
Ottawa	285,378	16,418	301,796	533,838	174,259	708,097	1,009,893
Kingston	121,043	1,188	122,231	76,163	103,979	180,142	302,373
Toronto	1,772,438	61,267	1,836,705	4,016,560	975,754	4,992,314	6,829,019
Windsor	328,138	6,449	334,587	2,025,119	505,519	2,530,638	2,865,225
Total	3,664,234	303,605	3,967,839	8,592,519	2,323,086	10,915,605	14,883,444



Key to the Ports of Entry Shown on the Map

Quebec Area—
Quebec City
Megantic

Montreal Area—
Shawinigan Falls
Three Rivers
Sorel
Montreal
St. Hyacinthe
Sherbrooke
St. John's
Valleyfield
Coaticook
Beebe Junction
Mansonville
St. Armand
Athelstan

Ottawa Area—
16 Ottawa
17 Hull
18 Cornwall
19 Morrisburg
20 Prescott
21 Brockville

Kingston Area—
22 Gananoque
23 Kingston
24 Napanee
25 Deseronto
26 Picton
27 Belleville
28 Trenton

Toronto Area—
29 Cobourg
30 Port Hope
31 Bowmanville
32 Oshawa
33 Whitby
34 Toronto
35 Peterboro
36 Lindsay
37 Orillia
38 Port McNicoll
39 Midland
40 Parry Sound
41 North Bay
42 Sudbury
43 Collingwood
44 Owen Sound
45 Guelph
46 Kitchener
47 Galt
48 Paris
49 Brantford
50 Hamilton
51 Simcoe
52 St. Catharines
53 Niagara Falls
54 Welland
55 Bridgeburg

Windsor Area—
56 Stratford
57 Woodstock
58 Ingersoll
59 Tillsonburg
60 London
61 St. Thomas
62 Goderich
63 Sarnia
64 Wallaceburg
65 Chatham
66 Amherstburg
67 Windsor

Consumption.—Summary statistics showing the annual consumption of coal in Canada from 1903 to 1924 and the coal made available for consumption in Canada in 1924 are shown in Tables 131 and 132.

Data on output and interprovincial shipments were compiled from the monthly statements sent in by the coal operators. Imports and exports items were compiled from data supplied by the Department of Customs. In Table 131 the Canadian coal is the total of the tonnages of Canadian coal sold and used, less the amount of Canadian coal exported. To this amount is added the "imported coal entered for consumption" and this total shows the amount of coal consumed in Canada during the year.

In Table 132 the quantities of coal imported from Great Britain are shown separately. Figures for the imported coal dumped at Fort William and Port Arthur have been included with the quantities cleared from Customs in the ports of Manitoba since most of the coal unloaded at the Canadian ports at the Head of the Lakes finds its way westward to points in Manitoba. From this table it appears that in 1924 Canada produced 13·64 million tons of coal, exported 0·77 million tons, imported from the United States 16·51 million tons and from Great Britain 0·31 million tons, thus making 29·69 million tons available for consumption while Table 131 shows that the consumption of coal in Canada during the same year amounted to 29·25 million tons.

Table 131.—Annual Consumption of Coal in Canada, 1903-1924

(Short tons)

Calendar year	Canadian †		Imported coal "entered for consumption"						Total	Per capita
			From U.S.A.		From Great Britain		Total			
	Short tons	%	Short tons	%	Short tons	%	Short tons	%		
1903	6,005,735	52·2					5,491,870	47·8	**11,497,605**	2·005
1904	6,697,183	49·2					6,909,651	50·8	**13,606,834**	2·346
1905	7,032,661	48·9					7,343,880	51·1	**14,376,541**	2·362
1906	7,927,560	51·7					7,398,906	48·3	**15,326,466**	2·425
1907	8,617,352	45·0					10,549,503	55·0	**19,166,855**	2·947
1908	9,156,478	47·3					10,195,424	52·7	**19,351,902**	2·820
1909	8,913,376	47·9					9,711,826	52·1	**18,625,202**	2·682
1910	10,532,103	50·2	Data not separately compiled				10,438,123	49·8	**20,970,226**	2·960
1911	9,822,749	40·5	prior to 1919				14,424,949	59·5	**24,247,698**	3·365
1912	12,385,696	46·0					14,549,104	54·0	**26,934,800**	3·657
1913	13,450,158	42·6					18,132,387	57·4	**31,582,545**	4·196
1914	12,214,403	45·5					14,637,920	54·5	**26,852,323**	3·490
1915	11,500,480	48·1					12,406,212	51·9	**23,906,792**	3·041
1916	12,348,036	41·3					17,517,820	58·7	**29,865,856**	3·717
1917	12,313,603	37·2					20,810,132	62·8	**33,123,735**	4·049
1918	13,160,731	37·8					21,611,101	62·2	**34,771,832**	4·175
1919	11,611,168	40·2	17,292,913	59·8	344	.....	17,293,257	59·8	**28,904,425**	3·409
1920	14,025,566	42·8	18,752,981	57·2	.....	.....	*18,753,542	57·2	**32,779,108**	3·797
1921	12,715,734	41·0	18,300,081	59·0	1,591	.....	*18,302,062	59·0	**31,017,796**	3·529
1922	13,044,352	50·0	12,255,555	47·0	765,980	3·0	*13,023,525	50·0	**26,067,877**	2·915
1923	15,070,962	41·8	20,417,239	56·7	572,570	1·5	*20,989,953	58·2	**36,060,915**	3·970
1924	12,529,358	42·8	16,405,344	56·1	317,112	1·1	*16,724,779	57·2	**29,254,137**	3·171

† The sum of Canadian coal mine sales, colliery consumption, coal supplied to employees and coal used in making coke, etc., less the tonnage of coal exported.

* Includes small tonnages from all countries other than Great Britain and United States.

Table 132.—Summary Statistics for 1924—Output, Exports, Interprovincial Shipments, Imports and Coal made Available for Consumption in Canada, by Provinces

(Short tons)

Province	Canadian Coal				Imported from U.S.A.	Imported from Great Britain	Coal available for consumption
	Output	Received from other provinces	Shipped to other provinces	Exported			
PRINCE EDWARD ISLAND—							
Anthracite	.....	.....	.....	.....	3,571	.....	3,571
Bituminous	.....	65,342	.....	.....	3,597	.....	68,939
Total	.....	65,342	.....	.....	7,168	.....	72,510
NOVA SCOTIA—							
Anthracite	.....	.....	.....	.....	37,616	12,461	50,077
Bituminous	5,557,441	.....	2,161,729	341,307	67,168	246	3,121,819
Total	5,557,441	.....	2,161,729	341,307	104,784	12,707	3,171,896
NEW BRUNSWICK—							
Anthracite	.....	.....	.....	.....	58,932	25,579	84,511
Bituminous	217,121	451,652	22,302	31,019	72,537	15	688,004
Total	217,121	451,652	22,302	31,019	131,469	25,594	772,515
QUEBEC—							
Anthracite	.....	.....	.....	.....	1,090,571	229,142	1,319,713
Bituminous	.....	1,655,767	.....	9,005	1,525,516	39,842	3,212,120
Total	.....	1,655,767	.....	9,005	2,616,087	268,984	4,531,833
CENTRAL ONTARIO—							
Anthracite	.....	.....	.....	.....	2,591,710	8,095	2,599,805
Bituminous	.....	11,280	.....	.....	8,833,935	.....	8,845,215
Lignite	.....	* 16,239	.....	.....	.....	.....	16,239
Sub-bituminous	.....	* 558	.....	.....	.....	.....	558
Total	.....	28,077	.....	.....	11,425,645	8,095	11,461,817
MANITOBA AND HEAD OF LAKES—							
Anthracite	.....	.....	.....	.....	123,510	.....	123,510
Bituminous	.....	10,335	.....	3,617	2,047,522	.....	2,054,240
Lignite	.....	665,935	.....	.....	.....	.....	665,935
Sub-bituminous	.....	61,807	.....	.....	.....	.....	61,807
Total	.....	738,077	.....	3,617	2,171,032	.....	2,905,492
SASKATCHEWAN—							
Anthracite	.....	.....	.....	.....	1,720	.....	1,720
Bituminous	.....	75,153	.....	4,728	2,422	.....	72,847
Lignite	479,118	1,084,259	223,737	.....	139	.....	1,339,779
Sub-bituminous	.....	54,789	.....	.....	.....	.....	54,789
Total	479,118	1,214,201	223,737	4,728	4,281	.....	1,469,135
ALBERTA—							
Anthracite	.....	.....	.....	.....	.....	.....	.....
Bituminous	1,514,382	22,375	82,506	435	1,209	.....	1,455,025
Lignite	3,085,179	1,110	1,617,614	.....	.....	.....	1,468,675
Sub-bituminous	590,168	.....	128,646	.....	.....	.....	461,522
Total	5,189,729	23,485	1,828,766	435	1,209	.....	3,385,222
BRITISH COLUMBIA—							
Anthracite	.....	.....	.....	.....	687	.....	687
Bituminous	2,193,667	25,622	50,989	383,135	23,256	(a) 1,793	1,810,214
Lignite	.....	73,808	.....	.....	25,763	.....	99,571
Sub-bituminous	.....	11,492	.....	.....	.....	.....	11,492
Total	2,193,667	110,922	50,989	383,135	49,706	(a) 1,793	1,921,964
YUKON—							
Anthracite	.....	.....	.....	.....	.....	.....	.....
Bituminous	1,121	.....	.....	.....	24	.....	1,145
Total	1,121	.....	.....	.....	24	.....	1,145
CANADA—							
Anthracite	.....	.....	.....	.....	3,908,317	275,277	4,183,594
Bituminous	9,483,732	2,317,526	2,317,526	773,246	12,577,186	(a) 41,896	21,329,568
Lignite	3,564,297	1,841,351	1,841,351	.....	25,902	.....	3,590,199
Sub-bituminous	590,168	128,646	128,646	.....	.....	.....	590,168
Total	**13,638,197**	**4,287,523**	**4,287,523**	**773,246**	**16,511,405**	(a) **317,173**	**29,693,529**

*Includes all coal shipped to any point in Ontario from Western Mines.
(a) Includes 1,793 tons imported from other Countries.

Table 133.—The World's Production of Coal[1], 1921-1924.

(In metric tons)

Country	1921	1922	1923	1924
North America:				
Canada: Coal	10,684,259	10,587,611	12,163,804	9,130,000
Lignite	2,975,598	3,162,907	3,249,605	3,218,000
Greenland	2,200	2,100	(a)	(a)
Mexico	731,022	949,677	1,261,541	(a)
U.S.: Anthracite	82,076,000	49,607,344	84,675,282	79,765,491
Bituminous	377,316,000	383,073,174	511,791,872	438,420,000
Lignite				
South America—				
Argentina	(a)	(a)	(a)	(a)
Brazil	400,000	400,000	324,154	268,177
Chile	1,275,117	1,053,001	1,164,028	(a)
Colombia	(a)	(a)	(a)	(a)
Peru	345,481	249,492	298,000	(a)
Venezuela	22,094	20,782	(a)	(a)
Europe—				
Austria: Coal	137,363	165,727	158,183	172,000
Lignite	2,478,862	3,135,902	2,658,907	2,800,000
Belgium	21,750,410	21,208,500	22,922,340	23,359,790
Bulgaria	911,664	1,021,327	1,063,662	(a)
Czecho-Slovakia: Coal	11,648,399	10,461,990	12,347,251	14,359,400
Lignite	21,050,712	19,174,296	16,265,530	20,507,178
France: Coal	28,211,339	31,163,032	37,682,235	44,954,749
Lignite	748,634	777,813	861,435	(a)
Germany: Coal (b)	145,801,715	141,204,597	71,345,820	118,829,000
Lignite	123,011,000	137,207,125	118,248,235	124,360,000
Greece	168,576	131,515	(a)	(a)
Hungary	6,418,560	7,117,610	7,709,775	7,200,000
Iceland		(a)		
Italy: Coal (c)	144,236	195,352	168,922	22,100
Lignite	1,036,035	745,402	938,229	1,015,600
Jugo-Slavia	3,063,198	3,726,568	3,532,400	4,183,600
Netherlands: Coal (d)	4,167,960	4,866,371	5,595,478	6,160,615
Lignite	121,715	28,919	54,185	(a)
Norway	(a)	(a)		
Poland	7,842,553	24,194,797	36,296,032	32,224,080
Portugal	135,732	158,500	(a)	(a)
Roumania	1,801,687	2,116,221	2,366,068	(a)
Russia	7,550,800	8,914,600	(h) 14,504,300	14,000,000
Spain: Coal	5,011,129	4,435,813	5,971,446	6,102,391
Lignite	408,681	329,680	394,368	371,488
Spitzbergen (e)	210,000	316,000	340,942	(a)
Sweden	376,692	378,861	419,569	(a)
Switzerland	10,714	3,380	(a)	(a)
United Kingdom	165,871,362	253,613,054	280,430,369	271,418,769
Asia—				
British India	19,511,154	19,316,112	19,973,285	20,582,156
China	19,876,375	22,681,000	18,595,000	20,524,000
Chosen	310,590	317,330	(a)	(a)
Federated Malay States	304,156	286,351	323,100	(a)
Indo-China	920,900	988,991	105,670	(a)
Japan (g)	26,000,000	29,150,000	30,751,462	30,000,000
Russia	2,384,000	1,276,900	(h)	(h)
Turkey	(a)	680,000	(a)	(a)
Africa—				
Algeria	9,541	8,855	(a)	(a)
Nigeria	216,262	123,027	173,422	(a)
Rhodesia	521,404	467,787	559,909	591,526
Tunis	22,207	343	620	(a)
Union of South Africa	10,339,044	8,830,774	10,810,897	11,332,406
Oceania—				
Australia	13,084,210	12,496,317	12,914,492	14,200,000
British Borneo	27,000	88,948	(a)	(a)
Dutch East Indies	1,212,665	1,032,310	1,099,000	(a)
New Zealand	1,838,131	1,887,637	2,001,548	(a)
Philippine Islands	40,000	(a)	(a)	(a)
Total	**1,134,000,000**	**1,226,000,000**	**1,359,000,000**	**1,350,000,000**

[1] Source—"*Mineral Industry*, 1924."

(a) Estimate included in total. (b) Includes Saar Basin. (c) Includes new provinces. (d) Includes slack. (e) Shipments to Norway and Sweden. (f) Estimate based on incomplete data. (g) Including Taiwan and Karafuto (h) Russia in Asia included with Russia in Europe.

COKE

Summary statistics relating to the production of coke and its by-products have been included in this report as a matter of interest.

Table 134.—Production[1] Exports, and Imports of Coke and its By-Products in Canada, 1922, 1923 and 1924.

—	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
COKE—						
Coal charged to ovens—						
(a) In coke plants :						
Domestic Tons	487,907	1,657,835	736,818	3,120,403	584,304	2,110,064
Foreign "	565,496	3,447,928	970,206	6,071,461	826,613	4,415,142
(b) In gas plants :						
Bituminous "	641,875	5,459,269	728,011	5,660,184	681,480	4,723,734
Anthracite "	21,957	289,483	22,760	284,988	20,064	251,899
Total "	1,717,235	10,854,515	2,457,795	15,137,036	2,112,461	11,500,839
Output of coke, by provinces—						
Nova Scotia and New Brunswick . "	191,556	970,535	392,041	3,446,732	259,376	1,621,123
Quebec "	262,545	1,466,422	206,962	1,456,135	139,435	1,110,537
Ontario "	570,920	4,822,536	856,541	7,095,792	812,939	6,038,724
Manitoba "	28,496	338,752	28,278	357,189	28,450	336,762
British Columbia "	141,780	1,359,229	153,313	1,456,701	130,399	1,181,657
Total "	1,195,297	8,957,474	1,637,135	13,812,549	1,370,599	10,288,803
Recovery of coke in per cent of coal treated %	69·6		66·6		64·9	
Imports of coke Tons	336,270	3,004,042	733,604	5,790,771	521,725	3,131,485
Exports of coke "	19,831	205,627	34,407	433,497	23,144	393,979
Apparent consumption of coke[2] "	1,511,736	11,845,889	2,336,332	19,169,823	1,869,180	13,026,309
OTHER PRODUCTS—						
Production in Canada—						
Ammonium sulphate Tons	13,601	667,934	21,518	1,268,146	17,343	865,530
Gas (a) From coke plants M. cu. ft.	6,073,763	725,398	14,798,857	1,842,006	6,380,983	1,879,296
(b) From gas plants "	12,613,569		13,595,429		13,227,402	
Light oils Imp. gal.		181,776		130,662	1,810,301	216,805
Tar and tar products "	14,904,076	579,706	17,739,609	611,674	19,007,522	736,034
All other products[3]		271,645		581,065		346,762
Total		2,426,459		4,433,553		4,044,435
Imports—						
Ammonium sulphate Tons	413	24,659	259	18,577	388	27,111
Coal tar and pitch Gals.	4,302,233	250,316	5,774,256	324,732	2,880,499	186,178
Coal tar base or salt Tons	141	53,917	45	27,810	81	33,397
Exports—						
Ammonium sulphate Tons	10,285	532,983	17,320	1,044,681	13,357	681,709
Tar and pitch Gals	2,016,594	223,622	4,586,753	582,013	2,339,041	273,900

[1] Production data includes the outputs of the "Coke and its By-products Industry" and of the "Illuminating and Fuel Gas Industry."
[2] Includes the consumption in companies' own Coke Plants and in Associated Metallurgical Works.
[3] Includes coke breeze, ammonia liquor and other products.

FELDSPAR

Canadian feldspar production in 1924 advanced to a new high level of 44,804 tons valued at $358,540, as compared with 29,225 tons produced in 1923, valued at $237,601. Of the total 1924 production, Quebec contributed 16,147 tons and Ontario, 28,657 tons.

Exports advanced 11,000 tons to a total of 37,869 tons, and the imports showed an increase of 200 tons to a total of 1,921 tons. Feldspar, finely-ground, is used in the manufacture of enamelware, pottery and porcelain, washing compounds, abrasives, glass, roofing and paint and, in a coarser form, as a constituent of artificial walls and floors. Most of the Canadian production is exported in the crude form to the United States for grinding.

Since the consumption of spar in Canada in the finely-ground condition is not over 3,000 tons per annum, no difficulty is experienced in securing raw material of a quality suitable for any section of the industry. The bulk of the domestic demand is now supplied by Canadian mills. The average price received for crude spar in 1924 was about $8 per ton, while the ground material brought about $16.80 per ton.

Grinding plants situated at Toronto and Kington, Ontario, produced 2,174 tons of ground material during the year. The total capacity of these two plants is approximately 7,500 tons per annum.

Table 135.—Production in Canada, Imports and Exports of Feldspar, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION (shipments)—						
Quebec	12,472	127,826	12,026	102,779	16,147	142,118
Ontario	15,255	120,576	17,199	134,822	28,657	216,422
Total	**27,727**	**248,402**	**29,225**	**237,601**	**44,804**	**358,540**
IMPORTS	1,454	31,408	1,701	36,622	1,921	37,815
EXPORTS	24,995	170,954	26,476	177,589	37,869	274,681

Table 136.—Production of Feldspar in Canada, 1890-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1890	700	3,500	1902	7,576	15,152	1914	18,060	70,824
1891	685	3,425	1903	13,928	18,966	1915	14,559	57,801
1892	175	525	1904	11,083	22,166	1916	19,488	71,407
1893	575	4,525	1905	11,700	23,400	1917	19,462	89,826
1894			1906	16,948	40,890	1918	18,782	112,728
1895*		2,545	1907	12,584	29,819	1919	14,679	86,231
1896*	972	2,583	1908	7,877	21,099	1920	37,873	280,895
1897	1,400	3,290	1909	12,783	40,383	1921	29,868	230,754
1898	2,500	6,250	1910	15,809	47,667	1922	27,727	248,402
1899	3,000	6,000	1911	17,723	51,939	1923	29,225	237,601
1900	318	1,112	1912	13,733	30,916	1924	44,804	358,540
1901	5,350	10,700	1913	16,790	60,795	**Total**	**448,736**	**2,792,656**

*Exports

Table 137.—World's Production of Feldspar 1913, 1920-1924

(Long tons)

Country	1913	1920	1921	1922	1923	1924
United Kingdom[2]†	66,626	76,467	35,976	39,751	54,589	*
Canada[1]	14,991	32,907	26,668	24,756	26,094	40,003
Australia		4	26	85	33	*
Finland		(a) 7	942	1,301	*	*
Germany (Bavaria)[3]	*	5,756	7,132	5,982	8,851	*
Italy[2]		2,560	2,360	2,745	4,989	*
Japan[2]	*	*	*	15,802	*	*
Norway (exports)[4]	40,186	6,296	9,200	11,643	12,863	*
Russia[2]	*	419	662	*	*	*
Sweden[4]	37,269	11,858	19,661	22,010	*	*
United States[3]	107,996	135,551	91,865	117,127	145,004	203,400
Total	**267,068**	**271,825**	**194,492**	**241,202**	**252,423**	**243,403**

*Data not available.
†Including China Stone.
Source—
[1]Dominion Bureau of Statistics, Canada.
[2]Imperial Mineral Resources Bureau.
[3]Mineral Resources of United States in 1923. The Mineral Industry in 1924.
[4]Mineral Industry, 1923.
(a) Exports less Imports.

FLUORSPAR

Fluorspar production in Canada in 1924 amounted to only 76 tons valued at $1,343, this amount being much less than in 1923 when 139 tons were produced with a value of $1,732.

These shipments were all made from the vicinity of Madoc in Hastings County, Ontario. The Consolidated Mining and Smelting Company of Trail, British Columbia, owners of the Rock Candy mine did not produce any fluorspar in 1924.

The United States tariff of $5.40 per ton, which was put into effect in September, 1922, practically prohibits the shipment of fluorspar from Canadian deposits to that country.

Imports of fluorspar into Canada during 1924 totalled 4,355 tons, a decrease of 12,880 tons from the total for the preceding year.

Table 138.—Production in Canada, Imports and Exports of Fluorspar, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Ontario	284	3,905	64	597	76	1,343
British Columbia	4,219	98,233	75	1,135	.....	.....
Total	**4,503**	**102,138**	**139**	**1,732**	**76**	**1,343**
IMPORTS—						
Hydro-fluo-silicic acid	·06	15	3·8	662	·01	40
Fluorspar	4,980	73,343	17,235	199,595	4,355	50,158
EXPORTS	2,944	32,914	.....	.....	.....	.....

GRAPHITE

Shipments of graphite from Canadian mines in 1924 amounted to 1,334 tons valued at $76,117 as against 1,113 tons valued at $67,873 shipped in 1923.

The Black Donald Graphite Company, Limited, at Calabogie, Ontario, operating the mine at White Fish Lake, mined 3,290 tons of ore and milled 2,790 tons. Shipments of graphite from this property totalled 1,288 tons. The remaining 46 tons included in the Canada total were from the province of Quebec.

Table 139.—Production of Graphite in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886	500	4,000	1899	1,130	24,179	1913	2,162	90,282
1887	300	2,400	1900	1,922	31,040	1914	1,647	107,203
1888	150	1,200	1901	2,210	38,780	1915	2,635	124,223
1889	242	3,160	1902	1,095	28,300	1916	3,955	325,362
1890	175	5,200	1903	728	23,745	1917	3,714	402,892
1891	260	1,560	1904	452	11,760	1918	3,114	248,870
1892	167	3,763	1905	541	16,735	1919	1,360	100,221
1893	.....	.....	1906	387	18,300	1920	2,190	165,617
1894*	3	223	1907	579	16,000	1921	937	65,862
1895	220	6,150	1908	251	5,565	1922	597	31,353
1896	139	9,455	1909	864	47,800	1923	1,113	67,873
1897	436	16,240	1910	1,392	74,087	1924	1,334	76,117
1898	.....	13,698	1911	1,269	69,576			
			1912	2,060	117,122	**Total**	**42,230**	**2,395,913**

*Exports.

Table 140.—Production in Canada, Imports and Exports of Graphite, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Ore milled	1,800		1,400		3,590	
PRODUCTION (shipments)—						
No. 1 Flake, No. 2 Flake, No. 3 Flake and Dust	597	31,353	1,113	67,873	1,334	76,117
Total	**597**	**31,353**	**1,113**	**67,873**	**1,334**	**76,117**
IMPORTS—						
Crucibles, plumbago		39,061		57,322		42,740
Plumbago, not ground or otherwise manufactured		1,007		1,661		2,651
Plumbago, ground and manufactures of, n.o.p.		47,095		70,704		50,924
EXPORTS—						
Graphite or plumbago, crude or refined	452	16,619	799	36,980	1,148	59,992

Artificial Graphite.—Artificial graphite is manufactured in electric furnaces at Niagara Falls, Ontario, by the Acheson Graphite Company. The annual production over a period of sixteen years is shown in the following table:

Table 141.—Artificial Graphite made in Canada, 1909-1924

Year	Pounds	Year	Pounds	Year	Pounds
1909	513,436	1914	1,234,239	1919	358,524
1910	2,442,166	1915	497,271	1920	207,180
1911	2,172,098	1916	525,048	1921	336,508
1912	2,302,625	1917	1,096,172	1922	724,524
1913	2,184,472	1918	1,808,698	1923	1,554,376
				1924	816,455

GYPSUM

Increased production of gypsum raised the total for the year 1924 to 646,016 tons with a valuation of $2,208,108 as compared with 578,301 tons at $2,243,100 in 1923. Production included lump, crushed, fine ground and calcined gypsum, the last named item comprising sales and also the calcined gypsum used in the calcining plants for the production of wall plaster, wall board, alabastine and other gypsum products. The average values received by the operators were as follows: lump, $1.81; crushed, $1.82; fine ground, $5.82; and calcined, $10.27 per ton. Compared with 1923, the imports remained constant, while the exports, principally crude gypsum, increased approximately 75,000 tons to a total of 477,462 tons. The total gypsum mined during 1924 was 703,733 tons and the crude gypsum calcined in Canada amounted to 144,744 tons.

Provincial quarry outputs were as follows: Nova Scotia, 478,184 tons; New Brunswick, 95,641 tons; Ontario, 98,324 tons; Manitoba, 31,554 tons and British Columbia, 30 tons.

For statistical purposes, as noted above, the production of gypsum is considered to be the sum of the quantities disposed of in the different marketable forms, care being taken to avoid duplication; the values used are those at point of shipment.

Exports of Canadian crude gypsum principally to the United States totalled 472,236 tons. Ground gypsum and prepared wall plaster exported during the year amounted to 5,226 tons; United States, Newfoundland, Australia and New Zealand were the principal importers of these materials.

Table 142.—Production of Gypsum in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886	162,000	178,742	1899	244,566	257,329	1912	578,458	1,324,620
1887	154,008	157,277	1900	252,101	259,009	1913	636,370	1,447,739
1888	175,887	179,393	1901	293,799	340,148	1914	516,880	1,156,207
1889	213,273	205,108	1902	333,599	379,479	1915	474,815	854,929
1890	226,509	194,033	1903	314,489	388,459	1916	342,915	738,593
1891	203,605	206,251	1904	345,961	373,474	1917	336,332	881,984
1892	241,048	241,127	1905	442,158	586,168	1918	152,287	823,006
1893	192,568	196,150	1906	469,022	643,294	1919	299,063	1,215,287
1894	223,631	202,031	1907	485,921	646,914	1920	429,144	1,893,991
1895	226,178	202,608	1908	340,964	575,701	1921	386,550	1,785,538
1896	207,032	178,061	1909	473,129	809,632	1922	559,265	2,160,898
1897	239,691	244,531	1910	525,246	934,446	1923	578,301	2,243,100
1898	219,256	232,515	1911	518,383	993,394	1924	646,016	2,208,108
						Total	**13,660,429**	**28,539,274**

Table 143.—Summary of Statistics on Gypsum in Canada, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Crude gypsum mined	484,629	.....	558,853	.....	703,733	.....
Crude gypsum calcined	145,954	.....	152,036	.....	141,744	.....
PRODUCTION BY GRADES—						
Lump	350,650	534,160	217,414	394,217	139,618	253,191
Crushed	68,181	154,197	232,899	443,431	381,262	693,785
Fine ground	5,769	35,880	7,452	45,719	5,478	31,882
Calcined	134,665	1,436,661	120,536	1,359,733	119,658	1,229,250
Total	**559,265**	**2,160,898**	**578,301**	**2,243,100**	**646,016**	**2,208,108**
PRODUCTION BY PROVINCES—						
Nova Scotia	332,404	580,148	341,705	747,934	441,752	915,845
New Brunswick	82,462	517,668	104,740	564,680	86,738	476,804
Ontario	110,227	621,668	99,958	542,317	88,121	467,097
Manitoba	34,072	440,914	31,575	386,554	29,375	348,212
British Columbia	100	500	323	1,615	30	150
Total	**559,265**	**2,160,898**	**578,301**	**2,243,100**	**646,016**	**2,208,108**
IMPORTS—						
Crude	2,872	21,040	3,654	39,336	3,252	63,156
Ground	148	5,592	78	3,253	102	2,174
Plaster of Paris	3,657	49,015	3,617	54,591	3,999	62,770
Total	**6,677**	**75,647**	**7,349**	**97,180**	**7,323**	**128,100**
EXPORTS—						
Crude						
Ground	325,354	505,464	397,329	578,859	472,236	747,829
	3,186	59,534	4,654	92,478	5,226	83,927
Total	**328,540**	**564,998**	**401,983**	**671,337**	**477,462**	**831,756**

IRON OXIDES

Iron oxides produced in Canada have two main uses: (*a*) for the purification of illuminating gas and (*b*) as a raw material in the paint industry. That which is sold to the different Canadian cities for use in the gas works is shipped as mined but that which goes to the paint industry has to be de-hydrated, calcined and ground.

Shipments of iron oxides in 1924 amounted to 7,266 tons valued at $91,160, as compared with 10,424 tons valued at $129,636 in 1923.

Although the province of Quebec claimed the greater part of this production, small shipments were also made from the province of British Columbia.

Table 144.—Production of Iron Oxides in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886	350	2,350	1899	3,919	20,000	1912	7,654	32,410
1887	485	3,733	1900	1,966	15,398	1913	5,987	41,774
1888	397	7,900	1901	2,233	16,735	1914	5,890	51,725
1889	794	15,280	1902	4,955	30,495	1915	6,248	48,353
1890	275	5,125	1903	6,266	32,760	1916	8,811	58,711
1891	900	17,750	1904	3,925	24,995	1917	9,409	87,605
1892	390	5,800	1905	5,105	34,675	1918	17,317	112,440
1893	1,070	17,700	1906	6,758	36,125	1919	11,862	113,427
1894	611	8,690	1907	5,828	35,570	1920	19,128	187,909
1895	1,339	14,600	1908	4,746	30,440	1921	9,048	83,610
1896	2,362	16,045	1909	3,940	28,093	1922	7,285	110,608
1897	3,905	23,560	1910	4,813	35,185	1923	10,424	129,636
1898	2,226	17,450	1911	3,622	28,333	1924	7,266	91,160
						Total	199,509	1,654,155

Table 145.—Production in Canada, Imports and Exports of Iron Oxides, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Production	7,285	110,608	10,424	129,636	7,266	91,160
Imports—						
Ochrey earths	1,766	73,115	2,251	79,203	2,103	72,414
Oxides	3,671	443,869	3,530	476,382	2,435	387,544
Exports (Mineral pigments, iron oxides and ochres)	1,259	60,104	1,041	51,617	882	44,681

MAGNESITE

The total production of magnesite in Canada for 1924 amounted to 3,873 tons valued at $101,356 as against 4,801 tons valued at $134,382 in 1923.

All the magnesite mined during 1924 was produced in the province of Quebec and was sold in two forms, namely, dead-burned magnesite and calcined magnesite. Dead-burned magnesite is used entirely in the metallurgical industry as a refractory lining for furnaces. Calcined magnesite is used as a plastic material for floors and walls in buildings and also in the manufacture of pipe and furnace coverings, as it has strong insulating properties.

The *"New Tariff Act of 1922 on Imports into United States,"* which came into effect in September, 1922, provided the following duties on the various forms of magnesite; Crude magnesite, $\frac{5}{16}$ of 1 cent per pound; caustic calcined magnesite, $\frac{5}{8}$ of 1 cent per pound; dead-burned and grain magnesite, not suitable for manufacture into oxychloride cements, $\frac{2\frac{1}{2}}{4\,0}$ of 1 cent per pound.

Exports of calcined magnesite from Canada amounted to 293 tons in 1924; in the preceding year exports totalled 563 tons.

Table 146.—Production of Magnesite in Canada, 1908-1924

Year	Tons	Value	Year	Tons	Value
		$			$
1908	120	840	1917	68,090	728,275
1909	330	2,508	1918	39,365	1,016,765
1910	323	2,160	1919	11,273	328,465
1911	991	5,531	1920	18,378	512,756
1912	1,714	9,645	1921	3,730	81,320
1913	515	3,335	1922	2,849	76,294
1914	358	2,240	1923	4,801	134,382
1915	14,779	126,584	1924	3,873	101,356
1916	55,413	563,829			
			Total	216,902	3,696,285

Table 147.—Production in Canada, Imports and Exports of Magnesite, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Crude, mined	8,678	.....	13,315	.....	10,485	.....
Crude, calcined	8,292	.....	12,125	.....	5,162	.....
PRODUCTION—						
Calcined	1,026	23,430	120	3,705	1,535	30,216
Dead-burned	1,823	52,864	4,681	130,677	2,338	71,140
Total	**2,849**	**76,294**	**4,801**	**134,382**	**3,873**	**101,356**
IMPORTS—						
Magnesia pipe covering	.....	86,938	.....	141,926	.....	121,046
Magnesite	79	2,198	244	9,223	280	8,980
Magnesite firebrick	.....	56,561	.....	120,453	.....	91,553
EXPORTS—						
Crude	800	1,800	.....	.....	.....	.....
Calcined	940	21,317	563	14,056	203	8,520

Table 148. *World's Production of Magnesite, 1913, 1920-1924.

(Unless otherwise stated the quantities in the table represent crude magnesite mined.)

(Metric tons)

Country.	1913	1920	1921	1922	1923	1924
Australia—						
New South Wales	7,112	6,578	12,465	3,424	6,228	–
South Australia	–	188	175	585	168	–
Victoria	106	153	130	99	76	–
Western Australia	–	–	–	–	(a) 2	–
Austria-Hungary	(a) 422,439	(c) 120,347	(c) 160,823	(c) 281,247	(c) 180,292	–
Canada	–	28,159	8,447	7,873	12,079	(f) 3,515
Cyprus	–	No data available		895	284	–
Greece	98,517	71,870	60,132	55,471	57,783	–
India British	16,458	14,577	20,338	19,582	19,718	–
Italy	600	33,850	9,410	8,700	12,474	–
Norway	(b) 656	(b) 2,041	(b) 210	738	2,359	–
Russia	–	17,984	(d) 8,340	10,567	(e) 15,429	–
Spain	958	1,214	–	303	–	–
Union of South Africa	403	1,287	1,317	962	1,240	–
United States (sold or treated)	8,738	275,571	43,458	50,612	133,582	108,983
Venezuela (exports)	No data available	2,000	2,450	No data available		–
Total	**555,987**	**575,819**	**327,695**	**441,058**	**441,744**	**112,498**

*From Mineral Resources of the United States, 1922 and 1924.

(a) Exports, and computed on a basis of 2·1 tons crude to 1 ton sintered.

(b) Exports. Computed on the basis of 2·1 tons crude to 1 ton sintered. In addition in 1913 there were 626 tons of magnesite brick exported; in 1920 there were 710 tons exported, and in 1921 there were 337 tons exported.

(c) Exports from the Republic of Austria, computed on the basis of 2·1 tons crude to 1 ton sintered. In addition 7,026 tons of caustic magnesia were exported in 1920, and 8,252 tons in 1921. In 1922 the companies operating, reported 427,556 tons raw magnesite produced.

(d) Computed on the basis of 2·1 tons crude to 1 ton sintered.

(e) Operation year Oct. 1, 1922 to Sept. 30, 1923.

(f) From Table 146 of this report.

MAGNESIUM SULPHATE

No production of magnesium sulphate was reported in Canada during 1924. The 1923 production amounted to 121 tons valued at $6,580.

Importations during the year of magnesium sulphate or epsom salts amounted to 2,238 tons valued at $54,139; no exports were recorded.

Natural magnesium sulphate occurs in a deposit near Ashcroft, B.C., owned by the Basque Chemical Company. During 1923 shipments were made as far east in Canada, as Toronto, Ontario.

Table 149.—Production in Canada, Imports and Exports of Magnesium Sulphate, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Crude	443	4,183				
Refined	578	19,834	121	6,580		
IMPORTS	1,398	44,499	1,867	47,155	2,238	54,139
EXPORTS	142	4,838	20	830		

MICA

The total production of mica in 1924 amounted to 8,182,374 pounds valued at $357,272 or an average price of 0·04 cents per pound as against 7,049,029 pounds valued at $326,974 in 1923.

Shipments of rough-cobbed grades were nearly 100 per cent higher in 1924 than in the previous year. Thumb-trimmed production was also greater by approximately 240,000 pounds, while splittings were less by about 46,000 pounds. Scrap material, which includes mica that is too small and irregular for splitting, and the refuse from the trimming shops, is ground and bolted into various sizes, grading from 20-mesh to 200-mesh. Grades ranging from 20 to 80-mesh are used in the manufacture of prepared roofings, the 40-mesh grade, if free from grit, is used as a lubricant in some axle greases, and the 200-mesh grade is used as a filler in rubber manufacture.

The deposits of phlogopite mica in the Lievre-Gatineau district, Quebec, and in Frontenac County, Ontario, continued to be the source of practically the entire Canadian production. It will be noted that the stated value of the exports of Canadian mica exceeded by a considerable amount the value placed on shipments reported by operators. An explanation of this, lies in the fact, that the exportation consisted principally of mica splittings shipped from large trimming shops situated in Ontario and Quebec.

Under the United States *"New Tariff Act"* the duties on the different grades of mica are as follows: Mica, unmanufactured, valued at not above 15 cents per pound—4 cents per pound; Mica unmanufactured valued at above 15 cents per pound—25 per centum ad valorem; mica, cut or trimmed and mica splittings—30 per centum ad valorem; mica plates, and built-up mica, and all manufactures of mica, of which mica is the component material of chief value—40 per centum ad valorem; ground mica—20 per centum ad valorem.

Table 150.—Production of Mica in Canada, 1886-1924

Year	Value	Year	Tons	Value	Year	Tons	Value
	$			$			$
1886	29,008	1899		163,000	1912	580	143,976
1887	29,816	1900		166,000	1913	1,104	194,304
1888	30,207	1901		160,000	1914	595	109,061
1889	28,718	1902		135,904	1915	417	91,905
1890	68,074	1903		177,857	1916	1,208	355,239
1891	71,510	1904		160,777	1917	1,166	358,851
1892	104,745	1905		178,235	1918	747	271,550
1893	75,719	1906		303,913	1919	2,754	373,788
1894	45,581	1907		312,599	1920	2,203	376,022
1895	65,000	1908		139,871	1921	702	70,063
1896	60,000	1909	369	147,782	1922	3,349	152,263
1897	76,000	1910	758	190,385	1923	3,525	326,974
1898	118,375	1911	590	128,677	1924	4,091	357,272
					Total		6,149,021

Table 151.—Production of Mica in Canada by Grades, 1923 and 1924

—	1923			1924		
	Pounds	Value f. o. b. shipping point	Price per pound	Pounds	Value f. o. b. shipping point	Price per pound
		$	$		$	$
Rough cobbed	280,767	26,926	0·10	535,295	33,337	0·06
Thumb-trimmed	419,130	87,769	0·21	662,709	142,405	0·21
Splittings only	210,056	176,785	0·84	164,734	137,248	0·83
Scrap	6,139,076	35,494	0·005	6,819,636	44,282	0·006
Total	**7,049,029**	**326,974**	**0·047**	**8,182,374**	**357,272**	**0·04**

Table 152.—Production in Canada and Exports of Mica, 1922, 1923 and 1924

—	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Quebec	1,360	97,748	1,545	216,684	1,677	185,020
Ontario	1,989	54,515	1,980	110,290	2,414	172,252
Total	**3,349**	**152,263**	**3,525**	**326,974**	**4,091**	**357,272**
EXPORTS—						
Cobbed	74	45,151	85	40,286	88	52,527
Splittings	286	366,974	502	624,110	285	424,503
Scrap and waste	3,473	41,949	4,855	70,866	4,519	63,610
Plate and manufactures	.....	10,438	.....	22,014	.....	3,326
Total	.....	**464,512**	.....	**757,276**	.....	**543,966**

Table 153.—World's Production of Mica[1], 1913, 1920-1924

(Long tons)

Country	1913	1920	1921	1922	1923	1924
British Empire						
Canada	986	(a) 1,966	627	2,990	2,331	3,653
India	2,288	(b) 3,826	1,624	1,594	1,693	(c)
Southern Rhodesia	.....	(b) 88	76	59	81	150
Tanganyika Territory	.....	(b) 27	3	11	32	(c)
Union of South Africa	.....	6	2	1	13	(c)
Ceylon	.....	(g) 15	5	1	1	(c)
Australia	.....	1	.....	4	.....	(c)
Foreign Countries						
United States	5,511	(e) 5,862	2,632	6,411	8,112	4,500
Madagascar	.....	49	152	91	162	(c)
Argentina (exports)	6	(b) 269	145	63	100	(c)
Brazil	10	(b) 67	45	66	(c)	(c)
Japan	.....	.....	.....	15	(c)	(c)
Guetamala	.....	(f) 4	(g)	(h) 4	.....	.....
Mexico	.....	(f) 4	(g)	.....	.....	.....
Norway	.....	(f) 31	2	1	.....	.....
Roumania	.....	133	.....	.....	.....	.....
Russia	.....	.....	.....	8	(c)	(c)
Spain	.....	5	2	.....	3	(c)
Sweden	.....	.....	.....	8	(c)	(c)
Total	**8,801**	**12,353**	**5,315**	**11,327**	**12,528**	**8,303**

(1) Source—Imperial Mineral Resources Bureau.
(a) Sales.
(b) Exports.
(c) Data not available.
(d) Including 1 long ton produced in Northern Rhodesia.
(e) Sales chiefly of ton low grade mica.
(f) Imports into the United States from the country specified.
(g) Less than ½ ton.
(h) Estimated.

MINERAL WATERS

Mineral waters produced in Canada during 1924 amounted to 209,353 imperial gallons valued at $15,421 as compared with 232,451 gallons valued at $16,455 in the previous year. Mineral springs in Ontario and Quebec contributed the whole of the Canadian production. In the present compilation there has been included a record of all natural mineral waters sold to the general public for medicinal purposes. No record has been kept of the shipments made of ordinary spring waters. The values given do not take into account any mineral waters used at the springs for drinking or bathing purposes but include only the shipments from the springs in bottles or other containers.

Table 154.—Production of Mineral Waters in Canada, 1888-1924

Year	Imp. Gals.	Value	Year	Value	Year	Imp. Gals.	Value
		$		$			$
1888	124,850	11,456	1900	75,000	1913		173,677
1889	424,600	37,360	1901	100,000	1914		134,111
1890	561,165	66,031	1902	100,000	1915		115,274
1891	427,485	54,268	1903	100,000	1916		127,806
1892	640,380	75,348	1904	100,000	1917		145,814
1893	725,096	108,347	1905	100,000	1918		154,468
1894	767,460	110,040	1906	100,000	1919		71,015
1895	739,382	126,048	1907	136,020	1920		24,582
1896	706,372	111,736	1908	151,953	1921	328,273	21,716
1897	749,691	141,477	1909	175,173	1922	221,433	14,220
1898	555,000	100,000	1910	199,563	1923	232,451	16,455
1899		100,000	1911	223,758	1924	209,353	15,421
			1912	172,465			
					Total		3,799,602

Table 155.—Production in Canada, Imports and Exports of Mineral Waters, 1922, 1923 and 1924

	1922		1923		1924	
	Imp. Gals.	Value	Imp. Gals.	Value	Imp. Gals.	Value
		$		$		$
PRODUCTION, by provinces—						
Quebec	12,161	3,692	5,421	2,408	7,683	2,288
Ontario	209,272	10,528	227,030	14,047	201,670	13,133
Total	**221,433**	**14,220**	**232,451**	**16,455**	**209,353**	**15,421**
IMPORTS—Mineral and aerated waters		156,420		169,473		181,107
EXPORTS—Mineral and aerated waters		123,555		192,261		109,735

NATRO-ALUNITE

The Alunite Chemical Corporation, Limited, operated a deposit of natro-alunite at Kyuquot Sound on the west coast of Vancouver Island, B.C., for a short time during the month of April in 1923, and shipped 15 tons valued at $750, but no production was reported for 1924. The treatment of this material consists in crushing, grinding and roasting the crude material; the resultant product, calcined alunite may be used as a fertilizer because of the potash content.

NATURAL GAS

The production of natural gas in Canada in 1924 amounted to 14,881,336 thousand cubic feet valued at $5,708,636 as compared with 15,960,583 thousand cubic feet valued at $5,884,618 in 1923. Ontario and Alberta are the two principal areas where this natural resource occurs and in 1924 these provinces produced about equal amounts. The unit value received for natural gas in Ontario is twice as much as that received in Alberta. New Brunswick is the next greatest producer and Manitoba usually reports a small production.

In Alberta and Ontario the manufacture of carbon black from natural gas is a promising new industry and the Dominion Government has already published regulations covering the manufacture of this product from natural gas.

Table 156.—Production of Natural Gas in Canada, 1892-1924

Year	Value	Year	Value	Year	M. cu. ft.	Value
	$		$			$
1892	150,000	1903	202,210	1914	21,692,504	3,484,727
1893	376,233	1904	328,376	1915	20,124,162	3,706,035
1894	313,754	1905	379,561	1916	25,476,458	3,958,029
1895	423,032	1906	583,523	1917	27,408,940	5,045,298
1896	276,301	1907	815,032	1918	20,140,309	4,350,940
1897	325,873	1908	1,012,660	1919	19,937,769	4,176,037
1898	322,123	1909	1,207,029	1920	16,845,518	4,232,642
1899	387,271	1910	1,346,471	1921	14,077,601	4,594,164
1900	417,094	1911	1,907,678	1922	14,682,651	5,846,501
1901	339,476	1912	2,362,700	1923	15,960,583	5,884,618
1902	195,992	1913	2,309,381	1924	14,881,336	5,708,636
				Total		**66,969,397**

Table 157.—Production of Natural Gas in Canada, by Provinces, 1922, 1923 and 1924

Province	1922		1923		1924	
	M cu. ft.	Value	M cu. ft.	Value	M cu. ft.	Value
		$		$		$
New Brunswick	753,898	148,040	640,300	126,068	599,972	113,577
Ontario	8,060,114	4,076,296	8,128,413	4,066,244	7,150,078	3,798,381
Alberta	5,868,439	1,622,105	7,191,670	1,692,246	7,131,086	1,796,618
Manitoba	200	60	200	60	200	60
Total	**14,682,651**	**5,846,501**	**15,960,583**	**5,884,618**	**14,881,336**	**5,708,636**

PEAT

No production of peat was reported for the year 1924. Experimental work was carried on at Alfred, Ontario, for several years under the joint auspices of the governments of Canada, and of Ontario. Recently, the experimental stage having been passed, the plant was sold to a company and it is expected that production on a commercial scale will soon be undertaken.

Table 158.—Production of Peat in Canada, 1900-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1900	400	1,200	1908	60	180	1916	300	1,500
1901	220	600	1909	60	240	1917-18	.....	.....
1902	475	1,663	1910	841	2,604	1919	986	6,561
1903	1,100	3,300	1911	1,463	3,817	1920	4,550	18,650
1904	800	2,400	1912	700	2,900	1921	1,666	6,664
1905	80	260	1913	2,600	10,100	1922	3,000	14,500
1906	474	1,422	1914	685	2,470	1923-24	.....	.....
1907	50	200	1915	300	1,050	**Total**	**20,810**	**82,281**

CRUDE PETROLEUM

Production of crude petroleum in Canada in 1924 amounted to 160,773 barrels valued at $467,400 as compared with 170,169 barrels valued at $522,018 in 1923, a decrease of approximately 9,000 barrels.

The average values received, per barrel, in the producing provinces in 1924 were as follows: New Brunswick, $3.83; Ontario, $2.86; and Alberta, $4.90.

A section from "An Act respecting the payment of Bounties on Petroleum", as enacted on June 30, 1923, which is administered by the Department of Trade and Commerce, is given here, as important changes have been made in the duration and the rates of payment.

The said bounty shall be paid during the periods and at the rates following, that is to say:—

"On such crude petroleum produced on or before the thirtieth day of June, one thousand nine hundred and twenty-four, a bounty of one and one-half cents per imperial gallon shall be paid;

On such crude petroleum produced on or after the first day of July, one thousand nine hundred and twenty-four, and not later than the thirtieth day of June, one thousand nine hundred and twenty-five, a bounty of three-quarters of one cent per imperial gallon shall be paid;

On such crude petroleum produced on and after the first day of July, one thousand nine hundred and twenty-five, no bounty shall be paid."

The value of importations of petroleum and its products into Canada during 1924 increased approximately $5,000,000 over the total in the preceding year.

In the petroleum industry, Canadian interest centres in the refining end rather than in the production of crude oil. Canadian refineries treat annually about 5 million gallons of oil from Canadian wells and about 400 million gallons of imported oil. Production of gasoline at the refineries in Canada showed an increase over the production of this commodity in 1923, the total output being in excess of 160 million gallons, as compared with 124 million gallons in 1923. Imports of gasoline were also higher amounting to 73,757,441 gallons as compared with a total of 49,950,660 gallons in 1923. As the exports of gasoline and naphtha amounted to only 1,403,716 gallons, the apparent consumption of this motor fuel totalled 232,399,464 imperial gallons for the year. This marked an increase of about 60 million gallons above the amount used in 1923 when imports totalled only 49,950,660 gallons and production amounted to 125,195,005 gallons of which exports took 1,217,298 gallons.

Table 159.—Production of Crude Petroleum in Canada, 1881-1924

Year	Barrels*	Value	Year	Barrels*	Value	Year	Barrels*	Value
		$			$			$
1881	368,987	.....	1896	726,822	1,155,647	1911	291,092	357,073
1882	389,573	.....	1897	709,857	1,011,546	1912	243,336	345,050
1883	472,866	.....	1898	758,391	1,061,747	1913	228,080	406,439
1884	571,000	.....	1899	808,570	1,202,020	1914	214,805	343,124
1885	587,563	.....	1900	710,498	1,151,607	1915	215,464	300,572
1886	584,601	525,655	1901	622,392	1,008,275	1916	198,123	392,284
1887	713,728	556,708	1902	530,624	951,190	1917	213,852	542,239
1888	695,203	713,695	1903	486,637	1,048,874	1918	304,741	885,143
1889	704,690	653,600	1904	503,474	935,895	1919	240,466	736,324
1890	795,030	902,734	1905	634,095	856,028	1920	196,251	822,235
1891	755,298	1,010,211	1906	569,753	761,760	1921	187,541	641,533
1892	779,753	984,438	1907	788,872	1,057,088	1922	179,068	611,176
1893	798,406	874,255	1908	527,987	747,102	1923	170,169	522,018
1894	829,104	835,322	1909	420,755	559,604	1924	160,773	467,400
1895	726,138	1,086,738	1910	315,895	388,550			
						Total	21,929,763	†29,412,299

*35 imperial gallons. †From 1886.

Table 160.—Production of Crude Petroleum in Canada by Provinces, 1923 and 1924

Province	1923				1924			
	Barrels	Value less bounty	Bounty paid	Total value	Barrels	Value less bounty	Bounty paid	Total value
		$	$	$		$	$	$
New Brunswick	8,826	31,992	3,650	35,642	5,561	18,520	2,793	21,313
Ontario—								
Petrolia and Enniskillen	64,159	157,830	33,683	191,513	60,916	149,427	24,327	173,754
Oil Springs	39,090	98,898	20,522	119,420	41,320	104,250	16,816	121,066
Moore Township	4,790	11,783	2,515	14,298	4,483	10,997	2,069	13,066
Sarnia Township	2,387	5,871	1,253	7,124	2,068	5,073	1,033	6,106
Plympton Township	872	2,146	458	2,604	525	1,288	234	1,522
Bothwell	27,665	68,056	14,524	82,580	26,700	65,655	10,728	76,383
Tilbury East	1,263	3,106	663	3,769	.....	.....	.....	.....
West Dover	6,306	15,513	3,311	18,824	3,898	9,585	1,740	11,325
Raleigh Township	302	744	159	902	834	2,047	299	2,346
Dutton	315	775	165	941	.....	.....	.....	.....
Onondaga	237	583	124	708	456	1,109	213	1,322
Moza Township	10,319	25,386	5,418	30,803	8,862	21,074	3,605	24,679
Thamesville	567	1,396	298	1,694	.....	.....	.....	.....
Dunwich	.....	.....	.....	.....	1,351	3,309	.....	3,309
Elgin Township	279	685	146	831	.....	.....	.....	.....
Romney Township	849	2,138	.....	2,138	2,955	7,074	.....	7,074
Total for Ontario	159,400	394,910	83,239	478,149	154,368	380,888	61,064	441,952
Alberta	1,943	8,126	101	8,227	844	4,135	.....	4,135
Canada	170,169	435,028	86,990	522,018	160,773	403,543	63,857	467,400

Table 161.—Imports into Canada and Exports of Petroleum and its Products, 1922, 1923 and 1924

		1922		1923		1924	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
Imports—							
Crude petroleum in its natural state, ·7900 specific gravity or heavier at 60 degrees temperature, when imported by oil refiners to be refined in their own factories	Gals.	419,559,952	21,602,247	392,185,557	17,449,032	465,958,509	20,260,488
Crude petroleum, gas oils other than naphtha, benzine and gasoline lighter than ·8235 but not less than ·775 specific gravity at 60 degrees.	"	913,415	76,900	475,842	38,905	139,745	10,875
Petroleum, crude, not in its natural state, ·7900 specific gravity or heavier at 60 degrees temperature, when imported by oil refiners to be refined in their own factories—(From May 12, 1923)	"	.....	.....	15,922	966	55,758	3,953
Petroleum (not including crude petroleum imported to be refined or illuminating or lubricating oils) ·8235 specific gravity or heavier at 60 degrees temperature	"	71,891,597	3,014,390	108,506,938	4,206,193	94,104,526	4,122,333
Petroleum, imported by miners or mining companies or concerns, for use in the concentration of ores of metals in their own concentrating establishments	"	17,672	4,075	32,960	5,913	139,473	35,880
Kerosene and Illuminating Oils							
Coal oil and kerosene, distilled, purified or refined	"	3,673,234	314,514	4,118,943	322,434	5,410,973	444,646
Illuminating oils, composed wholly or in part of the products of petroleum, coal, shale or lignite, costing more than 30 cents per gallon	"	99,497	50,045	42,474	16,296	10,655	4,215
Coal oil and kerosene, distilled, known as "engine distillates", ·725 specific gravity and heavier, but not heavier than ·770 specific gravity at 60 degrees temperature.	"	.....	.....	8,203	962	20,420	2,942
Lubricating Oils							
Lubricating oils, composed wholly or in part of petroleum, and costing less than 20 cents per gallon	"	3,898,930	720,223	4,295,635	737,053	3,975,337	728,250
Lubricating oils, n.o.p.	"	3,211,124	1,412,473	3,901,048	1,573,897	4,521,086	1,714,403
Other Oils							
Gasoline under ·725 specific gravity at 60 degrees temperature	"	24,743,275	5,411,972	35,845,251	5,134,286	56,389,078	7,138,561
Gasoline ·725 specific gravity but not heavier than ·770 specific gravity at 60 degrees temperature (a)	"	13,466,769	2,579,643	13,927,843	1,993,596	17,084,248	2,166,847
Gasoline, n.o.p.	"	3,902,204	769,309	177,566	32,750	284,115	38,745
All other oils, n.o.p.	"	144,927	60,469	248,888	86,958	260,901	119,088
Other Products of Petroleum							
Grease, axle	Lb.	2,851,550	177,575	2,981,849	176,216	2,853,720	165,694
Paraffine wax	"	870,564	51,032	1,034,921	63,695	837,317	65,782
Paraffine wax candles	"	199,762	39,299	176,487	32,516	202,565	36,884
Vaseline and all similar preparations of petroleum for toilet, medicinal or other purposes	.....	.....	242,743	.....	268,267	.....	195,457
Petroleum, products of, n.o.p.	Gals.	1,330,170	298,815	1,712,865	299,388	1,298,590	242,996
Total	.....	.....	**36,816,724**	.....	**32,439,326**	.....	**37,498,039**
Exports—							
Oil, coal and kerosene, crude	Gals.	7,036,627	288,828	2,384,899	138,381	18,263,236	529,497
Oil, coal and kerosene, refined	"	1,471,947	136,834	1,450,051	139,924	1,525,427	165,520
Oil, gasoline and naphtha	"	1,976,244	510,037	1,217,298	263,326	1,403,716	256,966
Oil, mineral, n.o.p.	"	1,155,865	206,709	1,200,347	223,511	627,671	161,259
Wax, mineral	Cwt.	15,615	45,526	66,274	206,575	33,171	147,810
Total	.....	.....	**1,187,934**	.....	**971,717**	.....	**1,261,052**

(a) From May 24, 1922.

Petroleum Refinery Statistics.—As a matter of interest there has been tabulated a record of the crude petroleum and other materials used in the oil refineries of Canada during the past three years and a list showing the quantities and values of the refined products made. Detailed statistics covering Canadian petroleum refineries will be found in the Bureau's report on the *Manufactures of Non-Metallic Minerals*.

Table 162.—Materials Used and Products Made by the Oil Refineries of Canada, 1922, 1923 and 1924

	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
MATERIALS USED—						
Crude oil, product of Canadian wells.....Imp. gal.	5,849,442	514,746	5,906,028	458,609	5,172,903	403,099
Crude oil, imported..... "	388,289,613	34,538,969	402,904,711	33,184,017	361,971,731	33,018,299
Sulphuric acid (66° Be) (Not made by firm reporting).....Lb.	86,398,728	1,058,230	65,922,858	690,152	57,693,733	605,383
Sulphur (not used in acid manufacture) "	84,260	2,407	61,814	1,733	90,055	2,625
Caustic soda..... "	3,750,331	174,922	3,084,651	128,421	3,796,826	146,842
Litharge..... "	518,291	44,906	328,185	28,704	315,723	30,197
Clay..... "	159,840	2,733	480,375	7,929	.....	.....
Other materials.....	.....	1,792,967	.....	1,935,651	.....	2,462,847
Total.....	.....	**38,129,880**	.....	**36,435,306**	.....	**36,669,292**
PRODUCTS MADE—						
Gasoline.....Imp. gal.	143,959,893	34,428,189	124,156,380	22,153,254	160,045,739	25,799,210
Petroleum spirits..... "	3,124,828	561,498	1,038,625	144,484	788,571	132,093
Kerosene..... "	76,521,560	9,628,804	67,396,674	8,774,371	61,308,467	7,486,042
Fuel and gas oils..... "	106,975,976	6,142,927	139,682,570	7,973,766	177,123,332	9,076,746
Lubricating oils..... "	17,185,003	3,143,545	13,741,896	2,696,768	14,341,920	2,585,717
Grease.....Lb.	8,186,013	156,353	10,599,391	221,420	10,004,590	184,655
Petroleum coke.....Tons	70,422	597,806	34,020	300,524	38,102	270,403
Wax and candles.....Lb.	12,063,768	329,147	10,484,436	484,416	9,112,143	551,434
Other products.....	.....	1,507,552	.....	2,822,503	.....	2,591,038
Total.....	.....	**56,495,821**	.....	**45,571,506**	.....	**48,677,347**

PHOSPHATE

No phosphate rock was mined in Canada during 1924. Imports of phosphate rock amounted to 11,718 tons valued at $56,965 and imports of acid phosphate amounted to 1,825 tons valued at $230,676.

Table 163.—Production of Phosphate in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886.....	20,495	304,338	1900.....	1,415	7,105	1913.....	385	3,643
1887.....	23,690	319,815	1901.....	1,033	6,280	1914.....	954	7,275
1888.....	22,485	242,285	1902.....	856	4,953	1915.....	217	2,502
1889.....	30,988	316,602	1903.....	1,329	8,214	1916.....	203	2,514
1890.....	31,753	361,045	1904.....	817	4,590	1917.....	149	1,488
1891.....	23,588	241,603	1905.....	1,300	8,425	1918.....	140	1,206
1892.....	11,932	157,424	1906.....	850	6,375	1919.....	24	331
1893.....	8,198	70,942	1907.....	824	6,018	1920.....	.....	.....
1894.....	6,861	41,166	1908.....	1,596	14,794	1921.....	30	450
1895.....	1,822	9,565	1909.....	998	8,054	1922.....	190	1,796
1896.....	570	3,420	1910.....	1,478	12,578	1923.....	30	600
1897.....	908	3,984	1911.....	621	5,206	1924.....	.....	.....
1898.....	733	3,665	1912.....	164	1,640			
1899.....	3,000	18,000				**Total**.....	**202,626**	**2,209,949**

Table 164.—Production in Canada, Imports and Exports of Phosphate, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Quebec	131	1,320	30	600	.....	.....
Ontario	59	476	.....	.....	.....	.....
Total	**190**	**1,796**	**30**	**600**	.....	.....
IMPORTS—						
Phosphate rock	11,515	56,353	15,845	86,192	11,718	56,965
Acid phosphate (a)	1,756	224,577	1,524	189,625	1,825	230,676
Phosphorus	68	55,540	74	68,684	55	56,455
Phosphor tin and bronze	135	112,417	223	195,491	191	148,856
Superphosphate (b)	.....	403,621	.....	278,301	.....	405,937
EXPORTS—Phosphate rock	.....	.....	.....	.....	.....	.....

(a) Probably refined phosphate of lime and phosphate of soda.
(b) Probably for use as fertilizer.

PYRITES

The production of pyrites ore (iron and copper sulphides) in Canada during 1924 was 23,552 tons valued at $95,620. Of this, Quebec produced 4,032 tons; Ontario, 11,429 tons and British Columbia, 8,091 tons. The average price for this material was in the neighbourhood of $4.07 per ton. The sulphur content of the shipments amounted to 9,742 tons. The pyrites shipped from Quebec contained 59·06 per cent sulphur; that shipped from Ontario varied from 36 to 42 per cent; and that which was credited to British Columbia mines ranged between 43 and 45 per cent.

According to Customs' records, the sulphur content of the ores exported was 219 tons valued at $1,081.

Table 165.—Production of Pyrites in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886	42,906	193,077	1900	40,031	155,164	1913	158,566	521,181
1887	38,043	171,194	1901	35,261	130,544	1914	228,314	744,508
1888	63,479	285,656	1902	35,616	138,930	1915	286,038	985,190
1889	72,225	307,292	1903	33,982	127,713	1916	309,251	1,084,095
1890	49,227	123,067	1904	37,180	134,033	1917	416,649	1,610,762
1891	67,731	203,193	1905	33,339	125,486	1918	411,616	1,705,219
1892	59,770	179,310	1906	42,743	169,990	1919	176,487	522,704
1893	58,542	175,626	1907	46,243	212,491	1920	174,744	719,110
1894	40,527	121,581	1908	47,336	224,824	1921	33,368	116,326
1895	34,198	102,594	1909	64,644	222,814	1922	18,143	74,303
1896	33,715	101,155	1910	53,870	187,062	1923	28,591	113,020
1897	38,910	116,730	1911	82,666	365,820	1924	23,552	95,620
1898	32,218	128,872	1912	81,526	314,081			
1899	27,687	110,748				**Total**	**3,558,934**	**13,121,094**

Table 166.—Production in Canada, Imports and Exports of Pyrites, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Quebec	.....	.....	.....	.....	4,032	10,619
Ontario	11,235	39,763	25,134	99,716	11,429	44,542
British Columbia	6,908	34,540	3,457	13,304	8,091	40,459
Total	**18,143**	**74,303**	**28,591**	**113,020**	**23,552**	**95,620**
Sulphur content	6,900	.....	11,073	.....	9,742	.....
IMPORTS—						
Brimstone or sulphur, crude or in roll or flour	123,158	1,700,604	135,767	1,803,550	131,546	1,776,978
EXPORTS—						
Sulphur contained in pyrites	.....	.....	9,670	46,514	219	1,081

Sulphuric Acid.—Statistics collected from 7 firms manufacturing sulphuric acid in Canada during 1924 gave the production of the commodity in terms of the standard grades of 50° Bé, 60° Bé and 66° Bé. For comparative purposes it has been deemed advisable to reduce the first two grades to their equivalent in 66° Bé acid.

Importations of sulphuric acid into Canada during 1924 were comparatively negligible; exports at 7,678 tons were lower than in the preceding year.

Table 167—Production,* Imports and Exports of Sulphuric Acid, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Sulphur used	15,467	316,623	21,564	434,687	16,065	295,101
Pyrites used	15,961	81,858	18,615	89,287	19,706	91,202
Acid made	69,281	1,389,716	79,188	1,408,265	71,759	1,283,094
IMPORTS of acid	2,687	47,707	291	10,008	47	7,609
EXPORTS of acid	1,490	29,129	12,203	200,206	7,678	132,139

*Expressed in terms of 66° Bé acid. Record includes a small production of oleum and other grades, the strength of which is not specified. An approximate estimate of production in terms of 50° acid will be obtained by increasing these figures by 50 per cent.

QUARTZ

Quartz production in 1924 amounted to 150,896 tons valued at $323,156 as compared with 264,076 tons valued at $599,250 in 1923. This was a decrease of 42·8 per cent in quantity and 46·0 per cent in value.

Ontario's production dropped to less than half the total reported in the preceding year, but the output from Quebec deposits showed a slight advance over the 1923 figures. British Columbia's output was only slightly below the total reported in 1923.

Imports of crystallized quartz into Canada during 1924 amounted to 1,941 tons with a valuation of $49,552, and flint importations were received at 6,016 tons valued at $64,753.

Table 168.—Production of Quartz in Canada, 1890-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1890	200	1,000	1907	56,585	124,148	1917	216,288	496,182
1891-2	.....	.....	1908	44,741	52,830	1918	268,155	629,813
1893	100	500	1909	56,924	71,285	1919	94,991	527,635
1894-5	.....	.....	1910	88,205	91,951	1920	128,295	467,821
1896	10	50	1911	60,526	83,865	1921	100,350	312,947
1897	.....	.....	1912	100,242	195,216	1922	109,947	208,598
1898	284	570	1913	78,261	169,842	1923	264,076	599,250
1899	600	1,260	1914	54,148	84,583	1924	150,896	323,156
1900-1905	.....	.....	1915	127,108	205,153			
1906	48,376	65,765	1916	136,745	251,226	**Total**	**2,186,853**	**4,964,646**

Table 169.—Production in Canada, and Imports of Quartz, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Quebec	10,904	53,023	13,376	68,936	17,893	87,267
Ontario	81,528	118,054	225,110	483,285	111,645	192,855
British Columbia	17,425	37,521	25,590	47,029	21,358	43,034
Total	**109,947**	**208,598**	**264,076**	**599,250**	**150,896**	**323,156**
IMPORTS—						
Silex	1,058	25,248	2,303	57,940	1,941	49,552
Flint	6,633	92,094	6,327	81,704	6,016	64,753

SALT

The total Canadian output of salt in 1924 was 210,737 tons, of which quantity 207,979 tons worth $1,374,780 was marketed. The shipments for the year were slightly higher than in 1923, while the sales value declined 19·7 per cent. Plants operated in Ontario contributed 98 per cent of the total production, the balance, or 4,551 tons, was made up of shipments from the Malagash mine in Nova Scotia. The figures for 1923 showed that the total Canadian output of salt was 206,985 tons and of this 202,397 tons was sold for which $1,713,516 was received.

Imports of salt, all grades, into Canada during the year were equal to 87·8 per cent of the total Canadian production, and the Customs records show that 182,886 tons valued at $1,134,390 was brought into Canada during 1924.

Table 170.—Production of Salt in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886	62,359	227,195	1900	62,055	279,458	1913	100,791	491,280
1887	60,173	166,394	1901	59,428	262,328	1914	107,038	493,648
1888	59,070	185,460	1902	64,456	292,581	1915	119,900	600,226
1889	32,832	129,547	1903	62,452	297,517	1916	132,903	717,653
1890	43,754	198,857	1904	69,477	321,778	1917	138,909	1,047,792
1891	45,621	161,179	1905	67,340	320,858	1918	131,727	1,285,039
1892	45,486	162,041	1906	76,720	329,130	1919	148,301	1,397,929
1893	62,324	195,926	1907	72,697	342,315	1920	209,855	1,544,724
1894	57,199	170,687	1908	79,975	378,798	1921	164,658	1,673,685
1895	52,376	160,455	1909	84,037	415,219	1922	181,794	1,628,323
1896	43,960	169,693	1910	84,092	409,624	1923	202,397	1,713,516
1897	51,348	225,730	1911	91,582	443,004	1924	207,979	1,374,780
1898	57,142	248,639	1912	95,053	459,582			
1899	59,339	254,390				Total	3,547,999	21,176,980

Table 171.—Production of Salt in Canada, by Grades, 1923 and 1924

—	1923				1924			
	Quantity manufactured	Quantity sold	Value of salt sold (not including packages)	Stocks on hand at end of year	Quantity manufactured	Quantity sold	Value of salt sold (not including packages)	Stocks on hand at end of year
	Tons	Tons	$	Tons	Tons	Tons	$	Tons
Table and dairy	42,371	42,468	764,293	568	41,198	41,134	663,206	607
Common fine	41,806	36,924	308,039	10,891	37,701	36,706	272,301	8,462
Common coarse	31,057	31,282	271,146	2,106	36,205	34,345	266,895	3,152
Land salt	3,744	3,713	17,628	106	4,920	4,862	23,889	108
Other grades	7,908	7,911	72,063	563	7,654	7,873	65,340	318
Brine for chemical works (Salt equivalent sold or used)	80,099	80,099	280,347	.....	83,059	83,059	83,059	.....
Total	**206,985**	**202,397**	**1,713,516**	**14,234**	**210,737**	**207,979**	**1,374,780**	**12,647**
Value of packages			**$533,822**				**$548,631**	

Table 172.—Imports, Exports and Consumption of Salt in Canada, 1922, 1923 and 1924

—	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION	181,794	1,628,323	202,397	1,713,516	207,979	1,374,780
IMPORTS—						
Fine, in bulk[1]	61,913	321,380	65,118	317,773	68,199	332,649
In bags, barrels[2]	51,772	596,513	38,799	455,306	43,508	462,184
All other[3]	82,185	355,890	67,941	294,526	71,179	339,557
Total imports	**195,870**	**1,273,783**	**171,858**	**1,067,605**	**182,886**	**1,134,390**
EXPORTS	740	10,053	861	10,201	965	10,795
CONSUMPTION OF SALT[4]	376,924	2,892,054	373,394	2,770,920	389,900	2,498,375

[1]Duty 5 cents per 100 pounds: [2]Duty 7½ cents per 100 pounds: [3]Free—Imported for use of sea or gulf fisheries. [4]Sum of production and imports, less exports.

Table 173.—World's Production of Salt 1913, 1920-1924

(Metric tons)

Country (a)	*1913	*1920	*1921	*1922	1923	1924
North America—						
British West Indies	Not available					
Bahamas	"	(b) 1,830	(b) 3,200	2,100	Not available	
Ragged Islands (b)	"	509	Not available			
Turks and Caicos Islands (b)	"	48,394	Not available	46,939	41,320	
Canada	91,436	190,376	149,374	164,920	183,612	(r) 188,729
Dutch West Indies (b)	13,417	25,524	17,810	18,459		
Mexico (c)	67,000	67,000	67,000	67,000	Not available	
Republic of Panama (b)	Not available	826	677	826	"	"
United States—Rock salt	963,689	1,460,731	1,335,891	1,766,392	1,908,361	
United States—Other	3,405,201	4,744,406	3,182,912	4,395,945	4,560,532	
South America—						
Argentina (d)	54,917	82,464	75,968	93,698	Not available	
Chile	19,558	33,951	39,466	33,743	"	"
Colombia (c)	29,000	29,000	29,000	29,000	"	"
Peru	24,433	27,172	26,350	26,126	26,515	
Venezuela			Data not available			
Europe—						
Austria (e)—Rock salt	128,734	2,455	1,815	2,328	1,520	
Austria (e)—Other (f)	236,018	79,431	75,236	85,695	81,748	
Bosnia Herzigovina (g)	27,282	Now part of Yugoslavia				
Czecho-Slovakia	See Austria-Hungary	30,990	91,200	128,179	134,042	
France—Rock salt and salt from springs	899,502	840,001	793,151	541,340	(o) 1,145,120	
France—Other	382,476	432,776	212,251	238,250		
Germany—Rock salt	1,391,738	2,596,825	1,655,753	2,319,896	768,762	
Germany—Other	675,900	335,900	304,466	360,404	Not available	
Greece	19,215	57,285	65,000	67,500	"	
Hungary—Rock salt	190,126				"	
Hungary—Other	86,322	Data not available			"	
Italy—Rock salt	41,323	46,989	45,440	49,802	52,739	
Italy—Other	602,755	675,129	468,151	740,507	711,713	
Netherlands, Rock salt		24,857	25,165	28,334	26,386	
Poland	See Russia	245,601	301,612	295,403	362,323	
Portugal (b)	Not available	118,368	Data not available			
Rumania	335,000	246,977	232,818	285,212	306,526	
Russia (h)—Rock salt	556,163	579,162	983,676	789,516	Not available	
Russia (h)—Other	1,439,329					
Spain—Rock salt	26,238	62,617	37,996	114,400	18,591	
Spain—Other	584,191	928,898	475,143	566,480	617,035	
Switzerland	515,000	448,000	339,000	Not available	Not available	
United Kingdom—Rock salt					49,607	
United Kingdom—Other "					1,977,327	
Great Britain and Isle of Man—Rock salt	173,929	86,358	24,525	26,998		
Great Britain and Isle of Man—Other "	2,065,818	2,083,191	1,368,535	1,874,434		
Ireland—Rock salt	44,087	23,460	11,760	Not available		
Ireland—Other "	No data of brine salt available. Production included with G.B.					
Yugoslavia	See Austria	23,409	34,922	43,872		
Asia—						
India—Rock salt					121,594	
India—Other "					1,809,744	
British India (including Aden from 1913-1922)—Rock salt	163,770	213,207	150,414	210,639		
British India (including Aden from 1913-1922)—Other "	1,333,663	1,443,079	1,407,881	1,469,801		
Ceylon	Not available	16,775	13,952	39,623		
China (including Kwangtung) (i)	"	2,104,000	2,075,000	Not available	(p) 2,032,100	
Chosen (j)	"	54,921	Not available			
Cyprus (b)	"	625	899	14,247	778	
French Indo-China, Sea salt					(q) 11,395	
Japan—Japan proper (k)	640,007	(e) 543,956	515,103	Not available	Not available	
Taiwan	74,059	51,976	101,540	"		
Portuguese India (c)	12,000	12,000	12,000	12,000	(p) 12,193	
Siam (b)	Not available	50,737	29,824	26,542	32,948	

Table 173.—World's Production of Salt 1913, 1920-24—Continued

(Metric tons)

Country (a)	*1913	*1920	*1921	*1922	1923	1924
Africa—						
Algeria	27,000	28,169	18,255	20,208	Not available	
Belgian Congo (c)	80	80	80	80	"	"
British Somaliland (b)	Not available	504	906	1,572	.....	.....
Egypt (b)	"	225,811	153,651	186,793	Not available	
Erirtrea	20,000	20,000	20,000	20,000	"	"
Mauritius (c)	Not available	1,830	1,830	1,520	"	"
Njgeria Northern (c)	400	400	400	400	"	"
Portuguese West Africa (Angola) (b)	Not available	2,746	2,175	Not available	.....	.....
Tunis	"	41,086	32,800	51,950	Not available	
Union of South Africa	43,537	89,603	62,033	Not available	"	"
Oceania—						.....
Australia (South Australia) (m)	66,043	72,008	57,399	49,438	(n) 51,093	.....
Dutch East Indies	102,091	135,660	133,522	Not available	124,025	.....
Philippine Islands	19,500	62,383	Not available		.....	.....
Total	**17,571,047**	**21,843,445**	**17,265,227**	**17,308,574**	**17,249,739**	**188,729**

*From Mineral Resources of United States 1923, Pt. II.
1923 figures from The Mineral Industry of the British Empire and Foreign Countries 1921-1923.
(a) In addition to the countries shown in the table there are others in which salt is produced.
(b) Exports.
(c) Estimated annual production.
(d) Railway shipments
(e) Exclusive of Bosnia-Herzegovina which is shown separately.
(f) Present Republic.
(g) In addition to these amounts there was reported salt in brine 532 hectoliters in 1913.
(h) Includes Asiatic Russia
(i) Estimated on approximate gross revenue under Salt Gabelle.
(j) During the years 1909-1913 works were completed with an annual capacity of 100,000,000 kin (60,000 metric tons). Additions were made in 1920 which increased the annual capacity to 119,000,000 kin (71,400 metric tons). Financial and Ecoiomic Annual of Japan 1919 and 1922.
(k) Fiscal year ended March 31, following that stated.
(l) In addition there was reported a production of brine salt in Karafuto amounting to 927,905 hectoliters.
(m) The other states of Australia produce salt, but no figures are available.
(n) Australia.
(o) Rock salt and sea-salt.
(p) Approximate production.
(q) Exports.
(r) Figures from Dominion Bureau of Statistics report.

SODIUM CARBONATE

The production of sodium carbonate in 1924 amounted to 510 tons as against 265 tons in 1923. Commercial deposits of this chemical now being worked occur on the line of the Pacific Great Eastern in the Lillooet District, British Columbia; the companies reporting, operated on an average of about 150 days during the summer of 1924.

Soda ash from salt brine is made in Canada on a very large scale by Brunner-Mond Co., Ltd., at Amherstburg, Ontario.

Sodium carbonate is used largely in chemical and hydro-metallurgical plants. Its principal uses are in the manufacture of glass, scap and paper, the bleaching and washmg of linen, cotton, wool, etc., and the dyeing and printing of fabrics. Sodium carbonate has been utilized for some time as a means of removing, and of preventing the formation of boiler scale.

SODIUM SULPHATE

Natural deposits of sodium sulphate in the province of Saskatchewan were operated during the year 1924. The total quantity of natural sodium sulphate sold during the year amounted to 1,083 tons valued at $6,004, as against 733 tons valued at $10,189 in the previous twelve months.

Table 174.—Production and Imports of Sodium Sulphate, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Natural Sodium Sulphate—						
Crude	164	1,100	210	1,050	965	4,825
Refined	340	10,880	523	9,139	118	1,179
Artificial Sodium Sulphate—						
Sodium sulphate	2,583	59,804	2,376	57,621	1,648	32,948
Glauber's salt	1,905	54,899	2,315	61,446	1,458	36,602
IMPORTS—						
Soda, bisulphate of, or nitre cake—(From May 12, 1923)			20,152	91,940	18,859	87,961
Soda, sulphate of, crude, known as salt cake	39,472	830,515	30,907	684,604	36,022	673,322
Glauber's salt	172	5,554	521	11,542	906	14,684

TALC AND SOAPSTONE

During 1924 there was a slight advance in the production of talc and soapstone in Canada. Sales for the year totalled 11,332 tons worth $154,480 as against 10,366 tons valued at $150,507 in 1923.

Import figures from April 1st, 1924, to the end of the calendar year showed a total of 2,969 tons of talc and soapstone brought into Canada in that period. Exports were slightly higher than those noted in 1923.

Ontario's production was derived from deposits in Hastings County. Most of the shipments from Quebec consisted of soapstone blocks for use in lining the alkali recovery furnaces of sulphate (kraft) pulp mills.

The following quotation is from a report on "*Talc and Soapstone*" by Hugh S. Spence, Mines Branch, Ottawa.

"The soapstone used in Canadiaa sulphate pulp mills is almost all imported Alberene stone from Virginia. It is difficult to obtain a structurally strong stone that will stand up under the combined attack of heat and alkali in such furnaces, and even the Alberene stone in general use has not a very long life. From six to nine months is stated to be a good average for an Alberene stone lining. The best soapstone for the purpose is obtained from Sweden, but the expense of importation prohibits its use.

The requirements in a soapstone for sulphate pulp furnaces are: fine to medium grain, compactness and homogeneous composition, and freedom from flaws and cracks. It should consist largely of talc, and contain no carbonates (dolomite, calcite) or pyrites. The stone should possess a massive, as opposed to a schistose texture, since schistose soapstone tends to spall readily and has little strength.

The discovery of a soapstone possessing the above characteristics, in Canada, would be of considerable benefit to domestic paper mills, since the quantity used is large and the cost of the imported stone high—from $5 to $6 per cubic foot, laid down.

The soapstone bricks used vary in size. Common dimensions are: 12 x 12 x 6 inches; 12 x 6 x 6 inches; 12 x 6 x 3 inches; 18 x 12 x 8 inches; 18 x 12 x 12 inches."

Table 175.—Production of Talc and Soapstone in Canada, 1886-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1886	50	400	1900	1,420	6,365	1913	12,250	45,980
1887	100	800	1901	259	842	1914	10,808	40,418
1888	140	280	1902	689	1,804	1915	11,885	40,554
1889	195	1,170	1903	990	2,739	1916	13,104	49,423
1890	917	1,239	1904	840	1,875	1917	15,803	76,539
1891			1905	500	1,800	1918	18,169	119,197
1892	1,374	6,240	1906	1,234	3,030	1919	18,642	116,295
1893	717	1,920	1907	1,534	4,602	1920	21,671	166,934
1894	916	1,640	1908	1,016	3,048	1921	10,124	144,565
1895	475	2,138	1909	4,350	10,300	1922	13,195	188,458
1896	410	1,230	1910	7,112	22,308	1923	10,366	150,507
1897	157	350	1911	7,300	22,100	1924	11,332	154,480
1898	405	1,000	1912	8,270	23,132			
1899	450	1,960				Total	209,169	1,417,662

Table 176.—Production of Talc and Soapstone in Canada and Exports of Talc, 1922, 1923 and 1924

	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Soapstone	167	5,800	607	20,843	449	20,273
Talc	13,028	182,658	9,759	129,664	10,883	134,207
Total	**13,195**	**188,458**	**10,366**	**150,507**	**11,332**	**154,480**
EXPORTS	9,854	143,938	7,233	99,239	7,876	98,571

Table 177.—*World's Production of Talc and Soapstone 1913, 1920-1924.

(Metric tons)

Country	†1913	1920	1921	1922	1923	1924
Argentina (a)		20	Data not available			
Australia						
New South Wales (b)		214	61	203	207	
South Australia (c)		201	262	272	425	
Austria (d)	o 16,005	6,894	8,031	13,511	7,489	
Canada (e)	o 11,116	19,659	9,184	11,970	9,141 (r)	10,283
France (f)	p 60,191	52,420	34,742	48,170	Not available	
Germany (Bavaria) (g)	Not available	20,943	6,619	4,513	"	
India (h)		3,740	2,103	921	"	
Italy (i)	o 24,007	21,475	21,031	26,485	31,150	
Norway (j)			2,810	7,821	Not available	
Spain (k)	Not available	2,146	1,115	3,078	1,983	
Sweden (l)		Not available	1,797	2,063	Not available	
Union of South Africa; Transvaal (m)		619	375	309	322	
United Kingdom (n)		367		51	Not available	
United States	q 159,558	191,081	110,663	180,242	178,435	184,955
Total	**270,877**	**319,782**	**198,733**	**299,609**	**229,152**	**195,238**

* From Mineral Resources of the United States 1923, Part II.
† 1913 figures from the Mineral Industry 1923.
(a) Data furnished by Direccion general de minas, geologia é hidrologia Argentina.
(b) New South Wales Dept. Mines Ann. Reports.
(c) South Australia Dept. Mines Rev. Mining Operations.
(d) Exports. Aussenhandel Oesterreichs. Figures from 1920 represent second half year only.
(e) Canada Dept. of Mines, Mines Branch. Annual Reports. Dominion Bureau of Statistics Annual Report 1921. Preliminary Reports 1922-1923.
(f) 1919-1921, Statistique de l'industrie minérale en France. 1922 Information furnished by the Ministry of Public Works, Paris.
(g) 1919-1920 Consular rept. March 18, 1922. 1921-1922, Gluckauf.
(h) India Geol. Survey Rec.
(i) Rivista del servizio minerario. Information furnished by the Ispettorato generale delle miniere Rome.
(j) Norges Officielle Statistik. Norges Bergverksdrift.
(k) Estadistica minera de Espana.
(l) Bergshantering. Figures for 1921-22 do not include small amounts for which only value is given.
(m) Annual Reports. See Mines, Union of South Africa Dept. Mines. Dept. Mines and Ind., Monthly Reports.
(n) 1919-1920, Mines and Quarries. 1921-1922, Annual Report. See Mines and H. M. Chief Inspector Mines.
(o) Talc.
(p) Talc, soapstone and asbestos.
(q) Talc and soapstone.
(r) Figures from Dom. Bureau of Statistics.

STRUCTURAL MATERIALS AND CLAY PRODUCTS

Although there was a slight decline in the value of structural materials produced in Canada during 1924 as compared with the previous year, activities in the building and construction industries were fairly well maintained. The total value of all structural materials and clay products produced in Canada during 1924 amounted to slightly over 35 million dollars as against 37 million dollars in the preceding year.

Construction of buildings and bridges, the building of roads, the maintenance of railroads and the development of power schemes, provide the necessary markets for the structural materials and clay products from Canadian quarries and plants. Fluctuations in construction operations are, therefore, reflected in the output of the commodities coming under the foregoing classification.

Except in the three western provinces and Prince Edward Island in each of which the production values for structural materials exceeded the totals for 1923, there was a decrease in the aggregate values, which lowered the total for Canada below the sum reported in the preceding year. Lower prices probably had some effect on the total values but the decreases seemed greater than might be accounted for by that fact alone, and indicated a slight general depression in construction operations.

Ontario and Quebec were the leaders in this industry; the value of their combined output totalled 28·70 million dollars in an aggregate for Canada of 35·38 million dollars. British Columbia products reached a value of 2·77 million dollars; Alberta and Manitoba outputs were each worth above one million dollars; Nova Scotia, New Brunswick, Saskatchewan and Prince Edward Island followed in the order named.

Among the structural materials and clay products the chief items were portland cement, and clay products; stone was next in point of value, followed by sand and gravel and lime.

Availability of hydro-electric power has proved a great stimulus to manufacturing in the southern part of Ontario and the mining industry's great progress in the northern part of the province, has followed the development of adequate power facilities in that area. Water-power development in Quebec has proceeded apace in recent years and has been the forerunner of industrial expansion on a magnificent scale. Recent road-building programs have made transportation a smaller factor in production and marketing costs, and at the same time have provided wider markets for stone, cement and other materials used in their construction.

Production of structural materials will undoubtedly increase as the years go by; advances in manufacturing and in the primary industries, particularly mining, will continue to provide extensive home markets for such materials, so that, while there may be years of apparent depression in construction, succeeding periods should more than compensate for such temporary setbacks.

Table 178.—Production Values of Structural Materials and Clay Products in Canada, 1922, 1923 and 1924

Province	1922	1923	1924
	$	$	$
Prince Edward Island	14,003	4,429	4,588
Nova Scotia	602,109	654,191	528,309
New Brunswick	417,659	467,118	321,994
Quebec	11,605,462	11,968,006	11,272,539
Ontario	20,259,427	18,896,053	17,429,449
Manitoba	1,814,729	1,380,779	1,161,491
Saskatchewan	441,437	178,946	234,325
Alberta	1,845,990	1,568,760	1,657,742
British Columbia	2,534,025	2,633,099	2,770,432
Canada	39,534,741	37,751,381	35,380,869

Table 179.—Summary Statistics of Structural Materials and Clay Products, 1922, 1923 and 1924

Item		Production	Imports	Exports	Apparent Consumption
		$	$	$	$
Cement, portland	1922	15,438,481	83,037	699,738	14,821,780
	1923	15,064,661	75,294	824,811	14,315,144
	1924	13,398,411	69,320	213,845	13,253,886
Clay and clay products	1922	11,438,456	6,654,503	311,048	17,781,911
	1923	10,483,016	8,172,662	584,843	18,070,835
	1924	9,215,077	7,158,371	543,572	15,829,876
Lime	1922	3,165,005	27,942	270,724	2,922,223
	1923	3,266,608	55,820	428,286	2,894,142
	1924	3,178,541	46,578	411,122	2,813,997
Sand and gravel	1922	3,502,935	175,667	116,121	3,562,481
	1923	3,016,518	247,388	182,750	3,081,156
	1924	3,181,083	442,676	210,496	3,413,263
Slate	1922	14,871	286,095	.....	300,966
	1923	17,289	265,846	.....	283,135
	1924	.....	220,402	.....	220,402
Stone	1922	5,974,993	937,905	134,252	6,778,646
	1923	5,903,289	1,133,804	222,340	6,814,943
	1924	6,407,757	913,325	170,113	7,150,969
Total	**1922**	**39,534,741**	**8,165,149**	**1,531,883**	**46,168,007**
	1923	**37,751,381**	**9,950,904**	**2,242,930**	**45,459,355**
	1924	**35,380,869**	**8,850,672**	**1,549,148**	**42,682,393**

CEMENT

Sales of cement in Canada in 1924 at 7,498,624 barrels were slightly less than the sales for the preceding year which amounted to 7,543,589 barrels. The total sales value in 1924 was $13,398,411 as against $15,064,661 in 1923. The total mill output amounted to 7,768,652 barrels, an increase of 80,456 barrels over the output for the preceding year.

Exports of Canadian cement amounted to only 153,520 barrels, a decrease of 340,231 barrels from the total for the preceding year. Importations amounted to 27,672 barrels, an increase of 10,000 barrels over the figures for 1923. While the apparent consumption of cement in Canada during 1924 amounted to 7,372,776 barrels, or 4·3 per cent more than in 1923, this total was 17·3 per cent less than the figures for 1913, when cement consumption reached its peak.

Ten plants, having in all a daily capacity of 34,235 barrels, were operated during the year. In addition to these there were ten other plants in Canada which were idle during the whole period. Ontario and Quebec were the principal producing provinces. Sales from Ontario plants amounted to 3,564,499 barrels, averaging $1.59 per barrel; Quebec plants sold 2,758,316 barrels at an average price of $1.74. The average selling price f.o.b. plant in the other provinces was as follows: Manitoba, $2.60; Alberta, $2.27; British Columbia, $2.63. For Canada, the average was $1.79 per barrel.

Table 180.—Production of Cement in Canada, 1887-1924

Year	Barrels	Value	Year	Barrels	Value	Year	Barrels	Value
		$			$			$
1887	69,843	81,909	1900	417,552	662,910	1913	8,658,805	11,019,418
1888	50,668	35,593	1901	450,394	660,030	1914	7,172,480	9,187,924
1889	90,474	69,790	1902	722,525	1,127,550	1915	5,681,032	6,977,024
1890	102,216	92,405	1903	719,993	1,225,247	1916	5,369,560	6,547,728
1891	93,479	108,561	1904	967,172	1,338,239	1917	4,768,488	7,724,246
1892	117,408	147,663	1905	1,360,732	1,924,014	1918	3,591,481	7,076,503
1893	158,597	194,015	1906	2,128,374	3,170,859	1919	4,995,257	9,802,433
1894	108,142	144,637	1907	2,441,868	3,781,371	1920	6,651,980	14,798,070
1895	128,294	173,675	1908	2,666,333	3,709,954	1921	5,752,885	14,195,143
1896	149,090	201,651	1909	4,067,709	5,345,802	1922	6,943,972	15,438,481
1897	205,213	275,273	1910	4,753,975	6,412,215	1923	7,543,589	15,064,661
1898	250,209	397,580	1911	5,692,915	7,644,937	1924	7,498,624	13,398,411
1899	306,753	633,291	1912	7,132,732	9,106,556			
						Total	**110,070,813**	**179,895,769**

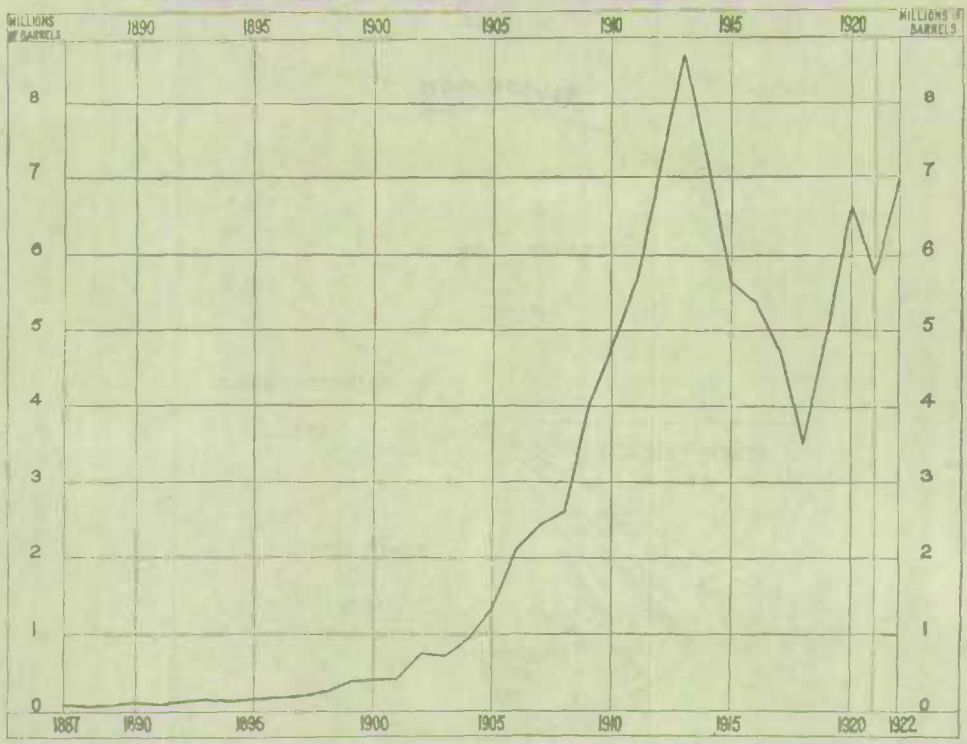
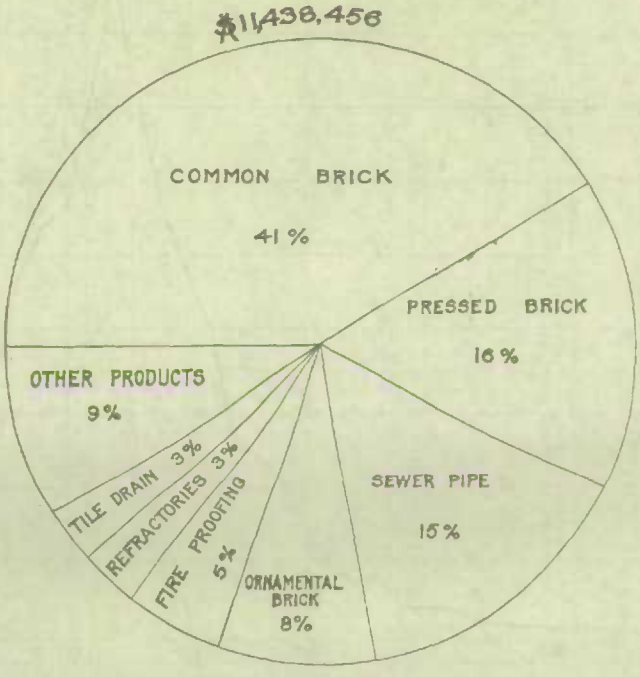


Table 181.—Summary Statistics of Cement in Canada, 1922, 1923 and 1924

	1922		1923		1924	
	Barrels	Value	Barrels	Value	Barrels	Value
		$		$		$
Made from marl						
Made from limestone	6,447,696		7,688,196		7,768,652	
Total made	**6,447,696**		**7,688,196**		**7,768,652**	
Sold or used	6,043,972	15,438,481	7,543,589	15,064,661	7,498,624	13,398,411
Stocks Dec. 31	1,106,939		1,251,546		1,521,574	
IMPORTS—						
Portland cement	30,914	83,037	17,697	75,294	27,672	69,320
Manufactures		13,273		86,974		9,772
EXPORTS	425,137	699,738	493,751	824,811	153,520	213,845
CONSUMPTION	6,549,749		7,067,835		7,372,776	

PRODUCTION IN CANADA OF CLAY PRODUCTS 1922



CLAY AND CLAY PRODUCTS

Under "clay and clay products" there have been included statistics relating to production in Canada from domestic clays, of (*a*) fireclay, (*b*) fireclay blocks and shapes, (*c*) fire brick, (*d*) brick made by the different processes such as the soft mud process, stiff mud process and dry press, (*e*) structural tile, such as hollow blocks, roofing tile, floor tile (quarries), ceramic or glazed floor and wall tile, (*f*) drain tile, (*g*) sewer pipe, including copings, flue linings, etc., and (*h*) pottery.

In 1924, the co-operation of the Canadian National Clay Products Association was obtained in order to draw up a schedule that would present statistics in the most valuable form to the producer. The schedule drafted at this conference has proved to be most applicable to the industry.

For statistics on production in Canada from imported clay, see Table 183.

The total value of products from domestic clays, sold in Canada during 1924, was $9,215,077 as compared with $10,483,016 in 1923 and $11,438,456 in 1922.

Table 182.—Production of Clay Products in Canada, from Domestic Clays, by Provinces, 1922, 1923 and 1924

Province	1922		1923		1924	
	Sold or used	Per cent of total value	Sold or used	Per cent of total value	Sold or used	Per cent of total value
	$		$		$	
Prince Edward Island	3,975	0·03	.....	.....	3,310	0·04
Nova Scotia	427,643	3·74	413,974	3·95	355,948	3·86
New Brunswick	75,425	0·66	62,587	0·60	74,091	0·81
Quebec	2,494,236	21·81	2,439,598	23·28	2,435,695	26·44
Ontario	6,944,218	60·71	6,270,615	59·82	5,089,299	55·24
Manitoba	210,740	1·84	160,134	1·53	117,459	1·27
Saskatchewan	134,704	1·18	119,405	1·13	137,280	1·49
Alberta	700,063	6·12	590,565	5·63	540,477	5·86
British Columbia	447,452	3·91	426,138	4·06	460,594	4·99
Canada	**11,438,456**	**100·00**	**10,483,016**	**100·00**	**9,215,077**	**100·00**

Table 183.—Value of Clay Products Produced in Canada from Domestic and Imported Clays, 1923 and 1924

Item	From domestic clays		From imported clays		Total	
	1923	1924	1923	1924	1923	1924
	$	$	$	$	$	$
Fireclay blocks and shapes	81,345	51,273	271,227	146,016	352,572	197,289
Sanitary ware	.....	.....	417,454	254,752	417,454	254,752
Ceramic or glazed floor and wall tile	120,652	.....	.....	91,759	120,652	91,759
Pottery, glazed and unglazed	229,547	238,342	78,453	53,678	308,000	292,020
Electrical porcelain insulators	.....	.....	1,310,899	1,332,679	1,310,899	1,332,679
Other clay products (brick, tile, sewer-pipe, etc.)	10,051,472	8,925,462	.....	885	10,051,472	8,926,347
Total	**10,483,016**	**9,215,077**	**2,078,033**	**1,879,769**	**12,561,049**	**11,094,846**

Table 184.—Production in Canada, Imports and Exports of Clay and Clay Products, 1922, 1923 and 1924

—	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
Sales—						
Bricks, common M	294,919	4,714,658	250,565	3,884,474		
Bricks, pressed M	90,578	1,839,549	73,400	1,461,483		
Bricks, hollow building M	4,892	448,674	7,720	620,329		
Bricks, moulded and ornamental M	41,852	865,604	64,682	1,355,360		
Fire brick M	6,705	251,776	6,122	295,037		
Fire clay Tons	10,196	55,185	2,685	24,158	Itemized	
Fire clay blocks and shapes	.....	67,588	.....	81,345		
Fireproofing and hollow porous blocks	.....	542,611	.....	379,805	in Table	
Kaolin Tons	1,197	17,866	163	2,369		
Paving brick M	151	5,972	.....	.....	185	
Pottery from domestic clay	.....	266,391	.....	229,547		
Sewer pipe Tons	75,932	1,766,347	70,252	1,616,324		
Architectural terra-cotta and tile other than drain	.....	188,789	.....	209,471		
Tile, drain M	14,731	407,386	10,599	323,314		
Total	.....	**11,438,456**	.....	**10,483,016**	.....	**9,215,077**
Imports—						
Bath brick	.....	1,043	.....	1,938	.....	1,799
Building brick M	7,468	174,321	5,381	140,441	5,425	124,983
Building blocks	.....	79,689	.....	77,972	.....	63,559
Clays—						
China Cwt.	257,953	173,988	342,408	242,860	390,613	250,113
Fire "	615,840	138,995	1,070,122	223,628	886,091	186,606
Pipe	.....	2,864	.....	1,161	.....	817
Other clays	.....	65,422	.....	99,515	.....	56,590
Drain tile, unglazed	.....	692	.....	2,041	.....	3,014
Drain and sewer pipe	.....	61,397	.....	61,868	.....	68,449
Earthenware and chinaware	.....	4,641,474	.....	5,067,489	.....	4,124,607
Brick, fire, other, valued at not less than $100 per M, rectangular shaped; the dimensions of each not to exceed 125 cubic inches for use exclusively in the construction or repair of a furnace, kiln, etc.	.....	611,564	.....	970,324	.....	23,413
Brick, fire, n.o.p., for use exclusively in the construction or repair of a furnace, kiln or other equipement of a manufacturing establishment—(From May 12, 1923)	.....		.....		.....	812,039
Firebrick, n.o.p.	.....	361,338	.....	610,243	.....	284,388
Firebrick, chrome—(From May 12, 1923)	.....	.....	.....	4,000	.....	.....
Magnesite brick	.....	56,561	.....	120,453	.....	91,553
Silica brick	.....	131,517	.....	216,642	.....	154,251
Paving brick M	1,766	45,686	3,243	90,767	2,559	69,493
Other clay manufactures	.....	117,952	.....	241,320	.....	842,577
Total	.....	**6,664,503**	.....	**8,172,662**	.....	**7,158,371**
Exports—						
Building brick M	2,418	31,383	4,069	42,742	2,988	38,105
Clay—						
Unmanufactured Cwt.	2,589	1,777	12	52	1,346	1,127
Manufactures	.....	104,933	.....	109,957	.....	109,295
Earthenware	.....	172,955	.....	432,092	.....	72,839
Porcelain insulators*	.....	.....	.....	.....	.....	322,206
Total	.....	**311,048**	.....	**584,843**	.....	**543,572**

*Prior to April 1924, porcelain insulators included with earthenware.

Table 185—Production of Clay Products in Canada, from Domestic Clays, 1924.

Kind			Quantity	Total selling value
				$
Brick: Soft mud process	Face	M	10,831	185,248
	Common	"	50,079	716,044
Stiff mud process (wire cut)	Face	"	80,565	1,842,224
	Common	"	124,556	1,880,631
Dry press	Face	"	35,203	761,572
	Common	"	12,794	168,043
Fancy or ornamental brick (including special shapes, embossed and enamelled brick)		"	755	98,460
Sewer brick		"	2,690	40,775
Firebrick from domestic clay		"	4,327	209,256
Fireclay		Ton	3,615	26,258
Fireclay blocks and shapes				51,273
Structural tile: Hollow blocks (including fireproofing and load-bearing tile)		Ton	96,818	926,777
Roofing tile		No.	7,377	917
Floor tile (quarries)		Sq. ft.	444,601	35,608
Drain tile		M	15,137	409,369
Sewer pipe (including copings, flue linings, etc.)		Ton	76,355	1,594,280
Pottery, glazed or unglazed				238,342
Total				**9,215,977**

Brick.—Ontario is the leading province in the manufacture of building brick in Canada. During 1924, Ontario's production was valued at $3,279,291. Quebec came next with a total valued at $1,844,680. Alberta, British Columbia, Manitoba, Nova Scotia, Saskatchewan, New Brunswick and Prince Edward Island followed in the order named. The total Canadian production in 1924 had a selling value of $5,722,997 as against $6,701,317 in 1923.

In the city of Medicine Hat, Alberta, a large brick company uses natural gas from its own wells for brick burning. Distributing pipes from the wells are led to the kilns. Maintenance of the temperature desired, is easily accomplished by the regulation of the gas flow.

Table 186.—Production of Building Brick in Canada by Provinces, 1923 and 1924

—		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	*Canada
1923										
Common brick	M	6,079	2,112	98,795	117,390	8,961	2,997	8,023	6,178	**250,565**
	$	71,072	34,663	1,421,376	2,008,611	142,896	35,032	89,029	81,792	**3,884,474**
Pressed brick	M	–	–	4,319	57,612	–	1,091	8,925	1,423	**73,490**
	$	–	–	118,705	1,142,988	–	33,291	109,066	57,433	**1,461,483**
Moulded and ornamental brick	M	400	–	13,505	49,682	–	133	551	408	**64,682**
	$	6,000	–	341,337	975,608	–	4,988	11,093	16,334	**1,355,360**
Total	**M**	**6,479**	**2,142**	**116,619**	**224,714**	**8,961**	**4,221**	**17,502**	**8,009**	**388,647**
	$	**77,072**	**34,663**	**1,881,418**	**4,127,210**	**142,896**	**73,311**	**209,188**	**155,559**	**6,701,317**
1924										
Soft mud process — Face	M	–	–	–	10,605	–	226	–	–	**10,831**
	$	–	–	–	182,385	–	2,863	–	–	**185,248**
Soft mud process — Common	M	440	2,345	4,802	31,011	5,722	1,603	1,446	2,505	**50,079**
	$	5,880	38,131	48,865	488,742	93,698	20,473	19,195	29,470	**746,044**
Stiff mud process (wire cut) — Face	M	675	–	14,611	63,353	165	1,200	213	348	**80,565**
	$	13,581	–	381,519	1,385,131	4,911	32,210	5,736	19,106	**1,842,224**
Stiff mud process (wire cut) — Common	M	4,161	–	93,343	22,563	127	227	3,502	633	**124,556**
	$	59,322	–	1,351,657	424,536	1,270	3,570	38,823	10,453	**1,880,631**
Dry press — Face	M	–	–	1,817	30,597	–	173	1,486	1,130	**35,203**
	$	–	–	53,006	636,101	–	6,061	25,824	40,577	**761,572**
Dry press — Common	M	–	–	–	2,433	–	128	7,510	2,723	**12,794**
	$	–	–	–	34,093	–	2,018	96,533	35,399	**168,043**
Fancy or ornamental brick	M	–	–	223	532	–	–	–	–	**755**
	$	–	–	9,603	88,857	–	–	–	–	**98,460**
Sewer brick	M	–	–	–	2,656	–	–	–	34	**2,690**
	$	–	–	–	39,146	–	–	–	1,329	**40,775**
Total	**M**	**5,276**	**2,345**	**114,796**	**163,780**	**6,014**	**3,557**	**14,157**	**7,433**	**317,473**
	$	**69,783**	**38,131**	**1,844,680**	**3,279,291**	**99,879**	**67,198**	**186,111**	**136,334**	**5,722,997**

*Totals for Canada include record of small production in Prince Edward Island.

Table 187.—Production of Building Brick (Common and Pressed), 1886-1906

Year	Value	Year	Value	Year	Quantity	Value
	$		$		M	$
1886	873,600	1893	1,800,000	1900	.....	2,275,000
1887	986,689	1894	1,800,000	1901	.....	2,400,000
1888	1,036,746	1895	1,670,000	1902	.....	2,593,000
1889	1,273,884	1896	1,600,000	1903	.....	2,832,000
1890	1,266,982	1897	1,600,000	1904	.....	2,983,000
1891	1,061,536	1898	1,900,000	1905	523,820	3,933,925
1892	1,251,934	1899	2,195,000	1906	523,390	4,102,590
				Total	.....	41,435,886

Table 188.—Production of Common Brick, 1907-1923

Year	Quantity	Value	Year	Quantity	Value	Year	Quantity	Value
	M.	$		M.	$		M.	$
1907	439,016	3,455,524	1914	457,514	3,653,861	1920	303,343	4,835,996
1908	353,261	2,611,554	1915	234,733	1,755,187	1921	220,438	3,567,503
1909	539,229	4,212,424	1916	237,035	1,826,844	1922	294,019	4,714,658
1910	627,715	5,105,354	1917	219,631	1,999,465	1923	250,565	3,884,474
1911	645,551	5,420,890	1918	164,970	1,879,811			
1912	769,192	7,010,375	1919	291,470	3,850,219	Total	6,708,009	65,701,512
1913	668,427	5,917,373						

Table 189—Production of Pressed Brick, 1907-1923

Year	Quantity	Value	Year	Quantity	Value	Year	Quantity	Value
	M.	$		M.	$		M.	$
1907	78,922	794,722	1914	93,635	1,115,556	1920	85,137	2,004,537
1908	53,481	517,180	1915	49,817	492,774	1921	80,947	1,738,293
1909	57,265	630,677	1916	44,947	492,335	1922	90,578	1,839,549
1910	67,895	807,294	1917	46,409	653,153	1923	73,400	1,461,483
1911	87,351	1,094,582	1918	40,147	639,083			
1912	125,180	1,609,854	1919	74,424	1,304,162	Total	1,266,237	18,653,987
1913	116,802	1,458,733						

Table 190.—Production of Paving Brick*, 1897-1924

Year	Quantity	Value	Year	Quantity	Value	Year	Quantity	Value
	M	$		M	$		M	$
1897	4,568	45,670	1905	4,500	54,000	1914	2,707	49,627
1898	.....	.....	1906	3,000	45,000	1915	1,228	20,094
1899	5,300	42,550	1907	3,018	72,354	1916	1,590	30,144
1900	2,710	26,950	1908	3,720	59,456	1917-1921	.....	.....
1901	3,689	37,000	1909	3,760	67,408	1922	151	5,972
1902	4,211	42,000	1910	4,215	78,980	1923-1924	.....	.....
1903	3,789	45,288	1911	5,220	79,444			
1904	4,436	55,450	1912	4,580	85,989	Total	71,200	1,019,645
			1913	4,208	75,669			

*Figures prior to 1907 compiled by the Ontario Bureau of Mines.

Structural Tile.—Records of the production of structural tile in Canada include such items as hollow blocks (fire-proofing and load-bearing tile), roofing tile, and floor tile; sales of these products amounted in value to $963,302 in 1924. Hollow blocks are manufactured in every province except New Brunswick, and Prince Edward Island. Roofing tile is made in Ontario only. Floor tile is made in Ontario and also in small quantities in British Columbia.

Table 191.—Production of Hollow Building Blocks, Fireproofing, Architectural Terra-cotta and Tile other than Drain, in Canada, by Provinces, 1922 and 1923

Province	Hollow building bricks or blocks				Fireproofing and hollow porous blocks		Architectural terra-cotta and tile other than drain	
	1922		1923		1922	1923	1922	1923
	Quantity	Value	Quantity	Value	Value	Value	Value	Value
	M	$	M	$	$	$	$	$
Nova Scotia	.....	.....	294	26,074	3,654	.....	.....	.....
Quebec	515	41,784	1,929	156,112	160,471	66,868	19,278	28,082
Ontario	2,017	272,118	4,168	309,605	274,618	284,039	169,297	181,376
Manitoba	860	15,310	137	15,478	27,639	.....	.....	.....
Saskatchewan	495	37,550	215	19,650	.....	.....	.....	.....
Alberta	707	40,050	400	41,657	76,229	28,898	.....	.....
British Columbia	298	41,862	577	51,753	.....	.....	214	13
Canada	**4,892**	**448,674**	**7,720**	**620,329**	**542,611**	**379,805**	**188,789**	**209,471**

Table 192.—Production of Structural Tile in Canada by Provinces, 1924

Province	Hollow blocks (including fireproofing and load-bearing tile)		Roofing tile		Floor tile (quarries)	
	Tons	Value	No.	Value	Sq. ft.	Value
		$		$		$
Nova Scotia	4,695	54,410	.....	.....	.....	.....
Quebec	29,366	277,910	.....	.....	.....	.....
Ontario	48,134	428,894	7,377	917	441,301	35,211
Manitoba	969	11,726	.....	.....	.....	.....
Saskatchewan	1,795	35,892	.....	.....	.....	.....
Alberta	5,511	51,518	.....	.....	.....	.....
British Columbia	6,318	66,397	.....	.....	3,300	397
Canada	**96,818**	**926,777**	**7,377**	**917**	**444,601**	**35,608**

Drain Tile and Sewer pipe.—The production of sewer pipe in Canada during 1924 amounted to 76,355 tons valued at $1,594,280 as against 70,252 tons valued at $1,616,324 in 1923. During the year under review, sales of drain tile made in Canada reached a total value of $409,369 as against $323,314 for the year 1923, an increase of $86,055. Of the total production of drain tile and sewer pipe in Canada, Ontario accounted for more than 50 per cent.

Table 193.—Production of Sewer Pipe in Canada, 1888-1924

Year	Value	Year	Value	Year	Tons	Value
	$		$			$
1888	266,320	1901	248,115	1914	.....	1,104,499
1889	*	1902	301,965	1915	.....	799,448
1890	348,000	1903	317,970	1916	.....	716,287
1891	227,300	1904	440,894	1917	.....	783,762
1892	367,660	1905	382,000	1918	36,574	699,774
1893	350,000	1906	530,045	1919	62,821	1,074,146
1894	250,325	1907	667,100	1920	58,887	1,549,090
1895	257,045	1908	514,362	1921	.....	1,666,584
1896	153,875	1909	645,722	1922	75,932	1,766,347
1897	164,250	1910	774,110	1923	70,252	1,616,324
1898	181,717	1911	812,716	1924	76,355	1,591,280
1899	161,546	1912	884,641			
1900	231,525	1913	1,035,906	**Total**	.....	**23,885,648**

*Data not available.

Table 194.—Production of Drain Tile in Canada, 1891-1924

Year	Value	Year	Value	Year	Value	Year	Value
	$		$		$		$
*1891	90,000	1900	225,000	1909	408,440	1917	434,708
1892	100,000	1901	250,000	1910	370,008	1918	499,340
1893	190,000	1902	250,000	1911	339,812	1919	616,510
*1894	280,000	1903	275,000	1912	357,862	1920	562,652
1895	210,000	1904	260,000	1913	338,552	1921	473,952
1896	225,000	1905	260,000	1914	366,340	1922	407,386
1897	225,000	1906	290,000	1915	355,296	1923	323,314
1898	225,000	1907	260,609	1916	359,387	1924	409,369
1899	225,000	1908	298,561			Total	10,762,098

*1891-1894 (inclusive), as reported by Ontario Bureau of Mines.

Table 195.—Production of Drain Tile and Sewer Pipe, in Canada, by Provinces, 1923 and 1924

Province	1923				1924			
	Drain Tile		Sewer Pipe		Drain Tile		Sewer Pipe	
	M	$	Tons	$	M	$	Tons	$
Prince Edward Island	.....	.....	.....	.....	76	1,750	.....	.....
Nova Scotia	62	2,423	10,733	200,707	71	2,515	12,910	214,783
Quebec	170	10,312	12,268	294,437	65	2,550	12,939	310,525
Ontario	9,661	283,662	40,562	925,858	14,096	373,979	42,449	848,308
Manitoba	30	1,760	.....	.....	167	5,845	.....	.....
Saskatchewan	65	4,550	.....	.....	200	8,000	.....	.....
Alberta	103	5,414	6,035	175,168	38	1,831	6,345	168,016
British Columbia	508	15,193	654	20,154	424	12,899	1,712	52,558
Canada	10,599	323,314	70,252	1,616,324	15,137	409,369	76,355	1,594,290

Sanitary Ware and Pottery from Domestic Clays.—Pottery from domestic clays sold during 1924 amounted in value to $238,342 as against $229,547 in the preceding year. Pottery produced from imported clays was valued at $53,678, as given in Table 183, making this total production worth $292,020. While no sanitary ware was produced in Canada from domestic clays during 1924, the production of this commodity from imported clays was valued at $254,752.

In computing the value of the mineral production of Canada, only the sales of pottery made from domestic clays are included; the value of pottery made from imported clays is included in the record of manufactures, on which a special Bureau report is issued.

Table 196.—Production of Pottery from Domestic Clays in Canada, 1888-1924

Year	Value	Year	Value	Year	Value	Year	Value
	$		$		$		$
1888	27,750	1898	214,675	1908	200,541	1917	122,878
1889	*	1899	185,000	1909	285,285	1918	130,242
1890	195,242	1900	200,000	1910	250,924	1919	185,474
1891	258,844	1901	200,000	1911	102,493	1920	209,171
1892	265,811	1902	200,000	1912	43,955	1921	231,202
1893	213,180	1903	200,000	1913	53,533	1922	266,391
1894	162,144	1904	140,000	1914	35,371	1923	229,547
1895	151,588	1905	120,000	1915	64,900	1924	238,342
1896	163,427	1906	150,000	1916	61,069		
1897	129,629	1907	253,809			Total	6,143,483

*Not available.

Kaolin.—Up to the present date, the only deposit of kaolin which has been developed in Canada, is located at St. Rémi d'Amherst, near Huberdeau, Quebec. This deposit was operated during the first part of 1923, and shipments were made, amounting in all to 163 tons of white clay. In 1922, shipments were considerably higher amounting to 1,197 tons. There was no production of kaolin in 1924.

Table 197.—Production of Kaolin in Canada, 1912-1924

Year	Tons	Value	Year	Tons	Value	Year	Tons	Value
		$			$			$
1912	20	160	1917	533	9,594	1922	1,197	17,866
1913	500	5,000	1918	863	19,299	1923	163	2,369
1914	1,000	10,000	1919	759	13,744	1924	.....	.....
1915	1,300	13,000	1920	683	15,022			
1916	1,750	17,500	1921	124	1,885	Total	8,892	125,442

Refractories.—*Fireclay.*—Sales of fire clay or refractory clay sold as such, in Canada, during 1924, were valued at $26,258. Shipments of this commodity were made from deposits in the provinces of British Columbia, Saskatchewan, New Brunswick and Nova Scotia during the year.

Firebrick.—Firebrick produced from domestic clays totalled 4,327 thousand valued at $209,-256, as against 6,122 thousand valued at $295,037 in the previous year. British Columbia was the principal producer accounting for 68 per cent of the total sales of this commodity in the whole of Canada.

Imports of firebrick into Canada during 1924, consisting of magnesite brick, silica brick, firebrick of a kind not made in Canada, and firebrick n.o.p., were appraised at $1,365,644.

Large deposits of magnesite from which a good grade of basic high temperature brick may be made, occur in the province of Quebec.

Table 198.—Production of Fire Clay in Canada, 1889-1924

Year	Quantity	Value	Year	Quantity	Value	Year	Quantity	Value
	Tons	$		Tons	$		Tons	$
1889	400	4,800	1902	2,741	4,283	1915	2,328	12,065
1890	.....	.....	1903	2,639	3,523	1916	9,206	30,767
1891	250	750	1904	5,972	17,466	1917	10,534	49,455
1892	1,991	4,467	1905	5,088	13,917	1918	8,732	44,351
1893	540	700	1906	6,559	18,522	1919	4,600	24,163
1894	539	2,167	1907	.....	.....	1920	8,321	44,091
1895	1,329	3,492	1908	1,084	8,121	1921	2,931	29,851
1896	842	1,805	1909	4,405	12,390	1922	10,196	55,185
1897	2,118	5,759	1910	1,425	5,863	1923	2,685	24,158
1898	670	1,680	1911	7,532	24,128	1924	3,615	26,258
1899	599	1,295	1912	6,307	24,343			
1900	1,245	4,130	1913	3,345	14,018	Total	127,848	536,758
1901	3,979	5,920	1914	2,171	12,875			

Table 199.—Production of Fire Brick and Other Fire-Clay Products in Canada, from Domestic Clays, 1907-1924

Year	Fire brick		Other fireclay products	Year	Fire brick		Other fireclay products
	Quantity	Value	Value		Quantity	Value	Value
	M	$	$		M	$	$
1907	4,323	113,322	18,000	1917	8,192	199,171	77,885
1908	2,416	70,429	31,752	1918	7,192	248,884	111,589
1909	1,059	32,742	33,000	1919	5,610	268,756	96,435
1910	1,375	29,352	15,000	1920	7,293	375,230	54,792
1911	2,368	44,122	20,880	1921	4,502	242,462	91,685
1912	3,430	67,192	34,050	1922	6,705	251,776	67,588
1913	3,667	86,164	42,556	1923	6,122	295,037	81,345
1914	2,816	72,299	22,394	1924	4,327	209,256	51,273
1915	2,896	68,700	29,928				
1916	5,689	147,757	56,038	Total	79,982	2,822,651	936,190

Table 200.—Production of Refractories, in Canada, from Domestic Clays, by Provinces, 1923

Province	Fire clay		Fire brick			Fire clay blocks and shapes
	Sold or used		Manufactured	Sold or used		
	Quantity	Value		Quantity	Value	Sold or used
	Tons	$	M	M	$	$
Nova Scotia	1,189	5,448	2,260	1,811	100,700	1,550
New Brunswick	.....	.....	16	19	1,377	.....
Ontario	98	1,475	803	892	44,772	34,618
Saskatchewan	324	2,729	525	450	17,985	1,180
Alberta	.....	.....	50	65	1,630	3,610
British Columbia	1,074	14,506	3,553	2,885	128,573	40,387
Canada	**2,685**	**24,158**	**7,207**	**6,122**	**295,037**	**81,345**

Table 201.—Production of Refractories, in Canada, from Domestic Clays, by Provinces, 1924

Province	Fire clay		Fire brick		Fire clay blocks and shapes
	Sold or used		Sold or used		
	Quantity	Value	Quantity	Value	Sold or used
	Tons	$	M	$	$
Nova Scotia	1,967	5,558	176	8,269	930
New Brunswick	50	2,005	23	610	.....
Ontario	.....	.....	718	38,509	.....
Saskatchewan	315	2,436	436	19,936	3,818
Alberta	.....	.....	.....	.....	12,977
British Columbia	1,313	16,559	2,974	141,902	33,548
Canada	**3,645**	**26,258**	**4,327**	**209,256**	**51,273**

LIME.

During 1924 the production of lime in Canada amounted to 9,136,952 bushels valued at $3,178,541 as against 10,035,319 bushels valued at $3,266,608 in 1923. The average price obtained for quicklime during the year was 33·6 cents per bushel and hydrated lime sold for $11.92 per ton.

Importations of lime were recorded at 4,418 tons appraised at $46,578 and exports amounted to 22,750 tons worth $411,122

Quicklime finds its most extensive use in Canada as a material in the chemical industry, the pulp and paper industry, and in the building trades. Hydrated lime markets include building trades and dealers mostly; there are a few other outlets for the production,—chemical plants, agricultural purposes, metallurgical works, etc.

Ontario is the chief Canadian source of lime; this province produced 5,419,307 bushels of lime in 1924 having a selling value at the kiln of $1,840,152. Each of the other provinces, however, (except Prince Edward Island and Saskatchewan) produces this valuable building material.

Table 202.—Production of Lime in Canada, 1886-1924

Year	Value	Year	Bushels	Value	Year	Bushels	Value
	$			$			$
1886	283,755	1900 (Estimated)		800,000	1914	7,028,582	1,360,628
1887	394,859	1901 "		830,000	1915	5,047,244	1,015,702
1888	339,951	1902 "		892,000	1916	5,493,250	1,091,463
1889	362,848	1903 "		900,000	1917	6,567,170	1,558,487
1890	412,308	1904 "		780,000	1918	6,363,951	1,876,025
1891	251,215	1905 "		750,000	1919	7,147,504	2,316,607
1892	411,270	1906	5,230,406	1,009,177	1920	9,427,334	3,818,553
1893 (Estimated)	900,000	1907	4,755,316	974,595	1921	6,879,066	2,781,197
1894	900,000	1908	3,601,468	712,947	1922	8,972,971	3,165,005
1895	700,000	1909	5,592,924	1,132,756	1923	10,035,319	3,266,608
1896	650,000	1910	5,848,146	1,137,079	1924	9,136,952	3,178,541
1897	650,000	1911	7,533,525	1,517,599			
1898 (Estimated)	650,000	1912	8,475,839	1,844,849	**Total**		**48,019,422**
1899 "	800,000	1913	7,558,484	1,609,398			

Table 203.—Production of Lime in Canada, 1923 and 1924, showing Purpose for which Sold or Used

Purpose for which sold or used	1923				1924			
	Quicklime		Hydrated lime		Quicklime		Hydrated lime	
	Bushels	Value*	Tons	Value*	Bushels	Value*	Tons	Value*
		$		$		$		$
Building trades	1,538,188	530,342	27,110	340,740	1,056,281	430,624	22,772	284,327
Chemical works	2,513,848	697,233	1,838	13,108	2,653,362	843,111	1,953	13,835
Glass works	75,716	22,206	300	3,362	94,602	26,567	25	287
Smelters	242,366	80,787			56,518	35,689		
Pulp and paper mills	1,993,101	496,306	2,945	27,672	1,896,907	466,189	3,535	33,915
Sugar refineries	446,979	76,100			315,323	91,383		
Tanneries	52,544	20,749	25	250	63,141	21,411	111	1,166
Agricultural uses (fertilizers)	36,557	3,794	1,033	9,501			399	3,374
Dealers (uses unspecified)	1,130,676	530,624	18,371	230,785	743,816	287,362	13,073	160,937
Other consumers	526,353	180,748	143	2,295	940,259	424,002	4,218	51,362
Total sold or used	**8,556,319**	**2,638,889**	**51,765**	**627,719**	**7,820,209**	**2,629,338**	**46,086**	**549,203**

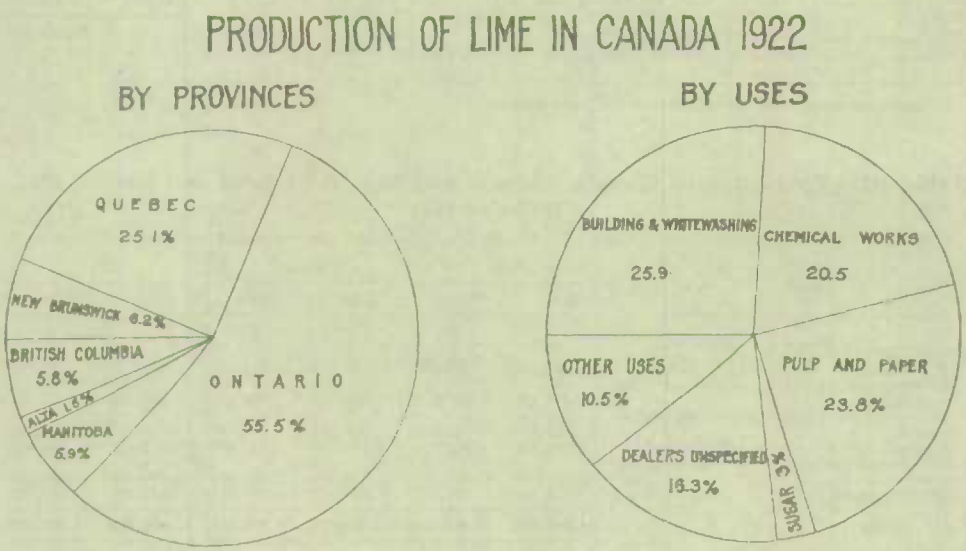
*Total selling value at kiln.

Table 204.—Production of Lime in Canada, by Provinces, 1922, 1923 and 1924

Province		Quicklime		Hydrated Lime		Total	
		Sold or used		Sold or used		Sold or used	
		Bushels	Selling value at kiln	Bushels	Selling value at kiln	Bushels	Selling value at kiln
			$		$		$
Nova Scotia	1922						
	1923	42,370	7,199			42,370	7,199
	1924			2,229	936	2,229	936
New Brunswick	1922	560,834	187,895			560,834	187,895
	1923	329,548	143,814			329,548	143,814
	1924	208,180	108,890			208,180	108,890
Quebec	1922	2,108,513	634,157	150,800	55,642	2,259,313	689,799
	1923	2,198,071	576,731	159,857	57,482	2,357,928	634,213
	1924	2,219,359	610,990	167,086	58,947	2,386,445	699,937
Ontario	1922	3,939,954	1,311,563	1,040,229	455,980	4,980,183	1,767,543
	1923	4,810,121	1,373,823	1,192,200	519,840	6,002,321	1,893,663
	1924	4,391,050	1,401,545	1,028,257	438,607	5,419,307	1,840,152
Manitoba	1922	525,184	163,799			525,184	163,799
	1923	524,128	161,226			524,128	161,226
	1924	394,229	121,518			394,229	121,518
Alberta	1922	129,827	70,992	800	336	130,627	71,328
	1923	86,810	37,653	943	346	87,753	37,999
	1924	89,814	36,083	400	196	90,214	36,279
British Columbia	1922	433,716	254,320	83,114	30,321	516,830	284,641
	1923	561,971	338,443	126,000	50,051	690,971	388,494
	1924	517,577	320,312	118,771	50,517	636,348	370,829
Canada	**1922**	**7,698,028**	**2,622,726**	**1,274,943**	**542,279**	**8,972,971**	**3,165,005**
	1923	**8,556,319**	**2,638,889**	**1,479,000**	**627,719**	**10,035,319**	**3,266,608**
	1924	**7,820,209**	**2,629,338**	**1,316,743**	**549,203**	**9,136,952**	**3,178,541**

Table 205.—Imports into Canada and Exports of Lime, 1922, 1923 and 1924

Item	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Imports	2,555	27,042	4,989	55,820	4,418	46,578
Exports	14,330	270,724	24,326	428,286	22,750	411,122



SAND AND GRAVEL

The production of sand and gravel in 1924 totalled 11,603,500 tons, valued at $3,181,083 as against 12,752,515 tons valued at $3,016,518 in 1923. This was a decrease in quantity of 1,149,015 tons and an increase in value of $164,565.

Imports of sand and gravel into Canada during the year amounted to 150,868 tons a decrease of 204,258 tons from the total recorded for 1923. Importations of silica sand, for the manufacture of glass and carborundum, and for use in foundries totalled 131,778 tons or 21 per cent less than in the preceding year.

Production by Railway Companies.—As the sand and gravel produced by railway companies in Canada accounted for 46 per cent of the total production, statistics relating to this output have been tabulated separately from data regarding other producers. It will be noted in the table below that 95 per cent of this output was utilized as railway ballast. In addition to this quantity there was a production of 211,861 tons for use in road-building and construction industries; and less quantities for use as blast, core and engine sands.

Production by Other Operators.—Statistics given under this sub-heading nclude data concerning the production of sand and gravel by all operators in Canada other than railway companies. These producers numbered 558 operators distributed as follows: Nova Scotia, 11; New Brunswick, 4; Quebec, 60; Ontario, 460; Manitoba, 9; Saskatchewan, 7; Alberta, 3; and 4 in British Columbia.

Table 206.—Production of Sand and Gravel in Canada, 1895-1924*

Year	Quantity	Value	Year	Quantity	Value	Year	Quantity	Value
	Tons	$		Tons	$		Tons	$
1895	277,162	118,359	1906	336,550	139,712	1917	9,182,417	2,326,249
1896	224,769	80,110	1907	298,095	119,853	1918	11,262,282	2,367,018
1897	152,963	76,729	1908	298,954	161,387	1919	10,364,481	2,680,460
1898	165,954	90,498	1909	481,584	256,166	1920	11,530,795	4,201,067
1899	242,450	101,640	1910	624,824	407,974	1921	11,574,862	2,537,249
1900	197,558	101,666	1911	573,494	408,110	1922	11,666,374	3,502,935
1901	197,302	117,465	1912	.....	1,512,099	1923	12,752,515	3,016,518
1902	159,703	119,120	1913	.....	2,258,874	1924	11,603,500	3,181,083
1903	355,792	124,006	1914	.....	2,505,310			
1904	399,809	189,803	1915	.....	1,624,767	Total	.....	36,317,352
1905	306,935	152,805	1916	8,156,207	1,838,320			

*Exports prior to 1912. No production statistics collected.

Table 207.—Production in Canada, Imports and Exports of Sand and Gravel, 1922, 1923 and 1924

Kind	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION—						
Moulding sand	159,369	107,738	154,711	111,537	118,202	80,072
Building sand and sand for concrete road-work, etc.	1,464,112	963,037	1,740,573	706,250	2,662,809	911,173
Other sand (including blast, core and engine sands)	165,352	49,916	101,695	72,980	46,515	22,346
Sand and gravel for railway ballast	6,099,560	1,066,716	6,149,789	800,496	5,076,511	696,966
Sand and gravel for concrete, road building, etc.	3,591,515	1,198,156	4,115,260	1,050,504	3,086,663	1,203,259
Crushed gravel	186,466	117,372	490,487	274,751	612,800	267,267
Total	**11,666,374**	**3,502,935**	**12,752,515**	**3,016,518**	**11,603,500**	**3,181,083**
IMPORTS—						
Sand, silica for glass and carborundum manufacture, etc.	107,873	224,473	167,556	317,250	131,778	324,279
Sand and gravel, n.o.p.	350,992	175,667	355,120	247,388	150,868	118,397
Total	**458,865**	**400,140**	**522,68**	**564,638**	**282,646**	**442,676**
EXPORTS	**683,709**	**116,121**	**764,521**	**182,759**	**1,036,029**	**210,496**

Table 208.—Railway Production of Sand and Gravel in Canada, 1922, 1923 and 1924

Kind	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Moulding sand	1,500	300	2,738	405	4,779	708
Building sand and sand for concrete road-work	24,379	9,468	5,524	2,670	23,121	7,317
Other sand (including blast, core and engine sand)	20,810	7,732	30,967	38,516	35,703	11,961
Sand and gravel for ballast	5,938,794	984,317	5,991,863	737,812	5,063,711	679,297
Sand and gravel for concrete, road-building, etc.	751,137	128,223	1,409,304	148,535	188,740	39,886
Crushed gravel	635	846	270	500	.....	.....
Total	**6,737,255**	**1,130,886**	**7,440,666**	**928,438**	**5,316,054**	**739,169**

Table 209.—Production of Sand and Gravel by Other Operators in Canada, 1922, 1923 and 1924

Kind	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
Moulding sand	157,869	107,438	151,973	111,132	113,423	79,364
Building sand and sand for concrete road-work, etc.	1,439,733	953,569	1,735,049	703,580	2,639,688	903,856
Other sand (including blast, core and engine sands)	144,542	42,184	70,728	34,464	10,812	10,385
Sand and gravel for railway ballast	160,766	82,399	157,926	62,684	12,800	17,669
Sand and gravel for concrete, road building, etc.	2,840,378	1,069,933	2,705,956	901,969	2,897,923	1,163,373
Crushed gravel	185,831	116,526	490,217	274,251	612,800	267,267
Total	**4,929,119**	**2,372,049**	**5,311,849**	**2,088,080**	**6,287,446**	**2,441,914**

Table 210.—Production of Sand and Gravel in Canada, by Provinces, 1923

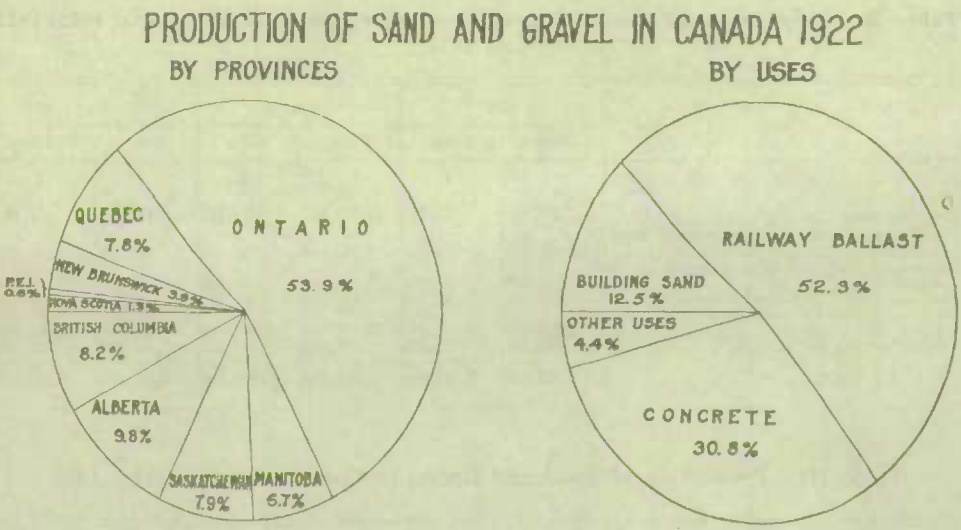
Kind		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total for Canada
Moulding sand	Tons	30	.....	.....	153,652	1,029	.....	.....	.....	154,711
	$	250	.....	.....	110,189	1,098	.....	.....	.....	111,537
Building sand	Tons	4,787	.....	279,666	1,293,189	37,067	7,287	10,920	107,655	1,740,573
	$	3,490	.....	100,158	513,527	19,035	5,398	7,523	57,119	706,250
Other sand	Tons	9,476	1,005	10,680	42,415	409	3,652	10,720	23,337	101,695
	$	8,474	28,140	4,336	21,986	290	2,300	2,817	4,637	72,980
Sand and gravel—										
(a) for railway ballast	Tons	162,979	487,844	672,569	3,012,959	440,563	412,283	551,943	388,050	*6,149,789
	$	22,131	49,630	77,390	370,876	51,705	45,606	122,008	56,721	*800,496
(b) for concrete, etc.	Tons	25,874	119,679	92,902	3,169,631	115,637	15,097	304,877	271,505	4,115,260
	$	21,083	16,804	24,291	736,499	50,381	6,237	52,165	142,984	1,050,564
Crushed gravel	Tons	270	.....	.....	474,587	814	.....	9,756	5,030	490,487
	$	500	.....	.....	253,881	969	.....	14,743	4,658	274,751
Total	**Tons**	**203,416**	**608,528**	**1,055,817**	**8,146,433**	**595,549**	**438,319**	**888,216**	**795,637**	**12,752,515**
	$	**55,928**	**94,634**	**306,175**	**2,006,958**	**123,478**	**59,541**	**199,256**	**266,119**	**3,016,518**

* Includes 20,600 tons valued at $4,429 used in Prince Edward Island.

Table 211.—Production of Sand and Gravel in Canada, by Provinces, 1924

Kind		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total for Canada
Moulding sand	Tons	.....	.....	3,361	114,099	742	.....	.....	.....	118,202
	$	.....	.....	953	78,293	826	.....	.....	.....	80,072
Building sand, etc.	Tons	4,225	.....	1,057,864	1,140,788	45,259	4,205	22,216	379,252	2,662,809
	$	2,779	.....	244,733	495,208	21,428	1,592	8,828	166,005	911,173
Other sand	Tons	4,596	1,337	16,121	8,803	607	.....	8,761	6,491	46,515
	$	4,136	352	2,389	8,138	600	.....	4,475	2,256	22,346
Sand and gravel—										
(a) for railway ballast	Tons	233,619	113,612	642,197	2,135,002	223,618	676,897	535,120	501,896	*5,076,511
	$	32,663	17,692	51,733	371,251	24,663	88,558	54,924	54,235	* 696,966
(b) for concrete, etc.	Tons	52,913	27,118	472,418	2,219,063	89,279	21,611	9,897	191,331	3,096,683
	$	20,023	5,955	136,754	890,737	34,381	6,895	4,579	103,935	1,203,259
Crushed gravel	Tons	.....	.....	5,184	547,530	.....	.....	39,690	20,486	612,890
	$	.....	.....	7,866	198,332	.....	.....	43,163	17,906	267,267
Total	**Tons**	**295,353**	**141,897**	**2,197,145**	**6,174,284**	**359,535**	**702,713**	**615,594**	**1,105,459**	**11,693,500**
	$	**59,601**	**23,999**	**414,428**	**2,041,959**	**81,897**	**97,045**	**115,969**	**344,937**	**3,181,983**

* Includes 11,490 tons valued at $1,248 used in Prince Edward Island.



SAND-LIME BRICK

The total output of sand-lime brick in 1924 was 55,873 thousand valued at $619,946 as compared with 60,080 thousand worth $897,960 in the previous year.

Ontario was the principal producer; the 10 plants operating in that province accounted for practically the entire Canadian output.

The production of sand-lime brick is not reported in the totals for the structural materials industries in this report, as both the sand and the lime used have been so recorded; production of sand-lime brick is regarded as a manufacturing operation and the item is therefore shown in the report on the *Manufactures of Non-Metallic Minerals*, issued annually by the Bureau. But because of its association as a structural material, data regarding the production of sand-lime brick are here given.

Table 212.—Sand-Lime Brick Manufactured in Canada, by Provinces, 1922, 1923 and 1924

Province	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
	M	$	M	$	M	$
Ontario	48,449	786,772	59,080	887,960	54,410	604,275
Manitoba	3,800	57,000	1,000	10,000	1,104	11,040
Saskatchewan	500	7,235	.....	.....	359	4,631
Total	**52,749**	**851,007**	**60,080**	**897,960**	**55,873**	**619,946**

SLATE

The entire production of Canadian slate comes from deposits situated along the south shore of the St. Lawrence river in the province of Quebec. Mining of slate has been carried on in this province since about 1854, the maximum production, 6,935 tons valued at $119,160 occurring in the year 1889. In 1924, as in the preceding year, no roofing slate was produced from the quarries in Melbourne Township, Quebec. The total sales for 1923, amounting to 1,836 tons valued at $17,289, consisted of crushed green and red slate, for use in the manufacture of roofing paper. During 1922, the production amounted to 1,899 tons of crushed slate valued at $14,871.

Imports of slate products into Canada during 1924 did not reach as great total values as in the preceding year. Customs figures did not show any exports of slate in 1923 or 1924.

Table 213.—Production in Canada and Imports of Slate, 1922, 1923 and 1924

	1922		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
PRODUCTION—						
Crushed.....Tons	1,899	14,871	1,836	17,289	.....	.....
IMPORTS—						
Roofing.....Squares	6,640	67,035	5,905	67,507	5,718	71,298
School-writing.....	.....	112,885	.....	111,922	.....	74,879
Pencils.....	.....	17,330	.....	9,027	.....	7,601
Mantles and manufactures of slate, n.o.p.	.....	73,974	.....	77,390	.....	66,624
Total.....	.....	**271,224**	.....	**265,646**	.....	**220,402**

STONE

Sales of stone quarried in Canada during 1924 totalled 4,768,014 tons valued at $6,407,757 as against 4,111,334 tons valued at $5,903,289 in 1923. This was an increase of 16 per cent, in quantity and 8·5 per cent in value. In point of value, Quebec was the largest producer, but having regard to quantity, Ontario had the greater output. British Columbia was next in importance and Nova Scotia, Manitoba, New Brunswick and Alberta followed in the order named.

Ontario produced more crushed stone than any other province but Quebec, had a greater production of monumental and ornamental stone, and also led all the other provinces in the production of rough and dressed building stone.

Limestone quarried and used by the operator in the manufacture of lime has not been included in this record; in order to avoid duplication of entries only the quantity and value of lime made are recorded.

Table 214.—Production of Limestone and Sandstone in Canada*, 1909-1924

Year	Limestone	Sandstone	Year	Limestone	Sandstone	Year	Limestone	Sandstone
	$	$		$	$		$	$
1909.....	2,139,691	374,179	1915.....	2,312,081	249,336	1920.....	5,665,693	165,149
1910.....	2,249,576	502,148	1916.....	2,224,091	146,244	1921.....	5,155,046	78,036
1911.....	2,594,926	451,183	1917.....	2,283,659	261,256	1922.....	4,175,941	80,908
1912.....	2,762,936	329,352	1918.....	2,342,403	102,750	1923.....	4,475,921	66,547
1913.....	3,204,091	396,782	1919.....	3,074,815	86,577	1924.....	4,831,084	240,273
1914.....	2,672,781	487,140						
						Total.....	**52,165,335**	**4,017,860**

*Data not available prior to 1909.

Table 215.—Production of Granite and Marble in Canada, 1886-1924

Year	Granite	Marble	Year	Granite	Marble	Year	Granite	Marble
	$	$		$	$		$	$
1886.....	63,909	9,900	1900.....	80,000	.....	1913.....	1,653,791	249,975
1887.....	142,506	6,224	1901.....	155,000	.....	1914.....	2,176,602	132,533
1888.....	147,305	3,100	1902.....	210,000	.....	1915.....	1,525,553	158,027
1889.....	79,624	980	1903.....	200,000	.....	1916.....	1,247,257	118,810
1890.....	65,985	10,776	1904.....	150,000	.....	1917.....	639,412	55,820
1891.....	70,056	1,752	1905.....	226,305	.....	1918.....	590,871	550
1892.....	89,326	3,600	1906.....	278,419	.....	1919.....	850,563	213,982
1893.....	94,393	5,100	1907.....	194,712	.....	1920.....	1,508,916	240,593
1894.....	109,936	.....	1908.....	282,320	125,000	1921.....	937,894	172,720
1895.....	84,838	2,000	1909.....	454,824	158,441	1922.....	1,486,250	231,894
1896.....	106,709	2,405	1910.....	739,516	158,779	1923.....	1,159,303	201,518
1897.....	61,934	.....	1911.....	1,119,865	162,783	1924.....	1,013,345	322,455
1898.....	81,073	.....	1912.....	1,373,119	260,764			
1899.....	90,542	.....				**Total**.....	**21,541,983**	**3,010,481**

Table 216.—Production of Stone in Canada, by Provinces, Showing Purposes for Which Used, 1923

Item		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	British Columbia	Canada
Building—								
Rough	Tons	2,108	50	16,923	38,962	2,498	6,872	67,413
	$	17,600	530	106,790	151,499	17,589	47,759	341,767
Dressed	Tons	.....	450	16,297	1,289	2,000	.....	20,036
	$	.....	14,630	675,682	26,035	43,107	.....	759,454
Monumental and ornamental—								
Rough	Tons	60	452	5,196	4,151	65	.....	9,924
	$	900	8,074	127,896	14,250	713	.....	151,833
Dressed	Tons	450	1,100	381	441	.....	960	3,332
	$	20,500	73,014	22,875	14,336	.....	33,800	164,525
Flagstone	Tons	.....	.....	.....	754	.....	.....	754
	$	.....	.....	.....	5,429	.....	.....	5,429
Curbstone	Tons	.....	99	3,174	2,167	.....	150	5,590
	$	.....	1,835	22,140	13,978	.....	2,500	40,453
Paving blocks	Tons	.....	215	14,717	11,351	.....	.....	26,283
	$	.....	24,565	124,625	115,816	.....	.....	265,006
Limestone, for flux	Tons	117,162	.....	1,298	29,160	.....	10,452	158,072
	$	98,500	.....	1,263	34,800	.....	12,000	146,563
Limestone for sugar factories, chemical works, etc.	Tons	1,060	10,034	71,917	106,313	.....	3,259	192,583
	$	4,250	19,481	73,770	112,265	.....	7,284	217,050
Rubble and riprap	Tons	17,742	200	12,642	65,560	12,863	51,316	160,323
	$	35,220	99	10,859	86,184	15,084	42,907	190,353
Crushed	Tons	100	9,848	960,331	2,370,776	33,878	92,091	3,467,024
	$	120	23,855	1,166,921	2,284,560	41,784	103,616	3,620,856
Total	**Tons**	**138,682**	**22,448**	**1,102,876**	**2,630,924**	**51,304**	**165,100**	**4,111,334**
	$	**177,090**	**166,083**	**2,332,821**	**2,859,152**	**118,277**	**249,866**	**5,903,289**
Per cent of total	Quantity	3·37	0·55	26·83	63·98	1·25	4·02	100·0
	Value	3·00	2·81	39·53	48·43	2·00	4·23	100·0

Table 217.—Production of Stone in Canada, by Provinces, Showing Purposes for Which Used, 1924

Item		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada
Building—									
Rough	Tons	1,738	.....	33,037	15,752	815	.....	6,785	59,027
	$	19,740	.....	207,68	44,539	9,498	.....	40,713	322,172
Dressed	Tons	.....	30	20,644	1,119	1,200	80	650	23,753
	$	.....	1,500	711,651	36,545	30,570	2,455	83,500	866,221
Monumental and Ornamental—									
Rough	Tons	193	1,141	9,446	1,609	2	.....	.....	12,391
	$	2,338	16,384	127,143	10,312	39	.....	.....	156,216
Dressed	Tons	201	481	636	65	.....	.....	950	2,333
	$	17,059	45,325	27,668	3,696	.....	.....	67,098	160,846
Flagstone	Tons	.....	.....	.....	719	.....	.....	.....	719
	$	.....	.....	.....	5,761	.....	.....	.....	5,764
Curbstone	Tons	.....	702	11,383	6	.....	.....	200	12,291
	$	.....	8,043	56,381	71	.....	.....	3,000	67,495
Paving blocks	Tons	.....	292	6,858	7,642	.....	.....	.....	14,792
	$	.....	4,171	96,957	61,184	.....	.....	.....	162,312
Limestone, for flux	Tons	54,899	.....	7,373	218,429	.....	.....	24,421	305,122
	$	49,789	.....	7,843	197,308	.....	.....	14,652	269,592
Limestone for sugar factories, chemical works, etc.	Tons	.....	11,732	68,631	101,207	.....	.....	2,632	187,502
	$	.....	24,556	66,880	69,165	.....	.....	7,229	167,830
Rubble and riprap	Tons	8,331	.....	15,205	90,888	5,915	200	48,036	168,608
	$	16,361	.....	10,692	67,182	7,415	100	39,920	141,673
Crushed	Tons	2,170	4,851	1,417,676	2,399,707	46,103	16,418	94,551	3,981,476
	$	6,534	14,132	1,612,643	2,263,602	46,354	16,762	97,629	4,087,636
Total	**Tons**	**67,535**	**19,229**	**1,592,089**	**3,849,173**	**54,065**	**16,698**	**178,225**	**4,768,014**
	$	**111,821**	**114,111**	**2,925,520**	**2,789,368**	**93,876**	**19,317**	**353,741**	**6,407,757**
Per cent of total	Quantity	1·4	0·4	33·4	59·6	1·1	0·4	3·7	100·0
	Value	1·7	1·8	45·7	43·5	1·5	0·3	5·5	100·0

Table 218.—Production of Stone in Canada, by Kinds and by Provinces, 1923

Province	Granite		Limestone		Marble		Sandstone	
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
		$		$		$		$
Nova Scotia	17,296	54,892	118,222	102,750	.....	.....	3,164	19,448
New Brunswick	11,509	143,473	10,689	21,981	.....	.....	250	629
Quebec	29,240	436,902	1,057,284	1,671,309	2,473	201,518	13,879	23,092
Ontario	188,998	293,454	2,436,453	2,542,320	.....	.....	5,473	23,378
Manitoba	.....	.....	51,304	118,277	.....	.....	.....	.....
British Columbia	151,389	230,582	13,711	19,284	.....	.....	.....	.....
Canada	**398,432**	**1,159,303**	**3,687,663**	**4,475,921**	**2,473**	**201,518**	**22,766**	**66,547**

Table 219.—Production of Stone in Canada, by Kinds and by Provinces, 1924

Province	Granite		Limestone		Marble		Sandstone	
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
		$		$		$		$
Nova Scotia	7,554	33,021	57,069	56,323	.....	.....	2,912	22,480
New Brunswick	4,921	80,812	14,308	33,299	.....	.....	.....	.....
Quebec	42,283	442,933	1,405,237	2,058,432	4,379	322,455	80,190	101,700
Ontario	211,691	208,219	2,614,911	2,551,111	.....	.....	10,571	30,038
Manitoba	.....	.....	54,065	93,876	.....	.....	.....	.....
Alberta	.....	.....	16,418	16,762	.....	.....	280	2,555
British Columbia	150,522	248,360	27,053	21,881	.....	.....	650	83,500
Canada	**419,971**	**1,013,345**	**4,249,061**	**4,831,684**	**4,379**	**322,455**	**94,603**	**240,273**

Table 220.—Production of Stone in Canada by Kinds, Showing Purposes for Which Used, 1923

Item	Granite		Limestone		Marble		Sandstone	
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
		$		$		$		$
Building—								
Rough	10,666	92,049	54,430	224,512	159	7,076	2,158	18,130
Dressed	4,440	119,437	13,971	451,082	1,625	188,935	.....	.....
Monumental and ornamental—								
Rough	9,796	150,575	128	1,258	.....	.....	.....	.....
Dressed	3,319	164,137	13	388	.....	.....	.....	.....
Flagstone	.....	.....	200	1,000	.....	.....	554	4,429
Curbstone	3,411	26,307	12	108	.....	.....	2,167	13,978
Paving blocks	24,226	255,568	1,117	671	.....	.....	940	8,767
Limestone, for flux	.....	.....	158,072	146,563	.....	.....	.....	.....
Limestone for sugar factories, chemical works, etc	.....	.....	192,583	217,050	.....	.....	.....	.....
Rubble and riprap	68,218	76,393	88,097	107,042	.....	.....	4,008	6,918
Crushed	274,356	274,837	3,179,040	3,326,187	689	5,507	12,939	14,325
Total	**398,432**	**1,159,303**	**3,687,663**	**4,475,921**	**2,473**	**201,518**	**22,766**	**66,547**

Table 221.—Production of Stone in Canada by Kinds, Showing Purposes for Which Used, 1924

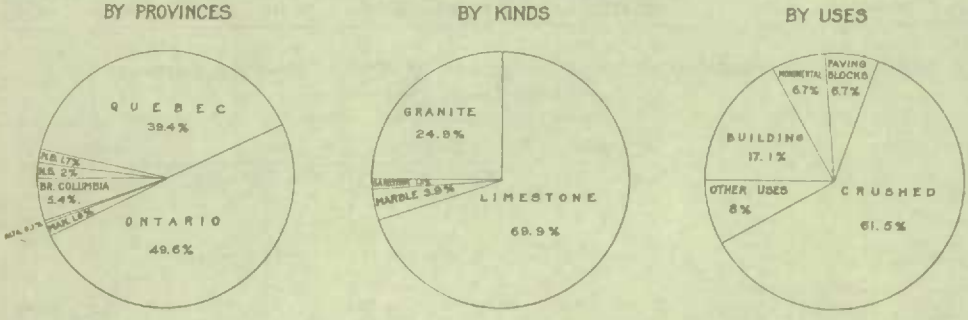
Item	Granite		Limestone		Marble		Sandstone	
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
		$		$		$		$
Building—								
Rough	11,905	85,175	40,875	163,825	912	36,471	5,335	36,701
Dressed	3,810	81,826	16,575	416,760	2,588	280,280	780	87,356
Monumental and ornamental—								
Rough	12,223	154,181	97	1,194	.....	.....	71	838
Dressed	2,298	159,706	35	1,140	.....	.....	.....	.....
Flagstone	.....	.....	5	52	.....	.....	714	5,712
Curbstone	12,275	67,331	16	161	.....	.....	.....	.....
Paving blocks	14,602	160,612	.....	.....	.....	.....	190	1,700
Limestone, for flux	.....	.....	305,122	269,592	.....	.....	.....	.....
Limestone for sugar factories, chemical works, etc	.....	.....	187,502	167,830	.....	.....	.....	.....
Rubble and riprap	56,650	55,593	104,445	78,113	.....	.....	7,513	7,967
Crushed	306,208	248,918	3,594,389	3,733,014	879	5,704	80,000	100,000
Total	**419,971**	**1,013,345**	**4,249,061**	**4,831,684**	**4,379**	**322,455**	**94,603**	**249,273**

Table 222.—Production in Canada, by Kinds and by Provinces, and Imports and Exports of Stone, 1922, 1923 and 1924

—	1922		1923		1924	
	Tons	Value	Tons	Value	Tons	Value
		$		$		$
PRODUCTION, BY KINDS—						
Granite	457,925	1,486,250	398,432	1,159,303	419,971	1,013,345
Limestone	3,152,124	4,175,941	3,687,663	4,475,921	4,249,061	4,831,684
Marble	1,912	231,894	2,473	201,518	4,379	322,455
Sandstone	25,221	80,908	22,766	66,547	94,603	240,273
Total	**3,637,182**	**5,974,993**	**4,111,334**	**5,903,289**	**4,768,014**	**6,407,757**
PRODUCTION, BY PROVINCES—						
Nova Scotia	87,955	119,492	138,682	177,090	67,535	111,824
New Brunswick	12,027	104,730	22,448	166,083	19,229	114,111
Quebec	987,355	2,342,316	1,102,876	2,332,821	1,592,089	2,925,520
Ontario	2,317,265	2,969,926	2,630,924	2,859,152	2,840,173	2,789,368
Manitoba	34,356	106,638	51,304	118,277	54,065	93,876
Alberta	554	7,300	.....	.....	16,698	19,317
British Columbia	197,670	324,591	165,100	249,866	178,225	353,741
Canada	**3,637,182**	**5,974,993**	**4,111,334**	**5,903,289**	**4,768,614**	**6,407,757**
IMPORTS—						
Building stone	.....	371,490	.....	403,550	.....	267,699
Granite	.....	72,633	.....	158,864	.....	140,237
Marble	.....	294,206	.....	293,806	.....	291,380
Refuse stone	328,679	199,397	302,819	225,565	281,824	174,738
Manufactures of stone, n.o.p.	.....	41,894	.....	52,048	.....	36,103
Total	.....	**979,620**	.....	**1,133,833**	.....	**910,157**
EXPORTS—						
Crushed	126,063	80,544	89,434	159,088	59,984	100,873
Ornamental, rough*	2,666	32,474	3,165	30,350	3,390	45,195
Building, rough†	2,357	13,364	1,302	12,575	2,059	18,680
Dressed	.....	7,870	.....	20,227	.....	5,365
Total	.....	**134,252**	.....	**222,240**	.....	**170,113**

*Granite, marble, etc., unwrought. †Freestone, limestone, etc., unwrought.

PRODUCTION OF STONE IN CANADA IN 1922.



PART TWO

GENERAL STATISTICS

Supplementing the statistics reported in Part One, general reviews have been prepared showing for each principal group in the mineral industry of Canada, statistics of capital employed, number of employees, salaries and wages paid, fuel and electricity used, and power units employed. Following a general review of the mineral industry in Canada as a whole, there is a series of short articles, each of which traces the development of the mineral industry in a single province. General tables present the principal statistics of the industry as a whole, as well as by groups, and by provinces. There are separate sections each dealing with the general statistics pertaining to a particular industrial group, as the copper-gold-silver industry, nickel-copper industry, asbestos industry, etc.

GENERAL STATISTICS

REVIEWS OF THE MINERAL INDUSTRY OF CANADA AND ITS PROVINCES

To meet the very general demand for a more comprehensive review of the mineral industry than is afforded by a record of commodity output, as presented in Part One of this report, there have been collected in the following pages, data on the industry in its many phases, which are designed to give the reader a wider knowledge of the growth and importance of Canada's third greatest primary industry. In order to present the subject in as acceptable form as possible this part of the report has been arranged in two main groups. The first section reviews the industry in each province, tracing the developments in the leading fields. Then follow general tables presenting for the whole of Canada, data on the number of mines in operation, capital employed by main groups of enterprises, the number of workers engaged and the sums spent in salaries and wages, cost of fuel and electricity, details regarding plant equipment and power consumption. Finally, there are individual sections devoted to a presentation of the leading features of each principal industrial group. In all these sections, the aim is to present in concise form, the salient points of interest in a subject that for great commercial importance and romantic charm is not excelled.

Canada

As a general introduction to the subject, the following paragraphs are of interest. They are taken from the official contribution of the *Canadian Institute of Mining and Metallurgy* to the Empire Mining and Metallurgical Congress held in London, England, June, 1924, as printed in the Transactions of the Canadian Institute of Mining and Metallurgy, 1924. The paper was prepared by Prof. R. P. D. Graham of McGill University, Montreal.

"It is almost exactly two hundred years since the foundations of the mining and metallurgical industries in Canada were laid. There was nothing spectacular about this early start. It had to do with the most basic phases of these industries—the mining of coal and iron ore, and the manufacture of cast and wrought iron. At several points along the coast of Cape Breton Island, coal seams may be seen outcropping quite conspicuously, and it is probable that they had been observed, and possibly worked in a small way, in very early times. However that may be, these coal seams have the distinction of being the first in North America of which there is any printed record, reference to them appearing in a volume by Nicolas Denys which was published in Paris in 1672. Regular coal mining in the district did not commence until about fifty years later, however.

"The metallurgists started their operations along the north shore of the St. Lawrence river. Here, at many points between Montreal and Quebec, are to be found deposits of bog iron ore, and in 1730 a furnace for smelting such ore was established on the St. Maurice river. The St. Maurice forges continued in operation until 1880, and throughout that long period they were famed for the fine quality of castings produced, and also for a superior wrought iron.

"Other occurrences of minerals were doubtless observed from time to time in these early days as settlements spread, and as trading posts were established farther and farther afield. Of special interest in this connection is a map of the lakes of Canada, published in 1744, on which is given the location of a deposit of argentiferous galena (Ance à la Mine) on the eastern shore of Lake Timiskaming. This is one of the oldest known metalliferous deposits in North America, and it was the scene of active mining operations as recently as 1901; and yet, for at least one hundred and sixty years after it was known, there lay awaiting discovery, less than ten short miles to the northwest, the almost fabulously rich silver veins of what is now known as the Cobalt district.

"However, isolated discoveries such as that on Lake Timiskaming must have been entirely the result of chance, and not of even haphazard prospecting. As for systematic prospecting, it can hardly be said to have existed in Canada until nearly the middle of the nineteenth century, since, before that time, little or nothing was known of the geology of the country. In 1843, however, the Geological Survey of Canada was instituted by the Provincial Government, with Sir William Logan as Director. With a small but enthusiastic band of assistants, many of them explorers whom he himself had trained, he set about the herculean task of exploring, mapping, and geologically surveying eastern Canada. So vigorously was the work prosecuted that in 1863 he was able to publish a very comprehensive *"Geology of Canada,"* a volume of nearly 1,000 pages

dealing with the southern portions of the provinces of Ontario and Quebec, and accompanied by an Atlas of geological maps. Special attention had been paid to mineral occurrences, both metallic and non-metallic, and where such were found or known, they were carefully examined as to their economic possibilities. These deposits are described in a section of 165 pages on economic geology.

"This period of 20 years, from 1843 to 1863, may be said to have marked the real inauguration of the mining industry in eastern Canada. Deposits of iron ore were opened up in various parts of Ontario and Quebec; numerous occurrences of copper ore were known and mined, especially in the Eastern Townships of Quebec, where the Acton mine had the reputation of being, in its time, the richest copper mine in the world; alluvial gold was obtained from the gravels of the St. Francis and other rivers on the south side of the St. Lawrence; and in Nova Scotia, lode-gold mining became established. This healthy growth of the industry may be attributed in very large measure to the influence of the Geological Survey. Both directly, as a result of its explorations and through the distribution of its reports and maps, and indirectly, by encouraging prospecting and disseminating information concerning Canada's mineral resources, especially through the exhibition of collections of Canada's minerals and ores at the principal British and International exhibitions, the Geological Survey played an enormously important part in firmly establishing the mineral industry of the Dominion, and in calling world-wide attention to Canada's actual and potential mineral resources. It only remains to add that Logan's successors in the Survey have at all times admirably maintained this close association and co-operation with the industry.

"Prior to the building of the Canadian Pacific railway across the continent, west Canada, beyond the Great Lakes was virtually isolated from the East. Settlement was slower, and it is thus not surprising that there is little or no record of mineral discoveries in the west until about the middle of the nineteenth century. Among the first of these was the finding of coal at Fort Rupert in 1835, and later, in 1858, the important discoveries of placer gold along the Fraser and other rivers were made. Notwithstanding this late start, however, British Columbia soon became the premier mineral-producing province of the Dominion, a position it maintained until 1906.

"While the establishment of the Geological Survey marks the first important epoch in the history of Canada's mineral industry, the completion, in 1885, of the construction of the Canadian Pacific railway across the continent opened a second chapter, and one of tremendous expansion. Vast new territories were rendered accessible, and in these it was often the prospector who led the way, with consequences that soon made themselves evident. The first important find was made near Sudbury, Ontario, in 1883, when, in blasting a cutting for the railway, a body of nickel-copper ore, for which the district has since become world-famed, was encountered. Similar good fortune was in store for British Columbia, and the nineties witnessed the discovery of a remarkable succession of ore-bodies, especially auriferous copper and argentiferous lead-zinc deposits, in the southeastern section of the province, between the railway and the International boundary. An idea of the rapidity with which the mining industry expanded during this period is best conveyed by figures. Thus, while for the year 1886 the total mineral production of the Dominion had a value of $10,221,255, seven years later in 1893, the value had doubled, and in 1903 it amounted to $61,740,513.

"But this transcontinental railway did not open up the whole of Canada. It permitted of a channel sample being taken, and events have proved that it was probably no more than a fair average sample. As transportation facilities were improved and extended, other ore deposits were found, as, for example, the silver veins of the Cobalt district, discovered in 1903 during the construction of the Timiskaming and Northern Ontario railway; and, largely as a result of the output from such new mines, the value of the total mineral production had again more than doubled by 1913, to $145,634,812. Fluctuations during and following the war culminated in an output having the record value of $227,859,000 in 1920; but apart from this abnormal period, the value of the annual mineral production has continued to rise.

"But other factors than the provision of increased transportation facilities have contributed to the remarkable growth of the industry. The staff of the Geological Survey has been considerably enlarged since the days of Logan, although it still remains painfully inadequate for the gigantic task with which it is entrusted, and much that might be accomplished with immediate benefit to the mining industry has perforce to remain undone. A Mines Branch also has been

established, these two together constituting the Federal Department of Mines. Except in the newer provinces of Manitoba, Saskatchewan, and Alberta, and in the Yukon and Northwest Territories, the control of mining lands, the granting of mineral rights, and the administration of mining laws, come under the jurisdiction of the individual provinces, and each of these has its own department or bureau of mines. As a result, there are numerous parties of geologists in the field in every province each season, and a very large proportion of their work is directed to the examination and geological mapping of districts where mineral deposits are known to occur or where such might be expected. These several departments of mines have rendered invaluable assistance to the mining industry, through the distribution of reports and maps, the framing of intelligent mining laws, and in innumerable other ways.

"The universities have played their part by training the men necessary to direct and carry on the industry. The courses in mining and metallurgical engineering, and in general and economic geology, offered by the leading universities of the country have the reputation among mining men everywhere of being models of their kind, and it may be stated that the vast majority of those responsible for the operation of Canadian mines and metallurgical plants, as well as practically all the officers of the departments and bureaus of mines, are Canadians who have received their training in the country. Nor has the prospector, that essential, though perhaps not always sufficiently appreciated, prop of the industry, been forgotten, and at several centres the provincial departments of mines have from time to time established classes where he can obtain instruction in the rudiments of mineralogy and geology. It may not be out of place here to express the opinion that any young man who proposes to follow the mining or metallurgical profession in Canada would be well advised to obtain his training in Canada, and, if at all possible, to take an engineering course at one of the universities.

"As the industry grew, and the number of men engaged in it increased, a demand arose for an association of some kind, through which mining men might meet together from time to time for the discussion of mutual problems, and to present papers dealing with mining methods, metallurgical practice, and allied subjects. To meet this need, the General Mining Association of the Province of Quebec was organized in January, 1891. In 1896 the Federated Canadian Mining Institute was established, and two years later the Canadian Mining Institute was incorporated, replacing the older organizations. For more than thirty years Nova Scotia has had its Mining Society, and in 1918 this became affiliated with the larger Canadian Mining Institute, which in 1920, broadened its title and became the Canadian Institute of Mining and Metallurgy. The Institute is thus representative of these industries from coast to coast, and its *Transactions* form a very complete history of the great progress which mining and metallurgical practice has made in Canada during the last quarter of a century".

The Mineral Industry of Nova Scotia

Because of the geographical position of Nova Scotia on the Atlantic seaboard, this province was among the first in Canada to have its mineral resources explored. In mining, and especially in the production of bituminous coal, Nova Scotia has had an enviable reputation for over 200 years, while its gypsum deposits, which are among the most extensive in Canada, are only in the primary stage of development. In addition to these resources, there are deposits of iron, gold and antimony that have added much to the mineral wealth of the province. Non-metallics, such as dolomite, limestone, salt, and building stone, also have their place.

Protective tariff provisions designed to promote the coal-mining industry in Nova Scotia were made in 1877, when a duty was placed on American soft coal entering Canada; this made it possible for the Nova Scotia mine operators to compete with United States producers successfully in the markets along the St. Lawrence River. With the advent of the steel industry, using the iron ore from the neighbouring country of Newfoundland, the consumption of coal was further increased.

Gold was discovered in Nova Scotia about the year 1860, and the auriferous area has been variously estimated to represent from 3,000 to 5,000 square miles. Considerable work has been done on these gold ores, many of which contain arsenic, but of late there has not been much to report except that in the year 1923 when the price of arsenic was high, production was stimulated for a time.

Possibilities of production there are in many fields, but at the present time, Nova Scotia's mineral output is limited to the few commodities mentioned above.

The Mineral Industry of New Brunswick.

Although there are many important economic minerals in the province of New Brunswick, development of these resources has not been as rapid here as in other provinces of the Dominion, probably because of the general concealment of the rocks by forests, which adds to the difficulty of locating mineralized areas suitable for commercial development. Actual mining has not progressed therefore to the extent that geological indications would warrant and very little of the province has been prospected.

At present, activities are restricted mainly to the mining of bituminous coal, the quarrying of gypsum and stone, and the production of petroleum, natural gas and lime.

Coal is found at several places in the broad carboniferous belt, extending westward from the coast, in Albert and Kent counties through Kings, Queens, Sunbury and York. There is a well-known deposit near Minto, Grand Lake District, at Beersville, on the coal branch of the Richibucto river and at Dunsinane, thirty miles southwest of Moncton, but it has been worked economically only in the vicinity of Minto. Here, the seam runs from sixteen to thirty inches in thickness and is found at various depths down to 120 feet. The production of coal in 1924 amounted to 217,121 tons which was valued at $932,185.

Gypsum ranks next to coal and is found in localized deposits. It is quarried at Hillsborough and part of the production is there made into plaster by the Albert Manufacturing Company, who have a large and well-equipped plant. Owing to the excellent water transportation facilities, considerable quantities of crude gypsum are exported to the mills in the United States.

Natural gas and petroleum produced in New Brunswick come from the Stoney Creek district south of Moncton. Extensive deposits of bituminous or oil-shales occur in Albert and Westmoreland counties near Moncton, but as yet these have not been worked commercially.

Other materials such as wolframite—the ore of tungsten, copper in the form of chalcopyrite, iron ore in the form of siliceous magnetite, antimony, manganese and tripolite have also been located but production of these minerals, with the exception of manganese, is now very limited.

The Mineral Industry of Quebec.

Quebec is the largest of all the Canadian provinces. It has a land and water area of 706,834 square miles, and comprises the territory lying between the Hudson Bay and Hudson Strait and Labrador on the north, the Gulf of St. Lawrence on the east, the province of New Brunswick and the United States on the south, and the province of Ontario on the west. Only the southern part of the province has ever been examined for mineralized areas, and until recently, interest has been focussed on the non-metallic minerals of the province, as the main source of mineral wealth. In 1922, copper ores carrying gold were discovered in what is commonly called Northern Quebec, but this term really refers to a section lying south of the main line of the Canadian National Railway, and just east of the Ontario boundary; it is a continuation of the mineralized belt of the Kirkland Lake area that has added to Ontario's prominence as a mining area during recent years. The development of this section promises to be very extensive and with the introduction of transportation and smelting facilities, a large mining industry will no doubt be built up.

So far, the non-metallics have provided the greater part of the mineral output. Asbestos is the most important mineral product of Quebec. Other minerals, arranged in order of their relative importance are: mica, feldspar, magnesite, iron oxides, quartz, soapstone, pyrites, and graphite. In the older and better known sections of the province there are copper, lead and zinc properties, which are operated on a small scale. Molybdenite and chromite have also been mined at different times when the market warranted an output of these minerals.

In recent years the development of hydro-electric power in Quebec has proven a great stimulus to industrial activity, particularly in the Shawinigan Falls area. Other power sites have been, and are being developed on a large scale and there is no doubt that electrochemical and electro-metallurgical enterprises, as well as other productive concerns using large quantities of electric power in their processes, will thrive well in this province in the future.

The Mineral Industry of Ontario.

The province of Ontario may be described as the central province of the Dominion; Hudson Bay and James Bay are on the north, the St. Lawrence River and the Great Lakes constitute the greater part of the southern boundary, the province of Quebec lies immediately to the east, and

Manitoba adjoins Ontario on the west. Traversing the province in easterly and westerly directions, the main lines of the Canadian National and Canadian Pacific Railways, with their many branch lines provide an extensive system of transportation. The main line of the Canadian Pacific Railway from Montreal to Winnipeg crosses the rich Sudbury section in a westerly direction, then runs along the north shore of lake Superior and through the lake of the Woods district. In the vicinity of Sudbury are the famous nickel-copper properties which supply the greater part of the world's nickel. The Temiskaming and Northern Ontario Railway connects North Bay and Cochrane and runs through the rich silver camps of the Cobalt and South Lorrain areas and has branch lines extending to other silver camps and to the gold camps of Kirkland Lake and Porcupine.

Mining was carried on in Ontario as far back as 1770, when copper was recovered from mines on the shores of Lake Superior. Thus, although very little mining of any consequence was done until recent years, this province early took its place in the mining history of Canada. About the year 1800, the first iron furnace in the province was erected in Leeds county, and a few years later a blast furnace for the smelting of bog ores was built at Normandale in Norfolk county. This initial effort proved a failure but later another attempt was made and smelting was carried on as a successful enterprise until 1847. Other iron furnaces were established in different parts of this older section of Ontario, but their operations were never very successful. In 1899 the Algoma Steel Corporation of Sault Ste. Marie opened the Helen mine on the northeast shore of Lake Superior, and other iron properties, namely the Magpie mine and the Moose Mountain mine, have also been operated by this company. At the present time there is practically no production of iron ore in Ontario, the steel companies finding it more economical to bring in ore from the United States.

Construction of the Canadian Pacific Railway in 1883 led to the discovery of the rich nickel-copper ores in the Sudbury districts. Fortunately, about this time also, it was found that the addition of nickel in the manufacture of steel armour plate made the plate much stronger and harder and therefore more useful. For some years after the opening up of the Sudbury area, one of the larger properties was operated as a copper mine, the nickel in the ore not being detected until about 1887; to-day, the presence of nickel in that ore is the more valuable component. About 90 per cent of the world's output of nickel comes from the Sudbury area. The deposits there are very great. These ores also carry precious metals such as gold, silver, platinum, palladium, rhodium, and other related metals.

Ontario has the distinction of having had the first producing oil well on the American continent. This well was dug at Oil Springs in Lambton county in the year 1858, and from that time forward, oil wells have been discovered in other sections of that part of Ontario. However, no large oil fields have been found since 1905, and consequently the annual production has been steadily declining despite the additional production of a few small new fields.

As far back as 1866 gold was discovered in a spectacular occurrence at the Richardson property, Hastings county, and that district was the scene of a small gold rush at that time. Other properties in the same vicinity were worked intermittently, but at the present time no gold is being recovered from that area. Other finds were made from time to time in various parts of the province, and in 1899 Ontario reported a production of the yellow metal valued at $421,591.

Five years after this, the Temiskaming and Northern Ontario Railway was projected and built from North Bay in a northerly direction. This opened up a country of which, hitherto, little had been known, and fortunately, passed right through the now famous Cobalt area, which was thus discovered in 1903. The finding of such a rich silver deposit led to intense prospecting on either side of the railway; the silver camps of Gowganda, Elk Lake and South Lorrain and the rich gold areas of Porcupine and Kirkland Lake are the present outcome of these early endeavours.

Although the production of silver has fallen off to some extent in late years, intensive prospecting underground has resulted in the finding of blind veins in some of the older properties; these have helped to maintain the silver output. Gold production on the other hand has grown apace. Some companies with proven ore bodies have augmented their milling facilities, and increased their outputs. Through intensive underground exploration many others are changing prospects into mines.

Mention may here be made of the Silver Islet mine on an extremely small island off Thunder cape in lake Superior which was worked for fifteen years or more, and which produced in the neighbourhood of $3,500,000 worth of silver. This property was extremely rich, but was at one time flooded with water, and any attempt to work it since has met with very little success; diamond drilling has disclosed nothing of value at depth.

Lead is known to occur in different sections of Ontario, but until recent years little production was reported. In 1915, however, the Kingdon Mining, Smelting and Manufacturing Company, Limited, opened up a property near Galetta in Carleton county, and production of lead has increased steadily since that time.

Ontario mineral deposits include a large number of non-metallic minerals of economic value. The largest mica mine in Canada is located near Sydenham in Frontenac county, and this county also supplies the greater part of the feldspar produced in the province. Talc is mined in the vicinity of Madoc in Hastings county. The salt-producing sections of the province are in the southwestern part. No rock salt is mined, the entire output coming from brine pumped from wells; the development of the salt industry dates back to 1865 when the first well was sunk at Goderich in Huron county in a search for oil.

Natural gas was discovered in Ontario in December, 1888, in Essex county near the present town of Leamington, and in the following year a well was opened up in Welland county about 25 miles west of Niagara Falls. At that time there was little market in Canada for natural gas, so the gas from these wells was piped to the neighbouring cities of Detroit, Toledo and Buffalo. Some of the older wells are now becoming depleted, but new wells are brought in from time to time. The natural gas supply, however, is now being conserved under government supervision so that the most economic use may be made of the available supply.

The growth of the clay products and construction materials industry has grown with the increasing demand for such commodities. Portland cement is manufactured in various sections of the province where suitable limestone and clay have been found at convenient distances from the large markets for this class of material. Hydrated lime and quicklime are also being manufactured and the growth of the brick industry has been rapid. The construction of highways and the building of concrete structures has enlarged the demand for gravel and crushed stone. These apparently common materials form a very large part of the non-metallic mineral production of the province.

The Mineral Industry of Manitoba

Most the material in this section is taken from a paper prepared by Prof. R. C. Wallace of the University of Manitoba, who is recognized as a leading authority on the mineral possibilities of Manitoba.

The earlier work on the mineral resources of the province was confined to non-metallic materials. This was to be expected in an area where the population was massed in the agricultural lands where metallic deposits do not occur, and where building materials and other non-metallic minerals are in demand. The earliest mineral industry was the extraction of salt from the brine springs on the west side of lake Manitoba and lake Winnipegosis. From this source freedmen from the Hudson's Bay Company service manufactured salt during the period 1800-1876, and probably even earlier, and supplied the needs of the posts and settlements on the Assiniboine, Red and Saskatchewan rivers. As agricultural communities grew, and as the Fort Garry Settlement reached the proportions of a town, building materials came into demand. The outcrops of limestone at Lower Fort Garry, Bishop's Quarry, near St. Andrew's Locks, the East Selkirk beds, and later Garson (Tyndall) supplied the stone for foundations and for the more imposing buildings; while the limestone boulders which were plentifully distributed in the drift materials were everywhere burnt for lime. In the late nineties the gypsum deposits northwest of lake St. Martin were opened up, and the calcined product was conveyed by boat from old Gypsumville, on lake Manitoba, to Totogan and thence by rail to Winnipeg. From that date there has been continuous operation of the gypsum industry, though the route is now all-rail, and the gypsum is calcined in Winnipeg. In the present century the brick industry developed at several towns in the province, a natural cement plant was established at Babcock, and a Portland cement plant at Tuxedo, using limestone drawn from lake Manitoba. Except for the years of stagnation following the war, the building material industry has had a steady and healthy growth.

In fuels, the history of development has been less encouraging. While the coal deposits of Alberta were yet untouched, considerable interest was shown in the coal seams which were known

to occur in Turtle mountain in southwestern Manitoba. During the nineties of the last century mining was done on the northwestern flank of the mountain at the old McArthur mine, and at the Varden mine; but for over twenty years no coal has been mined in that area. The opening of the Estevan field, from which the first coal was brought down the Souris river to Winnipeg by barge, has made available a lignite area of much greater extent and more feasible exploitation: and the Turtle mountain area will, in future, probably serve only local demand. In many places, drilling has been carried on for oil, but without success; though at Waskada and in isolated wells elsewhere natural gas has been found in quantities sufficient for local use.

The history of metalliferous mining development lies within the last fifteen years. Some prospecting had been done before 1910 in the northern areas of the province, but development work dated from that time. The stimulus, which successful gold-mining development in northern Ontario has given since that date, to Canadian mining has had a marked effect on exploratory work in northern Manitoba. The actual result in established mining industry is as yet small. A small high-grade copper sulphide deposit was mined at the Mandy property in northwestern Manitoba during the years 1916-1919. The Rex mine has been producing gold while development work is proceeding. From the Luleo and Gold Pan properties east of lake Winnipeg some gold was produced. But during those years of search, a large low-grade copper sulphide deposit was discovered in northwestern Manitoba in the Flin Flon property which has been carefully investigated, and will be developed when conditions are favourable. Gold has been found in several areas, north of the Hudson Bay Railway, and east of lake Winnipeg, and important mining companies are engaged in developing prospects in those several fields. There is as well a changing attitude on the part of the people of the province, and the belief has gained ground during those years of exploration that the Precambrian areas of Manitoba—more than three-fifths of the land surface of the province—may, through judicious expenditures of capital, yield a return in gold and copper which will be an important contribution to the wealth of the province.

The Mineral Industry of Saskatchewan.

Saskatchewan, the great grain-growing province of the Dominion, lies between Alberta and Manitoba. While the greatest development in this province so far has been in agriculture, there is each year an appreciable production of lignite coal, clays and clay products, sand and gravel, sodium sulphate, and occasionally other mineral products. Large clay deposits, both of fireclay and of clay suitable for the manufacture of pottery, occur south of Moose Jaw and the economic development of these deposits on a great scale is only a matter of time. Large areas of unprospected territory in the northern part of the province are underlain by the same Precambrian rocks that have proved mineral-bearing in other parts of Canada. In this territory lode gold has been reported near Beaver lake, and iron and other metallic minerals near lake Athabasca. In connection with the sodium sulphate deposits, it may be noted that these occur as lakes which are solid at certain seasons, and mushy or even liquid at other times. Investigations have been carried on for several years by the Mines Branch at Ottawa to determine the commercial possibilities of these areas. Available tonnage has been blocked out and some deposits have been worked successfully. Shipments of sodium sulphate from Saskatchewan have reached Ontario points and the use of the natural sulphate has partially replaced the manufactured product in some fields. Development of the lignite deposits has progressed to a greater extent in Saskatchewan than the production of any other mineral in that area. Most of the mines are operated on a small scale, largely to meet the needs of the surrounding country, and many of them are only worked in the winter months, as the owners find it more profitable to grow wheat than to mine coal during the summer season.

The Mineral Industry of Alberta.

The province of Alberta lies immediately east of British Columbia, the summit of the Rocky Mountains marking its western boundary as far north as 54°, north latitude. From that point, northerly, the line follows the 120th meridian to Mackenzie district. Alberta is for the most part, a grazing and wheat-growing country, but the coal mines which are located in the area immediately to the east of the mountains, contribute largely to the mineral production of Canada. Natural gas is also of considerable importance in Alberta as a fuel for domestic and industrial purposes. Prospecting for oil has been carried on over considerable areas and some success has been attained. Gold is also known to occur in the gravels underlying some of the rivers.

As in Ontario, where the opening of mining areas followed the building of railroads, so also the construction of the Canadian Pacific Railway and the Canadian National Railway through the mountain led to the economic exploitation of the coal areas in Alberta. The famous Crow's Nest Pass, through which the southerly branch of the Canadian Pacific Railway transcontinental line passes, has coal within easy proximity to the railroad. Along the main line of the same railway which enters the mountains near Calgary and Banff, a large amount of work has also been done in the vicinity of Bankhead, and quantities of semi-anthracite coal have been produced, but these workings are closed down at the present time. The Canadian National Railway running west from Edmonton passes through coal areas for a considerable distance.

Deposits of bituminous sands in the northern part of the province along the Athabaska river have become of economic importance in recent years. Experiments are being carried on by the University of Alberta at Edmonton, and by officials of the Mines Department at Ottawa, on methods of extracting the bitumen from the sands.

The Mineral Industry of British Columbia

British Columbia, Canada's mountain province, has been associated with mining for many years. From the early days of the Cariboo rush in 1858 which followed the finding of placer gold in California in 1849, until the present time, this western province has always occupied a conspicuous place in the mineral industry of the Dominion. It is a province of mountains and valleys, swift running rivers and wide fertile tracts between the main ranges. It has an area of 355,855 square miles in extent, of which 353,416 square miles are land and 2,439 square miles are covered with water.

Broadly speaking there are three main mountain systems, the Coast range, on the west, the Columbia system which includes the Cariboo, Selkirk, and Purcell ranges in the centre and the Rocky Mountains on the east, the summit of the latter forming the provincial boundary of Alberta and British Columbia as far north as latitude 54°.

In the southerly sections of the province the main rivers are the Fraser, the Columbia and their tributaries while farther north, the Skeena, the Stikene and the Naas and their tributaries empty into the Pacific ocean. The Peace river, which has its headwaters in the northeastern section, flows in a southeasterly direction and then north to Great Slave lake in Mackenzie district after which it joins the Mackenzie river by way of the Liard, and thence reaches salt water at the Arctic ocean.

Transportation which did so much to open up the southern section of the province when the Canadian Pacific Railway was built, has been greatly augmented in recent years by the construction of the Canadian National Railway to Prince Rupert, and the Pacific Great Eastern, and Canadian Northern, now branches of the Canadian National, form the main line of the Canadian National down through the central sections of the province to tidewaters at Squamish and Vancouver, respectively.

As soon as the easily-won gold began to show signs of depletion from the creek bottoms mining men commenced to prospect for mineral in place, and to-day, British Columbia has in the Sullivan mine, the largest lead-zinc mine in the British Empire, leads all the other provinces in copper production, and stands second in gold and silver.

Coal is British Columbia's most important non-metallic mineral. It is found in abundance on the east coast of Vancouver island, in the south-eastern portion of the province, and also to a less extent, in small detached basins in the northern sections of the province. Other non-metallics produced in 1924 were quartz, pyrites, pulpstones, sodium carbonate, talc, iron oxides and gypsum.

As arranged, at the time British Columbia joined Confederation, all geological work and mapping is done by the Dominion Government, and parties are sent annually to British Columbia for this purpose. The Provincial Department of Mines assists very materially in the opening up and development of prospects and mines. The province is divided into six mining districts, each supervised by a resident engineer, whose duty it is to carry on mineral surveys and to assist prospectors and others with such advice as may be necessary and may come within the scope of a mining engineer's work.

Among the outstanding mines of British Columbia are the Premier mine, a gold and silver property situated at the northerly end of the Portland canal in northern British Columbia, and the Sullivan mine, a rich lead and zinc deposit, at Kimberley in East Kootenay, owned and operated by the Consolidated Mining and Smelting Company of Canada, Limited. Leading copper properties, operated by the Granby Consolidated Mining, Smelting and Power Company of Anyox on the Portland canal in northern British Columbia, and by the Britannia Mining and Smelting Company on Howe Sound, a short distance north of Vancouver, contribute largely to the copper production of the province. Many silver-lead-zinc mines of the Slocan district that have been operated intermittently for a number of years, have been given a new lease of life recently because of the developments in smelter practice and because of the comparatively high prices which the metals from such ores now command.

The Premier mine, after many hard knocks, was finally brought to the producing stage and into the dividend class by the American Smelting and Refining Company, Limited, who acquired the controlling interest in this mine in the fall of 1919.

The Nickel Plate mine at Hedley in the Similkameen Valley is of interest as it is the only property in the province credited as being a producer of arsenic. The ore from this mine is concentrated and cyanided, the concentrates being shipped to Tacoma for treatment. Payment is made for some of the arsenic as well as for the gold content. Gold bullion from this mine is shipped to the Dominion Assay Office at Vancouver.

High prices for lead and zinc during 1924 fitted in well with the successful research work carried on by the staff of the Consolidated Mining and Smelting Company of Canada, Limited at Trail. Results of these investigations, with respect to economic recovery of the metals from the refractory ores of the Sullivan mine, were so satisfactory that when the large concentrator was put into commission at Kimberley, recoveries exceeded expectations, the result being that the smelter and refinery at Trail, were not large enough to handle the output of the mine; this temporary limitation made it necessary to export zinc concentrates to Belgium and to the Anaconda Copper Company at Black Eagle, Montana, U.S.A.

The total capital investment in British Columbia mining operations in 1924 amounted to $107,611,494 divided as follows:—copper-gold mining, $17,303,513; gold ore mining, $10,418,141; silver-lead-zinc mining, $8,618,265; smelters, $28,772,416; coal mining and other non-metallics, $34,430,482; and structural materials, $8,068,677. Employees connected with these various enterprises numbered 12,422. Salaries and wages totalled $19,876,613. Metallic mining and smelting industries employed 6,394 men and paid out $10,788,859 in salaries and wages. Coal mining and other non-metallic mining concerns employed 5,221 men and paid $8,069,720 in salaries and wages. Producers of structural materials employed 807 men and paid $1,018,034 in salaries and wages.

The Mineral Industry of the Yukon Territory.

The Yukon Territory lies in the extreme northwest section of the Dominion of Canada. Immediately to the west is Alaska, and on the east, the Mackenzie district, while the province of British Columbia is adjacent to the greater part of its southern boundary. Alaska was originally owned by Russia, and it comprised that territory lying west of the present Yukon Territory, and a section of the western coast down as far as a long narrow inlet known as the Portland Canal. Russia claimed the north Pacific coast down to latitude 51°N, but in the treaty of 1824 the boundary was fixed at 54° 40'N, and in the following year a treaty was concluded by which Russia relinquished to Great Britain her claim, not only to the region below 54° 40' N, but also to the vast interior occupied by the Hudson's Bay Company up to the frozen ocean. In 1825, the southern and western boundaries of the British possessions were established, but owing to certain ambiguity, the boundary between what are now British Columbia and Alaska, was not very well established. In 1867, Alaska was purchased from Russia by the United States. In the summer of 1896, alluvial gold was found in the Yukon District, and immediately a section of the North American continent which up to this time had been considered of little economic value, became the cause of serious controversy between Canada and the United States because of the doubt as to the proper location of the boundary line of Alaska. Finally, the question was settled in 1903 by the award of the Alaska Boundary Tribunal.

The main rivers of this territory are the Peel, the Porcupine, the Yukon and its tributaries such as the White river, the Stewart river and the Pelly. Dawson City, which had a population

of 9,142 during the gold boom, is occupied now by 975 people. There is one railroad, the White Pass and Yukon, which runs from Skagway, Alaska, northerly to White Horse. From there, passengers embark on the river boats and go down the Yukon river to Dawson City. The railroad was constructed along the route most travelled during the days in which the early prospectors were entering the territory.

When the news of the wonderful gold discoveries reached the outside world, men from all walks of life flocked to this new district, and the stories of the hardships of the life have been told in prose and verse by Robert W. Service, a young bank clerk who lived through the days when Dawson City was at its height.

Between 1898 and 1905 upwards of a $100,000,000 in gold was taken from the gravels of Bonanza, Eldorado, Hunker, Dominion and Sulphur Creeks and their tributaries. Many of the famous creek claims on Bonanza and Hunker are now being worked by the dredging process, and the terraces of the equally famous White Channel are being washed down by hydraulic methods.

Since 1905, production of gold has gradually decreased; in 1919, the output was valued at about $1,900,000 and in 1924 at $720,000. Although there are a great many individual miners, the report of their production is not very extensive and the greater part of the gold is recovered by large hydraulic or dredging companies; five such companies report annually.

Of late years, the Mayo district on the Stewart river has come into prominence because of the silver-lead ore discovered there. Two companies, the Treadwell Yukon and the Keno Hill operated in this district during 1924. The ore is mined under very difficult circumstances, owing to bad climatic conditions, and is taken down to the river and piled there ready for transportation to the smelters when navigation opens. Because of the high cost entailed in shipping this ore to the smelter, only high-grade material can be transported economically, and as it has been impossible, because of the cold, to operate a concentrating plant on the surface in that vicinity for any length of time, it has been decided to construct a concentrator underground in order to bring the low-grade ore up to a good shipping grade.

Other economic minerals such as copper and antimony are known to occur, but up to the present time there has been no report of production.

Among the non-metallic minerals, coal is the only one of any importance, and it is known to occur in the Yukon in at least eighteen distinct areas. In thirteen of these, coal of economic importance has been discovered. The production, however, has been small, partly because there has been little demand for coal and partly because only very few of the properties are conveniently situated for shipping purposes.

GENERAL TABLES

Under this section are included the principal statistics for the year 1924 and they are shown under the three main headings Metallics, Non-metallics and Structural Materials and Clay Products. In the section on metallics the net values given to ore shipped by the mines, were in many cases nominal and were made up from book values used by the companies in crediting the mining part of their enterprises.

In the metallic section it has been found difficult to separate the actual mining operations from milling and these are taken as one. The smelting or refining operations have been separated where possible from milling operations and reviewed under the title "Metallurgical Works."

The values of the metallic production given in the following tables were as reported by the operating companies and in each case were the settlements received for shipments. The totals, therefore, indicate more nearly the actual return to the different industries than do the values for the several metals in Part I of this report where in the majority of cases the values are computed by using the average New York prices for the year. The tables immediately following cover every branch of the three main divisions of the mining industry and show shipments and net returns, capital employed, number of employees, salaries and wages paid, fuel costs, miscellaneous expenses and power used throughout the industry.

Table 223.—Summary of Principal Statistics Relative to the Mining, Metallurgical, Structural Materials and Clay Products Industries, Operating Plants in Canada, 1924

—	Number of active operators	Number of operating plants or mines	Capital employed	Number of employees	Salaries and wages paid	Miscellaneous expenses	Cost of fuel and electricity	Total expenditures	*Net value of bullion, ore, concentrates or residues shipped from the mines, and smelters
			$		$	$	$	$	$
METALLIC—									
Auriferous quartz mining and milling	70	70	83,982,765	6,738	10,500,140	6,925,027	1,559,406	18,984,573	31,298,107
Silver-cobalt mining and milling	26	34	41,013,466	1,769	2,534,304	2,479,316	468,651	5,482,271	6,594,032
Silver-lead-zinc mining and milling	82	94	12,328,511	1,936	2,943,635	802,882	474,343	4,220,860	16,600,970
Copper-gold-silver mining and milling	15	15	[1]19,099,845	2,118	3,292,228	1,855,511	366,153	5,513,892	5,226,859
Placer mining	89	1,404	21,871,256	264	389,079	.....	.....	389,079	[2]1,038,013
Nickel-copper mining and milling	3	7	37,189,778	1,421	1,880,823	1,673,492	150,460	3,704,775	4,235,934
Iron mining and briquetting[3]	4	4	5,000	42	16,436	990	4,010	21,436	17,394
Iron blast furnaces	.....	.....	.....	.....	.....	.....	.....	.....	[4]54,028
Metallurgical works	7	9	66,337,664	5,521	8,136,251	6,884,890	4,765,483	19,786,624	[5]21,760,273
Total	**296**	**1,637**	**281,828,285**	**19,809**	**29,692,896**	**20,622,108**	**7,788,506**	**58,103,510**	**86,825,610**
NON-METALLIC—									
Asbestos	15	15	43,216,966	2,597	2,977,304	2,173,991	760,046	5,911,341	6,710,830
Coal mining	451	520	146,711,531	27,183	35,123,490	.....	4,358,987	39,482,477	53,593,988
Feldspar	25	25	953,525	290	223,937	.....	16,866	240,803	358,540
Graphite	4	4	647,947	75	55,449	30,000	12,163	97,612	76,117
Grindstones	5	5	156,095	76	64,312	.....	5,260	69,572	130,824
Gypsum	14	15	4,423,697	1,219	1,114,468	458,268	181,003	1,753,739	2,208,108
Mica	50	50	249,876	223	127,201	22,866	5,532	155,599	357,272
Natural gas	186	2,031	50,561,757	1,240	1,315,405	821,276	3,059	2,139,740	5,708,636
Oxides, iron	5	5	193,633	38	33,221	34,428	16,815	84,464	91,160
Petroleum	119	2,473	5,650,086	158	152,957	15,314	18,656	186,927	467,400
Quarts	11	11	991,863	171	172,397	44,848	34,281	251,526	323,156
Salt	11	12	2,479,563	364	431,618	424,578	342,118	1,198,314	1,374,780
Talc	6	6	695,786	61	59,220	.....	18,351	77,571	154,480
All other non-metallic	33	34	2,428,619	136	82,937	129,904	14,948	227,789	240,718
Total	**935**	**5,206**	**259,360,944**	**33,831**	**41,933,916**	**4,155,473**	**5,788,085**	**51,877,474**	**71,796,009**
STRUCTURAL MATERIALS AND CLAY PRODUCTS—									
Clay products	205	210	29,810,994	4,120	4,041,318	.....	1,879,094	5,920,412	9,215,077
Cement	6	10	36,766,574	1,837	2,531,622	1,524,158	2,872,711	6,928,491	13,398,411
Lime	44	49	5,165,964	927	970,672	757,898	740,878	2,469,448	3,178,541
Sand and gravel	558	558	5,194,037	927	848,741	104,136	134,378	1,087,255	2,441,914
Stone	170	170	14,317,148	2,877	2,768,256	1,329,233	383,800	4,481,289	6,407,757
Total	**983**	**997**	**91,254,717**	**10,688**	**11,160,609**	**3,715,425**	**6,010,861**	**20,886,895**	**34,641,700**
Summary by Classes—									
Metallic	296	1,637	281,828,285	19,809	29,692,896	20,622,108	7,788,506	58,103,510	86,825,619
Non-Metallic	935	5,206	259,360,944	33,831	41,933,916	4,155,473	5,788,085	51,877,474	71,796,009
Structural materials and clay products	983	997	91,254,717	10,688	11,160,609	3,715,425	6,010,861	20,886,895	34,641,700
Total	**2,214**	**7,840**	**632,443,946**	**64,328**	**82,787,421**	**28,493,006**	**19,587,452**	**130,867,879**	**193,263,319**

*Net value here is gross value less freight and treatment charges.

[1] Does not include capital of Granby Co., Anyox, B.C.

[2] Includes $420,750 value of placer output for B.C.

[3] Includes 1 manganese producer in N.S.; 1 molybdenum producer in Quebec.

[4] Value of pig iron made from domestic ore less net value of the domestic ore.

[5] Value of shipments from metallurgical works less cost of ores, concentrates, matte, etc. treated as this latter value was included in the credits to the mines and mills.

Table 224.—Summary of Principal Statistics Relative to the Operating Plants in the Mining, Metallurgical, Structural Materials and Clay Products Industries, in Canada, by Provinces, 1924

—	Number of active operators	Number of operating plants or mines	Capital employed	Number of employees	Salaries and wages paid	Miscellaneous expenses	Cost of fuel and electricity	Total expenditures
			$		$	$	$	$
Nova Scotia	72	103	59,608,296	14,172	14,247,382	203,533	2,772,595	17,223,510
New Brunswick	39	85	3,362,851	1,190	1,104,918	152,536	120,950	1,378,404
Quebec	240	242	77,163,613	6,953	7,300,935	3,750,548	2,800,763	13,852,246
Ontario	1,120	5,255	261,071,390	19,265	24,624,854	16,402,653	8,679,474	49,706,981
Manitoba	24	25	7,973,261	541	612,891	145,160	268,250	1,026,301
Saskatchewan	81	81	4,157,326	678	669,000	83,752	65,641	818,393
Alberta	387	446	87,003,765	8,716	13,684,225	864,623	991,549	15,540,397
British Columbia	159	194	107,611,494	12,422	19,876,613	6,686,727	3,770,384	30,333,724
Yukon	92	1,409	24,491,850	391	666,603	203,474	117,846	987,923
Canada	**2,214**	**7,840**	**632,443,946**	**64,328**	**82,787,421**	**28,493,006**	**19,587,452**	**130,867,879**

DISTRIBUTION OF THE CAPITAL EMPLOYED IN THE MINING INDUSTRY IN CANADA 1924

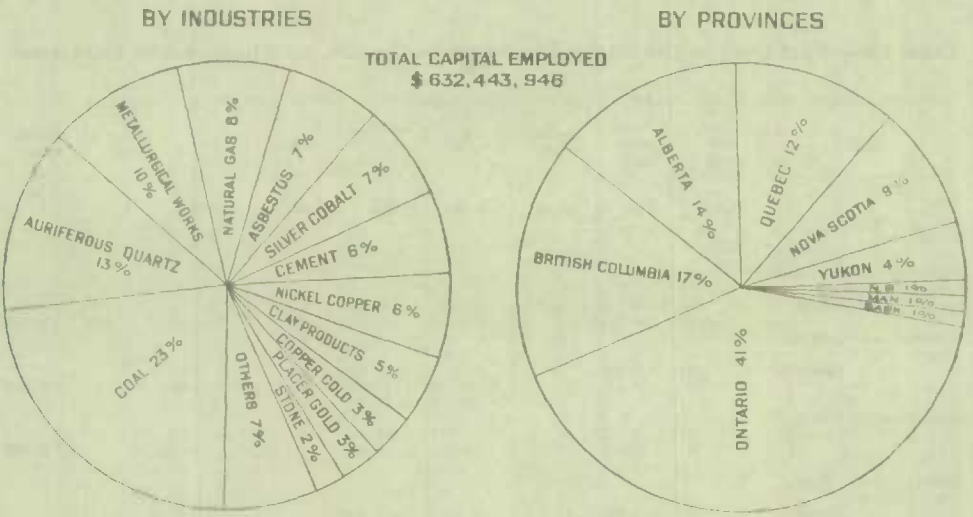


Table 225.—Fuel Used in the Mineral Industry in Canada, by Provinces, 1924

Kind	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia and Yukon	Canada
Anthracite Coal....Tons	.....	.....	11,388	5,969	300	.....	.....	912	**18,569**
$	.....	.....	90,458	52,757	1,687	.....	.....	9,220	**154,122**
Bituminous Coal...Tons	527,812	9,059	279,021	577,431	18,049	2,760	97,288	276,635	**1,788,055**
$	2,003,089	54,424	1,585,423	3,516,487	135,649	26,273	399,483	1,284,325	**9,005,153**
Lignite Coal.....Tons	.....	.....	.....	.....	524	26,209	132,764	.....	**159,497**
$	.....	.....	.....	.....	3,205	32,031	172,500	.....	**207,736**
Coke.....Tons	.....	.....	2,256	189,445	438	.....	.....	35,631	**227,770**
$	.....	.....	20,360	1,889,609	7,191	.....	.....	526,898	**2,444,058**
Gasoline.....Imp. gal.	39,577	772	65,233	103,208	813	160	3,772	95,431	**308,966**
$	10,638	326	18,255	28,417	388	61	2,442	65,063	**125,590**
Fuel oil.....Imp. gal.	41,120	1,005	103,382	3,989,052	.....	23,062	1,620	3,903,989	**8,063,230**
$	3,842	188	12,973	413,787	.....	2,725	65	263,635	**697,215**
Wood.....Cord	2,175	6,692	30,034	84,337	13,528	655	1,670	18,511	**157,602**
$	9,157	33,694	148,844	466,048	69,655	3,580	8,064	111,463	**850,505**
Artificial and natural gas.....M cu. ft.	.....	3,646	.....	250,375	.....	.....	296,494	266,866	**817,381**
$	.....	1,480	.....	10,332	.....	.....	10,544	40,504	**62,860**
Other fuels.....$	.....	.....	.....	6,415	.....	.....	.....	485	**6,900**
Total.....$	**2,026,726**	**90,112**	**1,876,313**	**6,383,852**	**217,775**	**64,670**	**593,098**	**2,301,593**	**13,554,139**

Table 226.—Fuel Used in the Mineral Industry in Canada, by Kinds and by Industries, 1924

Industry	Anthracite coal	Bituminous coal	Lignite coal	Coke	Gasoline and fuel oil	Gas	Wood	Other fuel	Total value
	Tons	Tons	Tons	Tons	Gal.	M cu. ft.	Cords	$	$
METALLIC MINERAL INDUSTRY—									
Auriferous Quartz Mining and Milling—									
Quantity	986	19,536	.....	587	989,952	.....	20,671	.....	.....
$	16,494	200,344	.....	8,431	113,007	.....	104,383	619	**443,278**
Copper-Gold-Silver Mining—									
Quantity	192	6,946	.....	4	577,958	.....	80	.....	.....
$	3,359	68,356	.....	89	32,904	.....	480	.....	**105,188**
Nickel-Copper Mining—									
Quantity	5	8,152	.....	119	37,418	.....	93	.....	.....
$	81	56,526	.....	1,331	4,462	.....	613	.....	**63,013**
Silver Cobalt Mining and Milling—									
Quantity	700	6,025	.....	77	187,145	.....	6,716	.....	.....
$	11,230	68,855	.....	1,358	33,524	.....	39,516	.....	**154,483**
Silver-Lead-Zinc Mining and Milling—									
Quantity	647	15,920	.....	432	267,770	.....	5,293	.....	.....
$	5,323	107,851	.....	3,375	77,029	.....	55,838	.....	**249,416**
*Metallurgical Works—									
Quantity	149	138,631	.....	216,677	5,908,047	266,699	6,367	.....	.....
$	2,452	919,289	.....	2,336,294	478,780	40,277	46,997	.....	**3,824,089**
Total.....Quantity	**2,679**	**195,210**	.....	**217,896**	**7,968,290**	**266,699**	**39,220**	.....	.....
$	**38,939**	**1,421,221**	.....	**2,350,878**	**739,706**	**40,277**	**247,827**	**619**	**4,839,467**

*Figures for fuel used in molybdenum included with metallurgical works.

Table 226.—Fuel Used in the Mineral Industry in Canada, by Kinds and by Industries, 1924—Concluded

Industry	Anthracite coal	Bituminous coal	Lignite coal	Coke	Gasoline and fuel oil	Gas	Wood	Other fuel	Total value
NON-METALLIC MINERAL INDUSTRIES—	Tons	Tons	Tons	Tons	Gals.	M cu. ft.	Cords	$	$
Asbestos—									
Quantity	10,334	34,862	.....	1,676	1,473	.....	.....	.....	.....
$	80,502	195,142	.....	17,415	474	.....	.....	.....	293,533
Coal Mining—									
Quantity	.....	765,212	154,800	.....	.....	.....	.....	.....	.....
$	.....	2,787,778	185,087	.....	.....	.....	.....	.....	2,972,865
Feldspar—									
Quantity	.....	846	.....	.....	400	.....	2,185	.....	.....
$	.....	6,982	.....	.....	179	.....	9,705	.....	16,866
Graphite—									
Quantity	.....	250	.....	.....	5,000	.....	1,918	.....	.....
$	.....	2,500	.....	.....	450	.....	6,713	.....	9,663
Grindstones—									
Quantity	.....	553	.....	.....	1,115	.....	191	.....	.....
$	.....	4,553	.....	.....	251	.....	456	.....	5,260
Gypsum—									
Quantity	.....	14,689	281	690	72,794	4,863	872	.....	.....
$	.....	114,040	1,293	8,883	12,838	2,090	2,674	.....	141,818
Iron Oxides—									
Quantity	.....	438	.....	.....	1,860	.....	2,120	.....	.....
$	.....	3,506	.....	.....	360	.....	9,969	.....	14,035
Mica—									
Quantity	4	224	.....	.....	1,200	.....	664	.....	.....
$	67	1,824	.....	.....	300	.....	3,341	.....	5,532
Quartz—									
Quantity	.....	4,187	.....	.....	13,899	.....	305	.....	.....
$	.....	29,256	.....	.....	2,505	.....	1,880	.....	33,641
Salt—									
Quantity	.....	63,555	.....	.....	4,832	.....	310	.....	.....
$	.....	316,123	.....	.....	996	.....	1,540	6,241	324,900
Talc—									
Quantity	.....	161	.....	.....	6,250	.....	100	.....	.....
$	.....	1,175	.....	.....	2,125	.....	350	.....	3,650
Miscellaneous Non-Metallic Mineral Industries—									
Quantity	1	901	.....	.....	17,073	.....	1,283	.....	.....
$	12	7,474	.....	.....	1,762	.....	3,677	.....	12,925
Total.....Quantity	**10,339**	**885,878**	**155,081**	**2,366**	**125,896**	**4,863**	**9,948**	.....	.....
$	**80,581**	**3,470,353**	**186,380**	**26,298**	**22,440**	**2,090**	**40,305**	**6,241**	**3,834,688**
STRUCTURAL MATERIALS AND CLAY PRODUCTS INDUSTRIES—									
Cement—									
Quantity	12	432,821	.....	.....	18,374	565	264	.....	.....
$	300	2,237,220	.....	.....	5,263	559	1,915	.....	2,245,257
Clay Products—									
Quantity	2,403	190,888	2,683	1,807	194,532	534,471	46,156	.....	.....
$	13,616	1,352,903	13,963	12,186	26,025	14,158	249,274	40	1,682,165
Lime Burning—									
Quantity	1,744	52,061	79	5,697	3,917	10,783	59,719	.....	.....
$	8,330	323,034	825	54,645	713	5,776	302,846	.....	696,169
Sand and Gravel—									
Quantity	110	15,146	1,644	2	36,122	.....	.....	.....	.....
$	654	93,605	6,481	21	7,715	.....	.....	.....	108,476
Stone Quarrying—									
Quantity	1,282	16,051	10	2	85,065	.....	2,295	.....	.....
$	11,702	106,817	87	30	20,943	.....	8,338	.....	147,917
Total.....Quantity	**5,551**	**706,967**	**4,416**	**7,508**	**338,010**	**545,819**	**108,434**	.....	.....
$	**34,602**	**4,113,579**	**21,356**	**66,882**	**60,859**	**20,493**	**562,373**	**40**	**4,879,984**
Grand Total—									
Quantity	**18,569**	**1,788,055**	**159,497**	**227,770**	**8,432,196**	**817,281**	**157,602**	.....	.....
$	**154,122**	**9,005,153**	**207,736**	**2,444,058**	**822,985**	**62,860**	**850,585**	**6,990**	**13,554,139**

Table 227.—Power Used in the Mineral Industry in Canada by Provinces, 1924

Provinces		Stationery Engines			Hydraulic Turbines	Electric Motors		Boilers
		Steam	Gas	Oil		Operated by power generated by own establishment	Operated by purchased power	
Nova Scotia	No.	458	.....	27	5	397	73	215
	H.P.	72,485	.....	841	710	32,528	2,620	45,477
New Brunswick	No.	43	16	8	.....	9	2	33
	H.P.	1,812	249	109	.....	235	90	2,022
Quebec	No.	70	6	37	2	40	1,010	105
	H.P.	5,199	51	647	690	3,375	57,195	6,276
Ontario	No.	291	163	72	16	210	2,402	260
	H.P.	25,287	2,367	3,145	2,655	7,956	116,549	27,994
Manitoba	No.	28	2	3	.....	1	148	16
	H.P.	1,155	4	13	.....	7	7,505	695
Saskatchewan	No.	43	2	9	.....	41	5	22
	H.P.	2,631	11	251	.....	691	45	2,440
Alberta	No.	325	13	65	.....	267	403	247
	H.P.	38,189	198	485	.....	7,957	17,240	31,680
British Columbia	No.	166	3	28	65	1,218	887	159
	H.P.	33,638	58	1,795	40,003	42,647	53,014	23,027
Yukon	No.	2	.....	5	.....	15	.....	3
	H.P.	115	.....	475	.....	264	.....	235
Canada	**No.**	**1,426**	**285**	**254**	**88**	**2,198**	**4,930**	**1,066**
	H.P.	**180,511**	**2,938**	**7,761**	**44,058**	**95,660**	**254,258**	**139,846**

Table 228.—Cost of Electric Power Used in the Mineral Industry in Canada, by Industries and by Provinces, 1924

Industry	Nova Scotia and New Brunswick	Quebec	Ontario	Manitoba and Saskatchewan	Alberta	British Columbia and Yukon	Canada
	$	$	$	$	$	$	$
METALLIC—							
Auriferous Quartz	.....	.....	1,033,652	.....	.....	82,476	1,116,128
Silver-Cobalt-Nickel	.....	.....	314,168	.....	.....	.....	314,168
Silver-Lead-Zinc	.....	13,000	11,260	.....	.....	200,667	224,927
Copper Gold	.....	31,322	.....	.....	.....	229,643	260,965
Placer Mining	.....	.....	.....	.....	.....	.....	.....
Nickel-Copper	.....	.....	87,447	.....	.....	.....	87,447
Metallurgical Works	.....	.....	284,898	.....	.....	660,506	945,404
Total	.....	**44,322**	**1,731,425**	.....	.....	**1,173,292**	**2,949,039**
NON-METALLIC—							
Asbestos	.....	466,513	.....	.....	.....	.....	466,513
Coal	768,143	.....	.....	958	295,707	321,314	1,386,122
Feldspar	.....	.....	.....	.....	.....	.....	.....
Graphite	.....	.....	2,500	.....	.....	.....	2,500
Grindstone	.....	.....	.....	.....	.....	.....	.....
Gypsum	5,636	.....	28,475	5,074	.....	.....	39,185
Iron Oxides	.....	2,780	.....	.....	.....	.....	2,780
Mica	.....	.....	.....	.....	.....	.....	.....
Quartz	.....	.....	640	.....	.....	.....	640
Salt	.....	.....	17,218	.....	.....	.....	17,218
Talc	.....	.....	14,701	.....	.....	.....	14,701
Natural Gas	.....	.....	2,250	.....	.....	.....	2,250
Petroleum	.....	.....	18,656	.....	.....	.....	18,656
Other Non-Metallic	.....	.....	2,023	.....	.....	.....	2,023
Total	**773,779**	**469,293**	**86,463**	**6,032**	**295,707**	**321,314**	**1,952,588**
STRUCTURAL MATERIALS AND CLAY PRODUCTS—							
Cement	.....	212,271	212,529	28,775	100,649	73,230	627,454
Clay Products	361	71,064	114,549	1,346	1,286	8,323	196,929
Lime	106	13,706	30,073	824	.....	.....	44,709
Sand and Gravel	.....	250	19,700	552	.....	5,400	25,902
Stone	2,461	113,544	100,883	13,917	.....	5,078	235,883
Total	**2,928**	**410,835**	**477,734**	**45,414**	**101,935**	**92,031**	**1,130,877**
Grand Total	**776,707**	**924,450**	**2,295,622**	**51,446**	**397,642**	**1,586,637**	**6,032,504**

Table 229.—Machinery Installed and Operated in the Mineral Industry in Canada, 1924

—		Boilers installed	Stationary engines, including those used for hoisting, pumping, etc.			Hydraulic turbines or water-wheels	Electric motors	
			Steam	Gas	Oil		Operated by power generated by establishment	Operated by purchased power
METALLIC—								
Auriferous Quarts	No.	73	55	6	27	16	131	511
	H.P.	5,206	3,737	730	2,050	4,665	4,867	29,734
Silver-Cobalt-Nickel	No.	24	22	.....	2	.....	13	177
	H.P.	1,510	888	.....	400	.....	475	6,657
Silver-Lead-Zinc	No.	20	9	2	8	15	26	269
	H.P.	1,987	1,075	52	765	2,284	571	9,734
Copper-Gold-Silver	No.	12	2	.....	4	15	175	71
	H.P.	1,268	1,060	.....	127	10,900	8,525	3,842
Placer Gold	No.	.....	.....	.....	.....	.....	.....	.....
	H.P.	.....	.....	.....	.....	.....	.....	.....
Nickel-Copper	No.	3	3	.....	.....	.....	.....	143
	H.P.	1,500	1,300	.....	.....	.....	.....	13,715
Molybdenum	No.	7	2	.....	1	.....	.....	.....
	H.P.	403	175	.....	6	.....	.....	.....
Iron Blast Furnaces	No.	.....	.....	.....	.....	.....	.....	.....
	H.P.	.....	.....	.....	.....	.....	.....	.....
Metallurgical Works	No.	43	36	.....	.....	12	671	1,190
	H.P.	13,205	20,597	.....	.....	12,000	13,000	71,139
Total	**No.**	**182**	**129**	**8**	**42**	**58**	**1,016**	**2,361**
	H.P.	**25,079**	**28,832**	**782**	**4,248**	**29,849**	**27,438**	**134,821**
NON-METALLIC—								
Asbestos	No.	27	12	.....	2	.....	29	386
	H.P.	1,855	2,350	.....	10	.....	3,000	24,504
Coal	No.	513	887	10	59	6	788	345
	H.P.	85,741	126,472	78	447	12,000	51,462	14,947
Feldspar	No.	13	8	.....	.....	.....	.....	.....
	H.P.	462	322	.....	.....	.....	.....	.....
Graphite	No.	2	3	.....	.....	2	10	.....
	H.P.	160	225	.....	.....	200	399	.....
Gypsum	No.	11	27	2	24	.....	35	68
	H.P.	1,230	1,083	105	742	.....	602	3,669
Grindstones	No.	6	7	.....	3	.....	.....	.....
	H.P.	275	255	.....	46	.....	.....	.....
Mica	No.	2	3	.....	.....	1	4	.....
	H.P.	68	170	.....	.....	140	105	.....
Natural Gas	No.	18	14	123	13	.....	19	7
	H.P.	677	440	943	86	.....	221	64
Oxides, Iron	No.	.....	.....	.....	2	.....	.....	3
	H.P.	.....	.....	.....	40	.....	.....	77
Petroleum	No.	4	2	16	4	.....	.....	46
	H.P.	180	58	160	18	.....	.....	420
Quarts	No.	7	14	.....	4	.....	6	1
	H.P.	800	772	.....	73	.....	120	200
Salt	No.	25	30	.....	4	.....	4	43
	H.P.	4,100	674	.....	71	.....	127	549
Talc	No.	2	.....	.....	5	.....	4	9
	H.P.	120	.....	.....	25	.....	225	320
Other Non-Metallics	No.	7	5	1	6	.....	24	4
	H.P.	642	395	5	97	.....	229	300
Total	**No.**	**637**	**1,012**	**152**	**126**	**9**	**923**	**912**
	H.P.	**96,310**	**134,116**	**1,291**	**1,655**	**12,340**	**56,490**	**45,650**
STRUCTURAL MATERIALS AND CLAY PRODUCTS—								
Cement	No.	16	5	.....	12	6	218	722
	H.P.	2,577	1,877	.....	296	700	10,123	41,407
Clay Products	No.	107	117	15	19	1	20	314
	H.P.	9,103	8,403	415	373	150	922	13,066
Lime	No.	21	24	3	6	1	5	125
	H.P.	932	1,119	34	81	30	112	2,372
Sand and Gravel	No.	35	46	10	16	5	7	89
	H.P.	2,471	2,594	101	320	239	485	2,216
Stone	No.	62	93	17	33	8	3	407
	H.P.	3,374	3,570	315	788	750	90	15,326
Total	**No.**	**241**	**285**	**45**	**86**	**21**	**259**	**1,657**
	H.P.	**18,457**	**17,563**	**865**	**1,858**	**1,869**	**11,732**	**74,387**

UNITED STATES TARIFF RATES ON MINERAL PRODUCTS IMPORTED

Since Canadian producers of mineral products market a large part of their annual output in the United States it was thought it might be of value to readers of this report to have at hand a guide to United States Tariff and the following tables were therefore compiled. These have been checked by the United States Trade Commissioner at Ottawa.

Table 230—United States Tariff

Item Number	Material	Duty
	(a) On Metals and Manufactures of	
1508	Antimony ore	Free
1547	Chromite—Chromite or chrome ore	Free
1550	Cobalt metal and ore	Free
29	Cobalt linoleate	10c. per lb.
29	Cobalt, oxide of	20c. per lb.
29	Cobalt salts and compounds (all other)	30% ad val.
29	Cobalt sulphate	10c. per lb.
1457	Cobalt ore waste	10% ad val.
1556	Copper ore, regulus of, and black or coarse copper, and cement copper, old copper, fit only for manufacture, copper scale, clippings from new copper, and copper in plates, bars, ingots, or pigs not manufactured or specially provided for	Free.
1557	Copper sulphate or blue vitriol, copper acetate and subacetate	Free.
381	Copper in rolls, rods or sheets	2½ c. per lb.
	Engravers plates, not ground and seamless copper tubes and tubing	7 c. per lb.
	Engravers plates, ground, and brazed copper tubes	11c. per lb.
	Brass rods, sheet brass, brass plates, bars, and strips, Munts yellow metal sheets, metal sheathing, bolts, piston rods and shafting	4 c. per lb.
	Seamless brass tubes	8c. per lb.
	Brazed brass tubes, angles and channels	12c. per lb.
	Bronze rods and sheets	4c. per lb.
	Bronze tubes	8c. per lb.
1539	Bullion gold or silver	Free.
1634	Gold ores and sweepings	Free.
1597	Iron ore including manganiferous iron ore and residuum from burnt pyrites	Free.
1677	Sulphur in any form, and sulphur ore, and spent oxide of iron containing more than 25 per centum of sulphur	Free.
392	Lead bearing ores and mattes—duty applied on lead contents, such duty shall not be applied to the lead contained in copper mattes unless actually recovered	1½c. per lb.
393	Lead bullion or base bullion, lead in pigs and bars, dross, reclaimed lead, scrap lead, antimonial lead, antimonial scrap lead, type metal, Babbitt, solder and all other combinations not specially provided for, duty to apply on lead contents	2½c. per lb.
	Lead in sheets, pipe, shot, glazier's lead and lead wire	2½c. per lb.
47	Lead, linoleate of	30% ad val.
74	Lead litharge	2½c. per lb.
302	Manganese ore or concentrates containing in excess of 30 per centum of metallic manganese	1c. per lb. on metallic manganese content.
302	Molybdenum ore or concentrates	35c. per lb. on metallic molybdenum content.
302	Tungsten ore or concentrates	45c. per lb. on metallic tungsten content.
1634	Nickel mattes and ores of nickel	Free.
390	Nickel oxide	1c. per lb.
390	Nickel and nickel alloys in pigs, ingots, shot, cubes and similar forms	3c. per lb.
390	Nickel in bars, rods, sheets, strips, tubing, etc	25% ad val.
390	In addition thereto on the foregoing if cold rolled, drawn or worked	10% ad val.
1596	Platinum, palladium and other metals of the platinum group	Free
394	Zinc-bearing ore of all kinds containing less than 10 per centum of zinc	Free.
	Containing more than 10 per centum of zinc and less than 20 per centum	½c. per lb. on metallic zinc content.
	Containing more than 20 per centum of zinc and less than 25 per centum	1c. per lb. on metallic zinc content.
	Containing 25 per centum of zinc or over	1½c. per lb. on metallic zinc content.
395	Zinc in blocks, pigs or slabs and zinc dust	1½c. per lb.
395	Zinc in sheets	2c. per lb.
395	Zinc scrap for re-manufacturing	1½c. per lb.
	(b) On Non-Metallic Minerals	
1619	Actinolite—crude, classified as "minerals, crude, not specially provided for"	Free
214	Actinolite—ground, classified as "earthy or mineral substances, wholly or partly manufactured, not specially provided for"	30% ad val.
1513	Arsenic—white or arsenious acid	Free
1512	Arsenic—Sulphide of	Free.
379	Arsenic—Metallic	6c. per lb.
1515	Asbestos—crudes, fibres, sand	Free.
1401	Asbestos—yarn	30% ad val.
69	Barytes—ore, crude	$4 per ton
69	Barytes—ore, ground	$7.50 per ton.
	Calcite—not mentioned by this name in the tariff. Chalk, crude, is free (Item 1545) and chalk, ground, is dutiable at 25% ad valorem (Item 20).	
1570	Corundum—ore	Free

Table 230—United States Tariff—Concluded

Item Number	Material	Duty
1415	Corundum—ground	1c. per lb.
1619	Feldspar—crude, classified as "minerals, crude not specially provided for"	Free
214	Feldspar—ground, dutiable as "earthy or mineral substances, wholly or partly manufactured, not specially provided for"	30% ad val.
207	Fluorspar	$5.60 per ton
213	Graphite or plumbago—crude or refined—Amorphous	10% ad val.
213	Graphite or plumbago—crude or refined—Crystalline lump, chip or dust	20% ad val.
213	Graphite or plumbago—crude or refined—crystalline flake	1¼c. per lb.
236	Grindstones—finished or unfinished	$1.75 per ton
1643	Gypsum—crude	Free
205	Gypsum—ground	$1.40 per ton
75	Iron oxides—ochers, crude	½c. per lb.
75	Iron oxides—ochers, washed or ground	½c. per lb.
75	Iron oxides—"iron-oxide pigments not specially provided for"	20% ad val.
204	Magnesite—crude	5/16c. per lb.
204	Magnesite—caustic calcined	5/8c. per lb.
204	Magnesite—dead burned and grain	23/40c. per lb.
50	Magnesium sulphate—(Epsom salts)	¼c. per lb.
208	Mica—unmanufactured, valued at not above 15 cents per pound	4c. per lb.
208	Mica—unmanufactured, valued above 15 cents per pound	25% ad val.
208	Mica—cut or trimmed, and mica splittings	30% ad val.
208	Mica—ground	20% ad val.
808	Mineral waters	10c. per gal.
1640	Phosphate—"phosphates, crude"	Free
1677	Pyrites—"sulphur ore, such as pyrites or sulphuret of iron in its natural state, and spent oxide of iron, containing more than 25% of sulphur"	Free
83	Salt—in bags, sacks, barrels, or other packages	11c. per cwt.
83	Salt—in bulk	7c. per cwt.
83	Sodium sulphate—crystallized or Glauber's salt	$1.00 per ton
1667	Sodium—sulphate, crude or salt cake	Free
207	Silica—crude, not specially provided for	$4 per ton
207	Silica—for use as pigment, not specially provided for	$7.50 per ton
209	Talc—crude	¼c. per lb.
209	Talc—ground, washed, powdered, or pulverized (except toilet preparations)	25% ad. val.
1675	Tripoli—crude or manufactured, not specially provided for	Free

(c) On Structural Materials and Clay Products

	Clay Products—	
201	Brick—bath, chrome and fire, n.s.p.f.	25% ad val.
1536	Brick—not specially provided for	*Free
207	China clay or Kaolin	$2.50 per ton
207	Clays or earths, unwrought or unmanufactured, including common blue clay and Gross-Almerode glass pot clay, n.s.p.f.	$1.00 per ton
207	Clays or earths, wrought or manufactured, n.s.p.f.	$2.00 per ton
210	Earthenware—common yellow, brown or gray made of natural, unwashed, and unmixed clay, plain or embossed; common salt-glazed stoneware; stoneware and earthenware crucibles; all the foregoing not ornamented, incised, or decorated in any manner	15% ad val.
210	Earthenware—ornamented, incised, or decorated in any manner and manufactures wholly or in chief value of such ware, n.s.p.f.	20% ad val.
210	Earthenware—Rockingham	25% ad val.
203	Lime—not specially provided for, including weight of container	10c. per cwt.
203	Lime—hydrated, including weight of container	12c. per cwt.
237	Slates—slate chimney pieces, mantles, slabs for tables, roofing slates, and all other manufactures of slate, n.s.p.f.	15% ad val.
	Stone—	
203	Limestone—(not suitable for use as monumental or building stone) crude, or crushed but not pulverized	5c. per cwt.
235	Limestone, freestone, granite, sandstone, lava and all other stone suitable for use as monumental or building stone, except marble, breccia, and onyx, n.s.p.f., hewn, dressed ,or polished, or otherwise manufactured	50% ad val.
235	Unmanufactured, or not dressed, hewn or polished	15c. per cubic ft.
232	Marble, breccia and onyx, in block, rough or squared only	65c. per cubic ft.
232	Marble, breccia and onyx, sawed or dressed, over two inches in thickness	$1.00 per cubic ft.
232	Marble, breccia and onyx slabs and paving tiles, containing not less than four superficial inches, if not more than one inch in thickness	8c. per superficial foot.
	If more than one inch and not more than one and one-half inches in thickness	10c per superficial foot.
	If more than one and one-half inches and not more than two inches in thickness	13c. per superficial foot
	If rubbed in whole or in part	3c. per superficial foot in addition.
	Mosaic cubes of marble, breccia, or onyx, not exceeding two cubic inches in size, if loose	One-fourth of one cent per lb. and 20% ad val.
	If attached to paper or other material	5c. per superficial foot and 35% ad val.
1675	Stone and sand: Burrstone in blocks, rough or unmanufactured; quartzite; traprock; rottenstone; tripoli and sand, crude or unmanufactured; cliff stone; freestone; granite and sandstone; unmanufactured and not suitable for use as monumental or building stone; all of the foregoing not specially provided for	Free

*Except on imports from countries which impose a duty on similar products imported from U.S. On imports of these commodities a corresponding duty is levied.

METALLIC MINERAL INDUSTRIES.

Alluvial Gold Mining Industry.

It is extremely difficult to prepare a complete report on placer mining in Canada, since the placer fields are mostly remote and except in a few cases, are operated by small numbers of men of no fixed abode. The dredging companies and hydraulicing companies send annual returns to the Bureau and with the aid of the Mining Lands Branch of the Department of the Interior, some definite information is thus obtainable regarding the Yukon Territory.

It was not possible to secure complete returns from British Columbia operators and the tables below refer only to the Yukon. The figures of production for British Columbia are as published by the Department of Mines of that province; the total value of the output for the year amounted to $420,750 which was slightly more than the sum reported in 1923. During 1924 the net values of the placer gold recovered from the Yukon totalled $617,263, or about fifty per cent of the total for 1923. In the Yukon, 4 companies recovered 30,946 crude ounces or 82 per cent of the total quantity won, and employed 264 workers to whom wages amounting to $389,079 were paid. The total amount of earth handled was 2,888,918 cubic yards, and some 122 miles of ditches were kept in operation and repair by these companies. There were also 84 prospectors or individual lessees who carried on work during the season, accounting for approximately 7,000 crude ounces of gold.

Table 231.—Summary Statistics of Placer Mining in the Yukon Territory, 1923 and 1924

Item	1923	1924
Time in operation.....months	6–8	6–8
Number of wage-earners	307	264
Wages paid	$467,807	$389,079
Crude ounces gold recovered	74,868	37,946
Value of gold and silver	$1,226,705	$617,263
Quicksilver purchased.....lb	300	.....
Quantity of material handled.....cubic yards	8,800,160	2,888,918
Length of ditches.....miles	184	122

Since mining in the Yukon Territory is regulated by the Dominion Government, it is possible to include in this description the reports of the different mining recorders supplied through the courtesy of the Mining Lands Branch of the Department of the Interior. The principal operators and the creeks worked on were as shown in the next following table.

Table 232.—Showing Location of Principal Operators in the Yukon Territory, 1924

Name of Company	Claim Operated
New North West Corporation	900 placer claims.
Burrall and Baird, Ltd	78 placer claims, 3 leases.
Yukon Gold Company	340 placer claims, 3 leases.
Collins, Weinberg and Collins	Miller Creek Concession.
North American Transportation and Trading Co	Bonanza and Dominion Creek
38 prospectors	Bonanza Creek.
9 "	Thistle Creek.
12 "	Kirkman Creek.
20 "	Whitehorse District.
5 "	Gold Run.
89 Total	

REPORT OF THE GOLD COMMISSIONER, DAWSON, YUKON TERRITORY, REGARDING MINING, YEAR ENDING MARCH 31, 1925.

Placer Gold Mining—The amount of placer gold mined during the year on which royalty export tax was paid was 41,697.33 ounces, which is not as much as last year, but owing to the early fall, final clean-ups were not made on many of the hydraulic properties.

Yukon Gold Company—This company operated eight hydraulic mines at the following points; Adams Hill, King Solomon, Oro Fino Hill, Trail Gulch, Lovett Right Limit and Gold Hill, and

a total of 1,664,560 cubic yards of material were handled using 439,685 miner's inches of water. The daily averages of men employed during the mining season (April to October) was as follows: hydraulic mines, 41; ditches, 25; otherwise employed, 23; total, 89.

Burrall and Baird, Limited—This company operated Dredge Canadian No. 2 in the Klondike valley on Hydraulic Mining Lease No. 18. This dredge commenced operations on May 13th, about three miles below Bear Creek Camp, and was shut down on November 27th, having dredged 1,614,646 cubic yards of gravel and bedrock during the season.

In the section dredged by this dredge 45,430 square yards of material were thawed by water. Sixty holes totalling 1,480 lineal feet, spaced seventy-five feet apart, were sunk with a Keystone drill. In these, pipes were placed and water pumped through at a pressure of fifteen pounds. This resulted in a perfect thaw.

On May 9th the Hunker Pumping Plant, operated by this company, commenced delivering water to a bench 600 feet above the level of the creek. This was used by Mr. M. H. Jones in hydraulicing the gravels on some bench claims on Last Chance Creek. Pumping operations were closed down on September 15th.

In addition to these field operations, a considerable force of men were employed in the electric repair shop, welding shop, warehouse, mess, and stables at the headquarters of the Company at Bear Creek. An average of 50 men were employed throughout the season.

The New North West Corporation, Limited—This company and its subsidiaries are the holders of 902 placer mining claims. Two dredges were operated by the company. The North West No. 1 commenced the season on Creek Claim No. 5 below Lower Discovery on Dominion Creek, and dredged upstream approximately 2,100 feet. This dredge was in operation from May 19th to October 28th, and dredged 497,076 cubic yards of material. Dredge No. 2 commenced the season on Creek Claim No. 236 below Lower Discovery Dominion, was in operation from May 19th, and dredged 550,740 cubic yards of material.

Sixty-two per cent of the ground dredged by No. 1 was frozen, and was thawed by artificial methods. All the gravels dredged by No. 2 were frozen and thawed by the water process. The ditches constructed under water Grants Nos. 9024 and 9025 were maintained in a high state of efficiency and furnished water for thawing. Prospecting in advance of Dredge No. 1 was carried on by means of a Keystone drill.

This company operated the hydro-electric power plant at the North Fork of the Klondike River, and furnished an adequate supply of power for the operation of their own dredges, the dredges and machine shops of Burrall and Baird, Limited, the pumping plant at Hunker Creek, and the Dawson Electric Light and Power Company, Limited, for lighting the City of Dawson. An average of 110 men were employed by this company from May 1st to October 31st.

Other Placer Operations—In addition to what may be termed the large scale operations referred to, many individuals, and miners working in partnership, were engaged in placer mining throughout the various parts of the district. The early fall interferred seriously with the hydraulic operations.

Lode Mining—Dawson District. There have been no new developments in this district during the year. A large number of claims are being held in the Conglomerate area on Indian River, and also in the Twelve-Mile area, but no work other than the annual assessment is being performed at the present time.

Application has been made for Crown grants of four claims on Williams Creek, and a number of claims in various parts of the District are being kept up, but there is no development work of importance.

Mayo District—This district appears to be most promising, and a larger amount of prospecting and development work has been done this year than last. Applications have been made for leases of a number of claims, some of which have already been granted. Many new veins of both high grade silver and milling ore have been uncovered on Keno and Galena Hills.

In the new Beaver River area about sixty miles north of Keno, important veins of rather low grade ore have been discovered. Unfortunately, the distance and cost of transportation do not at present permit shipping from this area.

On Keno-Hill, the Treadwell Yukon Company, Limited, are the most extensive operators. Their drainage tunnel about 3,000 feet long on the northwest side of the hill was completed last spring, and tapped the vein below their main shaft. A complete concentrate mill was erected

during the summer and is now working to full capacity, and is expected to be duplicated in the near future. This mill is a boon to the smaller operators who are thus enabled to dispose of their ore without awaiting returns from an outside smelter.

The most important development on Keno Hill during the year was the discovery of a large body of high grade ore at the 400 foot level in the Treadwell Yukon Company's mine. This together with the older levels at 100, 200 and 300 feet are being extensively mined; an average of 100 men are employed.

The Keno Hill, Limited, discontinued work on their "Sadie" Claim, and leased it together with their power plant and waterfront lease to the Treadwell Yukon Company, Limited, who will continue development as soon as drainage is complete. There is a large tonnage of milling grade ore on this property.

The original Keno Hill, Limited, group of claims on the top of Keno Hill was leased in September last to Pickering and Britton, who have mined about four hundred tons of high grade ore, employing an average of about ten men.

There are in addition a number of other individual miners working on this hill, and a considerable tonnage of both high grade and milling ore is being taken out.

Development work on Galena Hill has also resulted in the discovery and mining of high grade silver ore on several claims.

Coal.—The Five Fingers Coal Company operated their mine at Tantalus Butte, mining 1,100 tons of coal. Of this amount 500 tons were shipped to Dawson.

The Auriferous Quartz Mining Industry.

The auriferous quartz mining industry in Canada is in a very flourishing condition at the present time. For several years there has been a continued improvement in development and production.

Auriferous quartz mines include those producing an ore, which carries as its main constituent of value, gold that may be recovered by amalgamation or cyanidation.

Until the discovery of the Porcupine and Kirkland Lake fields, a few years ago, Canadian gold production was mostly obtained in the form of placer; the Yukon and the Cariboo section of British Columbia were the main sources. Production from these alluvial deposits has gradually shown a downward trend in recent years, but on the other hand, the growth in lode gold production has been remarkable.

Ontario with its rich mines in the Porcupine and Kirkland Lake districts, leads all the provinces in gold production. All producing mines in these districts operate their own mills. Ores are finely ground and are then cyanided. Amalgamation and cyanidation are both used at two of the properties.

British Columbia is next in importance to Ontario as a producer of gold. The Premier Mine which is situated at Premier, B.C., close to the Alaska boundary is one of the greatest mines in the province, producing gold, silver and a small amount of lead.

The Nickel Plate mine at Hedley on the Similkameen River has also been a producer for some years. The ore of this mine is arseno-pyrite.

Production of gold in Nova Scotia has fluctuated considerably over a period of years. The arsenic content of the ores aid materially in making economic production possible but prices of arsenic vary considerably and cannot therefore be relied upon to be a sure source of revenue.

To date Quebec has no producing gold mines, but during the last two years much activity has been shown in the Rouyn district which is really an extension of the mineralized zone of northern Ontario. The ore in this section of Quebec contains copper as well as gold; it is expected that a smelter will shortly be built in this area.

Northern Manitoba has also been the scene of considerable gold-mining activity during the last few years. Lack of transportation has retarded development, but when this factor is overcome Manitoba will likely take its place among the gold-producing provinces of the Dominion.

During 1924 there were 70 auriferous quartz mines operating in Canada and of these 28 produced bullion or shipped ores while 42 carried on development work only. There were 41 mines operating in Ontario; 11 in British Columbia; 6 in Nova Scotia; 2 in Manitoba and 10 in Quebec. The corresponding data for 1923 were, Ontario 41, British Columbia 11, Nova Scotia 10 and Manitoba 3. The mines of Ontario produced over 98 per cent of the gold derived from this group. In 1924 there were 3,096,290 tons of ore mined of which 3,089,869 tons was put through

the mills and 2,967,156 tons was cyanided. There were 144,086 crude ounces recovered by amalgamation and 1,460,295 crude ounces recovered by cyanidation. Shipments amounted to 1,605,425 crude ounces, containing 1,253,262 fine ounces of gold and 209,383 fine ounces of silver. The total net value of these shipments was $26,046,169. Ores and residues and high-grade slags shipped to smelters were valued at $5,053,938. The greater part of the gold was sold in New York, the exchange premium amounting to $198,000 as compared with $286,458 in 1923. As the year went on, the exchange neared par and thus cut off a source of revenue that had been of much assistance to gold-mining companies who were in the initial stages of production.

The total capital employed in this industry in Canada in 1924 amounted to $83,982,765, as against $77,574,976 in the previous year. Of this total, approximately $69,000,000 was invested in Ontario, a little over $3,000,000 in Manitoba and about $10,500,000 in British Columbia. Nearly 1.5 million dollars was reported as invested in the new gold-mining district of Quebec, and there was also a small amount reported as invested in Nova Scotia gold mines.

Salaries and wages paid in 1924 amounted to about 10.5 million dollars as against 8.9 million dollars for 1923. Employees in the operating mines numbered 6,738 of whom 459 were on salary, 2,050 were wage-earners working on the surface, 3,682 underground, and 547 in the concentrators. Of this total number employed, 5,785 were working in the Ontario gold mines, 542 in British Columbia, 258 in Quebec, 93 in Manitoba and 60 in Nova Scotia.

The gold production in 1924 was the greatest of any year on record. During the war, because the value of an ounce of gold is fixed, and because the value of everything necessary to the production of gold showed an increase, many companies found themselves either operating at a loss or with a very small margin of profit. After hostilities ceased, costs of materials went down, labour costs were reduced and the supply of labour became more stable; gold mining then took on a new lease of life and many mines which had lain dormant for a considerable period were again re-opened, with the result that the gold-mining industry in Canada has grown rapidly.

The following figures emphazise the increasing importance of Canada's position as a gold producer, as compared with South Africa, the world's greatest producer.

Table 233.—Comparative Figures of Gold Production, for the World, South Africa and Canada, 1915, 1921-1924

Year	*World's output	*South Africa's output	Canada's output
	fine ounces	fine ounces	fine ounces
1915	22,593,833	10,538,588	918,056
1921	15,983,772	9,044,595	926,329
1922	15,444,830	8,009,069	1,263,364
1923	17,786,472	10,155,025	1,233,341
1924	18,574,098	10,584,434	1,525,382

* Source—*Year Book of the American Bureau of Metal Statistics.*

Table 234.—Capital Employed in the Auriferous Quartz Mining Industry in Canada, 1923 and 1924

	Nova Scotia		Quebec		Ontario		Manitoba		British Columbia		Canada	
	No.	$	No.	$	No.	$	No.	$	No.	$	No.	$
1923												
Producing	8	634,000	....	.....	18	51,955,910	1	.....	6	9,104,820	33	61,694,730
Operating but not producing	2	50,500	....	.....	23	15,428,306	2	.....	5	181,236	32	15,660,042
Total	**10**	**684,500**	....	.....	**41**	**67,384,216**	**3**	**(b)220,204**	**11**	**9,286,056**	**65**	**(a)77,574,976**
1924												
Producing	3	70,000	....	.....	15	53,833,245	1	124,069	9	10,336,029	28	64,363,343
Operating but not producing	3	46,293	10	1,335,748	26	14,860,973	1	3,294,296	2	82,112	42	19,619,422
Total	**6**	**116,293**	**10**	**1,335,748**	**41**	**68,694,218**	**2**	**3,418,365**	**11**	**10,418,141**	**70**	**83,983,765**

(a) Includes $220,204 for Manitoba.
(b) Exclusive of property values in 1923.

Table 235.—Ores Mined and Milled, Crude Bullion Produced and Shipped from the Gold Mines in Canada, 1923 and 1924

—	Nova Scotia	Ontario	Manitoba	British Columbia	Canada
1923					
Number of producing mines	8	18	1	6	**33**
Ore mined.....tons	1,090	2,287,438	.....	190,384	**2,478,912**
Ore milled.....tons	228	2,267,289	.....	102,159	**2,369,673**
Bullion recovered by amalgamation.....crude oz.	504	147,626	30	145	**148,305**
Ores cyanided.....tons	.....	1,853,202	.....	94,711	**1,947,913**
Bullion recovered by cyanidation.....crude oz.	.....	1,066,108	.....	10,918	**1,077,026**
Bullion shipped.....crude oz.	544	1,214,964	30	11,690	**1,227,228**
Contents of bullion shipped—Gold.....fine oz.	489	969,743	23	11,036	**981,291**
Silver.....fine oz.	25	151,535	4	650	**152,214**
Net value.....$	10,583	20,143,938	478	228,550	**20,383,549**
Net value of ores, slags and residues sold.....$	2,000	22,403	.....	4,327,427	**4,351,830**
Amount of exchange premium.....$	.....	280,119	.....	6,339	**286,458**
Total net receipts.....$	**12,583**	**20,446,460**	**478**	**4,562,316**	**25,021,837**
1924					
Number of producing mines	3	15	1	9	**28**
Ore mined.....tons	.....	2,884,519	2,669	209,102	**3,096,290**
Ore milled.....tons	.....	2,875,760	2,669	211,440	**3,089,869**
Bullion recovered by amalgamation.....crude oz.	.....	142,715	1,321	50	**144,086**
Ores cyanided.....tons	.....	2,867,646	.....	99,510	**2,967,156**
Bullion recovered by cyanidation.....crude oz.	.....	1,436,992	.....	23,303	**1,460,295**
Bullion shipped.....crude oz.	681	1,579,987	1,398	23,359	**1,605,425**
Contents of bullion shipped—Gold.....fine oz.	595	1,236,126	(b) 1,180	15,361	**1,253,262**
Silver.....fine oz.	44	208,454	143	742	**209,383**
Net value.....$	12,346	25,692,570	24,490	316,763	**26,046,169**
(a) Net value of ores, slags and residues sold.....$	24,587	32,756	.....	4,996,595	**5,053,938**
Amount of exchange premium.....$	.....	196,748	.....	1,252	**198,000**
Total net receipts.....	**36,933**	**25,922,074**	**24,490**	**5,314,610**	**31,298,107**

(a) Includes $19,768 value of arsenic produced in B.C.
(b) Includes 49 oz. received by the Royal Mint from individuals.

Table 236.—Ores, Concentrates and Slags Shipped from the Gold Mines in Canada, 1923 and 1924

Item	Ontario and Nova Scotia mines shipping		British Columbia mines shipping		Canada
	To Canadian smelters	To Foreign smelters	To Canadian smelters	To American smelters	
1923					
Number of mines	3	2	4	3	(a) **11**
Tons of ore, etc., shipped	22½	105	35,066	61,703	**96,896**
Metal content—					
Gold.....oz.	115	1,045	24,838	99,554	**125,552**
Silver.....“	.....	7,829	684,427	2,077,102	**2,769,358**
Copper.....lb.	.....	45,000	.....	121	**45,121**
Net value.....$	1,165	23,238	1,300,090	3,027,337	**4,351,830**
1924					
Number of mines	1	3	6	3	(a) **13**
Tons of ore, etc., shipped	39	1,145	21,449	86,719	**109,394**
Metal content—					
Gold.....oz.	107	1,820	17,250	129,326	**148,503**
Silver.....oz.	107	6,288	429,290	2,604,538	**3,040,223**
Copper.....lb.	.....	1,232	432	.....	**1,664**
Lead.....lb.	.....	1,250	334	452,010	**453,594**
Arsenic.....lb.	.....	381,092	.....	495,250	**876,342**
Net value.....$	1,837	55,506	619,094	4,377,501	**5,053,938**

(a) During 1923 one company and in 1924 two companies in British Columbia shipped to both American and Canadian smelters.

Table 237.—Employees, Salaries and Wages in the Auriferous Quartz Mining Industry in Canada by Provinces, 1923 and 1924

Province	1923						1924					
	Number of employees					Salaries and wages	Number of employees					Salaries and wages
	On salary	Wage-earners			Total employees		On salary	Wage-earners			Total employees	
		Surface	Underground	Mill				Surface	Underground	Mill		
						$						$
Nova Scotia	6	15	13	2	36	25,091	6	31	21	2	60	32,660
Quebec	.....	.....	.....	.....	.....	.....	27	179	52	.....	258	334,728
Ontario	362	1,231	2,901	425	4,919	7,841,227	360	1,574	3,381	470	5,785	9,040,272
Manitoba	7	10	24	.....	41	58,824	11	57	20	5	93	136,605
British Columbia	63	180	226	59	528	1,036,292	55	209	208	70	542	955,875
Canada	**438**	**1,436**	**3,164**	**486**	**5,524**	**8,961,434**	**459**	**2,050**	**3,682**	**547**	**6,738**	**10,500,140**

Table 238.—Number of Wage-Earners in the Auriferous Quartz Mining Industry in Canada by Months, 1923 and 1924

Month	1923				1924			
	Mine		Mill	Total	Mine		Mill	Total
	Surface	Underground			Surface	Underground		
January	1,236	3,001	475	4,712	1,610	3,425	521	5,556
February	1,226	2,956	436	4,618	1,845	3,466	518	5,829
March	1,220	2,838	407	4,465	1,829	3,487	499	5,815
April	1,240	2,784	387	4,411	1,915	3,438	522	5,875
May	1,376	3,051	453	4,880	1,975	3,515	528	6,018
June	1,525	3,238	477	5,240	2,100	3,522	522	6,144
July	1,553	3,286	512	5,351	2,057	3,676	510	6,243
August	1,507	3,361	503	5,371	2,170	3,728	527	6,425
September	1,539	3,300	523	5,362	2,218	3,742	525	6,485
October	1,639	3,374	554	5,567	2,195	3,819	548	6,562
November	1,636	3,411	547	5,594	2,048	3,741	563	6,352
December	1,531	3,371	553	5,455	1,834	3,626	547	6,007
Average	**1,436**	**3,164**	**486**	**5,086**	**2,050**	**3,682**	**547**	**6,279**

Table 239.—Miscellaneous Expenses in the Gold Mining Industry in Canada, by Provinces, 1923 and 1924

Province	1923	1924
	$	$
Nova Scotia	13,469	5,023
Quebec	.....	27,280
Ontario	5,427,717	5,999,980
Manitoba	500	87,636
British Columbia	219,975	805,103
Canada	**5,661,661**	**6,925,027**

The Copper-Gold-Silver Mining Industry.

The copper-gold-silver mining industry comprises a group of mines producing ore containing gold, silver and copper and in which the copper values predominate. The largest mines and the greatest number of this type are located in British Columbia, though Manitoba is known to have big ore reserves of copper awaiting adequate transportation and smelting conditions; Ontario has several small properties of this class, but they are mostly idle, and in the province of Quebec, the Eustis mine is at present the only producing property in this group.

British Columbia is the largest copper-producing province of the Dominion; the ores from each of the large producing mines are handled in the following manner:—

The Granby Consolidated Mining, Smelting and Power Company mine and smelt on the property which is at Anyox on the Portland Canal; the Britannia Mining and Smelting Company situated at Britania Beach on Howe Sound, and the Belmont Surf Inlet Mining Co., Ltd., export ore and concentrates to the Tacoma smelter of the American Smelting and Refining Company. From the mines of the Rossland district, which are mainly owned and operated by the Consolidated Mining and Smelting Company, ore is shipped to the smelter at Trail. Other smaller properties which work intermittently, ship to the nearest smelter, either Trail, Tacoma or Anyox. In all, 15 mines of this class reported to the Bureau in 1924; of these 11 were producing, 10 being located in British Columbia and 1 in Quebec.

Because of close interplant relations, some companies do not find it possible to separate the capital invested in mines from that invested in their smelting operations. The Granby Consolidated is one of these and the total capital employed by this company has been included in the chapter on metallurgy. This company also operates coal mines but that investment has been separately itemized in the chapter on coal.

The capital employed by the Consolidated Mining and Smelting Company at Trail has been included in the chapter on metallurgy, while the amounts invested in the different mining properties have been accounted for in the silver-lead-zinc group and in the copper-gold-silver group.

Since 1920, copper mining has been somewhat depressed. At the close of the war the world's markets were over-supplied, with the result that many producers had to close down and to wait until the surplus supplies had been used up. In a great many cases, though the mines were not producing, the interval of inaction was spent in research with a view to obtaining higher recovery and cheaper production costs.

Although the European demand in 1924 was somewhat below the average pre-war level, yet conditions were more nearly normal owing to the successful application of the Dawes plan to rehabilitate the finances of Europe in general and Germany in particular. In the United States, large companies started an educational campaign to encourage a greater use of copper and thus to create a greater domestic demand for the metal.

The capital employed in this industry in 1924 amounted to approximately $19,000,000 of which $2,000,000 was invested in the province of Quebec and $17,000,000 in the province of British Columbia.

Shipments of ores and concentrates in 1924 from the different copper-gold-silver mines in Canada amounted to over 1,000,000 tons, valued at over $5,000,000 net. Foreign shipments amounted to 100,000 tons of concentrates. Shipments to Canadian smelters amounted to about 169,000 tons; this was slightly greater than in 1923 These concentrates and ores were reported to contain 81,970 fine ounces of gold, 690,913 fine ounces of silver and 77,763,207 pounds of copper.

Salaries and wages paid in the industry amounted to $3,292,228 and employees numbered 2,118 persons. Of the wage-earners, 834 were employed on the surface and 1,172 worked underground. As this industry is well established and climatic conditions are favourable on the Pacific coast, there was no great monthly change in the number employed. Miscellaneous expenses amounted to $1,855,511 in 1924 as against $726,613 in 1923.

Table 240—Capital Employed in the Copper-Gold-Silver Mining Industry in Canada 1923 and 1924.

	British Columbia				Ontario and Quebec				Canada			
	1923		1924		1923		1924		1923		1924	
	No.	$	No.	$	No.	$	No.	$	No.	$	No.	$
Producing Mines	8	34,243,321	10	a 17,196,699	1	1,359,837	1	1,796,332	9	35,603,658	11	a 18,993,031
Operating but not producing mines	b 5	1,269,397	4	106,814	....	.....	....	.....	5	1,269,397	4	106,814
Total	**13**	**35,512,718**	**14**	**17,303,513**	**1**	**1,359,837**	**1**	**1,796,332**	**14**	**36,872,455**	**15**	**19,099,845**

a Does not include the capital of Granby Co. Anyox, B.C.
b Includes one from Alberta.

Table 241—Shipments from Copper-Gold-Silver Mines of Canada, 1923 and 1924

Destination	Quantity	Net Value	Content as determined by settlement assay		
			Gold	Silver	Copper
1923	tons	$	fine ozs.	fine ozs.	pounds
3 Mines shipped to Canadian smelters—					
Ores	856,674	1,292,661	10,831	461,319	37,486,660
Concentrates	45	1,057	8	27	12,266
5 Mines shipped to foreign smelters—					
Ores	3,673	36,061	64	4,271	271,083
Concentrates	89,903	3,031,707	35,786	128,797	24,548,204
Total	**950,295**	**4,361,486**	**46,689**	**594,414**	**62,318,213**
1924					
6 Mines shipped to Canadian smelters—					
Ores	966,264	1,474,674	44,436	535,000	42,518,595
Concentrates	2,738	30,634	66	3,483	2,070,594
5 Mines shipped to foreign smelters—					
Ores					
Concentrates	100,114	3,721,551	37,468	152,430	33,174,018
Total	**1,069,116**	**5,226,859**	**81,970**	**690,913**	**77,763,207**

Table 242.—Miscellaneous Expenses in the Copper-Gold-Silver Mining Industry in Canada, 1923 and 1924

—	1923	1924
	$	$
Producing mines	726,158	1,852,215
Operating but non-producing mines	455	3,266
Total	**726,613**	**1,855,511**

Table 243.—Employees, Salaries and Wages in the Copper-Gold-Silver Mining Industry in Canada, 1923 and 1924

—	1923			1924		
	Number of employees		Salaries and wages	Number of employees		Salaries and wages
	Male	Female	$	Male	Female	$
Salaried Employees—						
Superintendents and managers	27	.....	100,196	23	.....	97,222
Technical employees	29	.....	60,555	56	.....	125,065
Clerks, stenographers	40	.....	53,551	26	7	44,909
Total	96	.....	214,302	105	7	267,196
Wage-Earners—						
Surface	864	.....	2,789,990	831	.....	3,025,032
Underground	830	.....		1,172	.....	
Total	1,694	.....	2,789,990	2,006	.....	3,025,032
Grand Total	**1,790**	.....	**3,004,292**	**2,111**	**7**	**3,292,228**

Table 244.—Number of Wage-Earners in the Copper-Gold-Silver Mining Industry in Canada, by Months, 1923 and 1924

Month	1923			1924		
	Number of wage-earners			Number of wage-earners		
	Surface	Under-ground	Total	Surface	Under-ground	Total
January	726	561	1,287	813	1,152	1,965
February	741	676	1,417	826	1,161	1,987
March	744	654	1,398	838	1,120	1,958
April	767	760	1,527	861	1,172	2,033
May	878	811	1,689	900	1,215	2,145
June	978	784	1,762	910	1,141	2,051
July	965	873	1,838	728	1,173	1,901
August	941	899	1,840	808	1,106	1,914
September	966	931	1,897	806	1,154	1,960
October	918	958	1,876	801	1,143	1,944
November	886	1,007	1,893	758	1,170	1,928
December	857	1,036	1,893	740	1,077	1,817
Average	864	830	1,694	834	1,172	2,006

The Silver-Cobalt Mining Industry.

Silver-cobalt mining which had its inception with the discovery of the Cobalt camp in 1903 still yields most of the silver produced in Ontario. Production from the Cobalt area has fallen off slightly in recent years, but increased outputs from the newer camps of South Lorrain and Go w-ganda have so augmented production that Ontario has been able to maintain the premier position among the silver-producing provinces.

Mining and milling only have been considered in this section. Smelting of the cobalt ores, in so far as Canadian operations are concerned, has been reviewed in the section on metallurgical works. Only the two largest companies, namely, the Mining Corportaion of Canada, Ltd., and the Nipissing Mining Company, Ltd., produced silver bullion in 1924. The other mines shipped ore either to one of these companies, or to the Deloro Smelting and Refining Company, or to foreign smelters. The greater part of the silver from the ores and concentrates treated by the two companies mentioned above is extracted by cyanidation and the residues, which may contain arsenic, cobalt, nickel and some silver are either sold to the Deloro Smelting and Refining Company, or are exported.

There were 34 shipping mines in this industry in 1924 as against 24 in 1923, but although the number of shipping mines was greater, the output of ore was 4,000 tons less than in 1923, and the quantity milled dropped 8,000 tons below the total for 1923. About the same tonnage of concentrates was produced in each year Concentrates cyanided rose 4,000 tons. Bullion production was about 700,000 ounces below the 1923 figures.

Leading producers of silver were Nipissing, Mining Corporation, Keeley, O'Brien, Coniages, Castle-Trctheway, Menago and McKinley-Darragh-Savage mines; these companies also produced nearly 90 per cent of the ore mined in this industry.

Shipments of ores and concentrates to points outside of the camp amounted to 7,231 tons in 1924 as against 5,869 tons in 1923, and 9,931 tons in 1922.

Salaried officials totalled 132 in 1924 as against 115 in 1923 and wage-earners increased in number to 1,637 persons from a total of 1,293 in the previous year. Salaries and wages totalled $2,534,304, or more than half a million dollars above the total for 1923.

Table 245.—Capital Employed in the Silver-Cobalt Mining Industry in Canada, 1923 and 1924

	1923	1924
	$	$
Capital employed as represented by—		
Cost of lands, buildings, and equipment	24,073,368	31,846,993
Cost of supplies and stock on hand	1,091,258	1,588,423
Cash, trading and operating accounts and bills receivable	6,169,424	7,578,044
Total	31,334,050	41,013,466

Table 246.—Principal Statistics of Silver-Cobalt Mines and Mills Operating in Canada, 1923 and 1924

—		1923	1924
Number of mines in operation		24	34
Ore mined	Tons	437,222	433,176
Ores treated	Tons	436,896	428,509
Tailings treated	Tons	822	.....
Concentrates produced	Tons	7,300	7,360
Quantity of material cyanided	Tons	164,051	168,193
Bullion recovered	Fine Ounces	6,278,830	5,577,875
Bullion sold	Fine Ounces	6,018,259	5,001,992
Net value to operators	$	3,928,311	3,369,664

Table 247.—Shipments of Ores, Concentrates and Residues from the Cobalt Camp, 1923 and 1924

Kind	Quantity	Gross value (a)	Net value (b)	Metallic content paid for		
				Silver	Cobalt	Copper
1923	Tons	$	$	fine ozs.	lb.	lb.
To Canadian Smelters—						
Ores	569	908,588	823,586	1,361,787	119,206	.....
Concentrates and residues	3,819	1,598,092	1,326,137	2,263,579	584,139	.....
To Foreign Smelters—						
Concentrates	1,481	504,537	443,819	790,767	5,802	66,512
Total Shipments—						
Total ores and concentrates	**5,869**	**3,011,217**	**2,593,542**	**4,416,133**	**709,147**	**66,512**
1924						
To Canadian Smelters—						
Ores	929	1,292,277	c 1,232,557	1,835,764	143,952	.....
Concentrates and residues	3,890	1,580,128	1,435,032	2,098,941	581,380	.....
To Foreign Smelters—						
Concentrates	2,412	741,161	556,779	886,292	93,780	107,252
Total Shipments—						
Total ores and concentrates	**7,231**	**3,613,566**	d **3,224,368**	**4,820,997**	**819,112**	**107,252**

(a) Gross value means value of the metals paid for before deducting transportation and treatment charges, and includes exchange premium received.
(b) Net value is actual amount received by operator.
(c) Includes 15,406 ounces silver in nuggets shipped to Ontario Provincial Govt.
(d) Includes $10,308 paid for nuggets shipped to Ontario Provincial Govt.

Table 248.—Employees, Salaries and Wages in the Silver-Cobalt Mining Industry in Canada, 1923 and 1924

—	1923		1924	
	Number	Salaries and wages	Number	Salaries and wages
		$		$
SALARIED EMPLOYEES	115	293,016	132	307,159
WAGE-EARNERS—				
Mine	1,054	1,656,722	1,359	2,227,145
Mill	239		278	
Total	1,293	1,656,722	1,637	2,227,145
Grand Total	**1,408**	**1,949,738**	**1,769**	**2,534,304**

Table 249.—Number of Wage-Earners in the Silver-Cobalt Mining Industry in Canada by Months, 1923 and 1924

Month	1923				1924			
	Mine		Mill	Total	Mine		Mill	Total
	Surface	Underground			Surface	Underground		
January	316	669	251	1,236	385	814	255	1,454
February	324	673	234	1,231	412	821	257	1,490
March	318	696	237	1,251	429	831	258	1,518
April	303	672	233	1,208	401	855	262	1,518
May	345	672	234	1,251	397	900	271	1,568
June	356	693	239	1,288	371	820	255	1,446
July	364	710	247	1,321	400	791	253	1,444
August	388	699	246	1,333	408	802	253	1,463
September	397	692	237	1,326	405	828	257	1,490
October	429	667	230	1,326	453	865	261	1,579
November	412	745	235	1,392	428	867	258	1,553
December	370	734	241	1,345	406	875	262	1,543
Average	**360**	**694**	**239**	**1,293**	**409**	**899**	**278**	**1,637**

Table 250.—Miscellaneous Expenses in the Silver-Cobalt Mining Industry in Canada, 1923 and 1924

—	1923	1924
	$	$
Producing mines	2,132,114	2,405,360
Operating but non-producing	.....	73,956
Total	**2,132,114**	**2,479,316**

The Nickel-Copper Industry.

Ontario is the world's present principal sources of nickel ore. Mining, smelting and refining operations are carried on within the province.

Smelting of the ore to a copper-nickel matte containing 27 to 28 per cent copper and 50 to 53 per cent nickel, is done in close proximity to the mines while the refining operations are carried on at points more conveniently located in respect to manufacturing concerns.

The Mond Nickel Company exports matte to Wales for refining. The International Nickel Company ships some matte to the refinery at Port Colborne, Ontario. Here there are extracted the copper, nickel, and precious metal precipitates containing gold, sivler, platinum, palladium and other precious metals. The balance of the matte is exported to Huntington, West Virginia, U.S.A., where it is made directly into Monel metal, a non-corrosive alloy which is used advantageously to a large extent in many manufacturing plants.

The British America Nickel Company who formerly operated mines and a smelter at Nickelton, Ontario, and a refinery at Deschenes, Quebec, went into liquidation in July, 1924.

When the demand for nickel for armament purposes fell away, at the close of the war, the market became very dull but through research many new uses for this metal have been found, with the result, that the industry recovered its commercial importance.

The mines, smelters and refineries in this industry employed on the average 3,917 men to whom wages amounting to $4,727,311 were paid, as against 3,231 persons in 1923 who received $4,332,544 in wages. Salaried employees remained about the same in number at 233 and the amount paid to this group was $507,603, as against $531,345, in 1923. Miscellaneous expenses were $5,188,818, in 1924 as against $4,668,236 in 1923.

Table 251.—Capital Employed in the Nickel-Copper Industry in Canada, 1923 and 1924

	1923	1924
	$	$
Lands, Buildings, plant machinery and tools:—		
Mines	*22,758,935	36,778,684
Smelters	14,400,360	14,769,823
Refineries	9,578,634	9,600,702
Cost of materials and supplies on hand	7,339,709	7,651,042
Cash, trading and operating accounts and bills receivable	1,205,280	1,951,218
Total	55,282,918	70,756,469

* Exclusive of value of lands in 1923.

Table 252.—Output from Nickel-Copper Mines and Smelters in Canada, 1923 and 1924

		1923	1924
Ore mined	Tons	1,187,355	1,411,978
Ore shipped	"	1,168,139	1,354,650
Content of ores, etc., shipped:			
Copper	Lb.	35,635,726	42,349,039
Nickel	"	72,855,433	81,068,547
Ore and concentrates treated at smelters	Tons	1,140,160	1,307,693
Matte produced	"	58,084	65,044
Content of matte:			
Copper	Lb.	31,538,740	36,979,424
Nickel	"	62,057,835	69,276,313
Matte shipped to Canadian refineries	Tons	35,612	34,835
Matte exported to foreign refineries	"	21,450	26,565

Table 253.—Output from Nickel-Copper Refineries in Canada, 1923 and 1924

		1923		1924	
		Quantity	Value	Quantity	Value
			$		$
Matte received	Tons	35,668	.....	34,428	.....
Matte treated	"	31,765	.....	37,613	.....
Products made—					
Refined nickel	Lb.	(a)23,203,741	3,935,092	(a)25,448,868	5,313,582
Nickel oxide	"	11,377,086	1,658,909	12,061,870	2,056,259
Converter and refined copper	"	14,761,787	2,075,228	17,918,911	2,258,816
Gold	Fine ozs	976	19,522	878	17,531
Silver	"	54,075	34,536	58,145	38,607
Platinum	"	1,210	127,018	1,353	139,102
Palladium	"	1,732	118,902	1,744	117,887
Iridium and rhodium	"	304	40,957	593	51,120
Total value		.....	8,018,164	.....	9,992,934

(a) Electrolytic Nickel and Nickel shot.

Table 254.—Salaried Employees by Classes, and Salaries Paid in the Nickel-Copper Industry in Canada, 1923 and 1924

	At the mines		At the smelters		At the refineries		Total	
	No.	Salaries paid	No.	Salaries paid	No.	Salaries paid	No.	Salaries paid
		$		$		$		$
1923								
Superintendents, managers, etc.	8	36,500	18	99,113	6	44,122	32	179,735
Technical employees—								
Engineers, surveyors, chemists, draughtsmen, etc.	5	7,851	21	57,114	38	58,668	64	123,633
Clerks, stenographers, etc.	10	16,987	46	68,532	81	142,458	137	227,977
Total	23	61,338	85	224,759	125	245,248	233	531,345
1924								
Superintendents, managers, etc.	7	35,050	25	97,022	7	39,095	39	171,167
Technical employees—								
Engineers, surveyors, chemists, draughtsmen, etc.	9	13,913	29	60,358	33	43,800	71	118,071
Clerks, stenographers, etc.	11	16,923	45	75,949	67	125,493	123	218,365
Total	27	65,886	99	233,329	107	208,388	233	507,603

Table 255.—Number of Employees by Months and Wages Paid in the Nickel-Copper Industry in Canada, 1923 and 1924

—	At the mines			At the smelters	At the refineries	Total
	Surface	Under ground	Total			
1923	No.	No.	No.	No.	No.	No.
January	281	486	767	921	612	2,300
February	302	488	790	931	627	2,348
March	301	564	865	936	586	2,387
April	325	499	824	1,077	755	2,656
May	329	694	1,023	1,203	913	3,139
June	358	737	1,095	1,350	1,009	3,454
July	371	738	1,109	1,406	1,079	3,594
August	383	725	1,108	1,430	1,134	3,672
September	415	713	1,128	1,466	1,143	3,737
October	423	821	1,244	1,600	986	3,830
November	472	866	1,338	1,547	956	3,841
December	501	900	1,401	1,524	888	3,813
Total wages 1923	.....	.....	**$1,359,748**	**$1,733,654**	**$1,239,142**	**$4,332,544**
1924						
January	393	937	1,330	1,597	911	3,838
February	420	968	1,388	1,618	982	3,988
March	505	1,066	1,571	1,636	949	4,156
April	501	1,064	1,565	1,632	925	4,122
May	523	1,073	1,596	1,649	994	4,239
June	524	1,111	1,635	1,673	943	4,251
July	543	1,123	1,666	1,622	786	4,074
August	403	788	1,191	1,135	384	2,710
September	401	761	1,162	1,136	369	2,667
October	425	792	1,217	1,123	449	2,789
November	441	779	1,220	1,168	483	2,871
December	410	784	1,194	1,188	572	2,954
Total wages 1924	.....	.....	**$ 1,814,937**	**$ 1,867,712**	**$ 1,044,662**	**$ 4,727,311**

Table 256.—Miscellaneous Expenses in the Nickel-Copper Industry in Canada, 1923 and 1924

Industry	1923	1924
	$	$
Mines and mills	1,386,605	1,673,492
Smelters and refineries	3,281,631	3,515,326
Total	**4,668,236**	**5,188,818**

The Silver-Lead-Zinc Industry.

Producing, concentrating, smelting and refining of ores of the silver-lead-zinc group is an industry that is fairly well confined to the province of British Columbia, though the Yukon Territory produces high-grade silver-lead ore. Ontario has one lead mine at Galetta in the County of Carleton, and Quebec has been an intermittent producer of lead and zinc ore for some years.

The West Kootenay area in British Columbia in the vicinity of Nelson, Kaslo, Sandon, Three Forks, New Denver and Silverton has long been a producer of galena ore, containing silver and zinc, and the smelter of the Consolidated Mining and Smelting Company has been the chief purchaser of these ores.

In East Kootenay large ore deposits containing lead and zinc have been known for some time but the treatment of the ore presented a difficult metallurgical problem, which has only recently been solved through the work done by the research staff of the Consolidated Mining and Smelting Company who own the Sullivan mine in this district. As a result of this research, which cost millions of dollars, British Columbia now produces enormous quantities of lead and zinc annually; most of this production is derived from the ores of the Sullivan mine. Other important producers in British Columbia are the Silversmith, Wallace Idaho, Rosebery-Surprise, Wallace-Mountain,

and the Cork-Province. In the Yukon Territory, the Treadwell-Yukon Company and the Keno-Hill, Limited, were the only two shipping mines. The ore mined in this remote district, is often not shipped until the following year but is hauled down to the wharf in winter and piled there awaiting the opening of navigation in the spring.

The operations of Ontario's only lead mine at Galetta are self-contained; the ores are mined, concentrated and smelted right on the property so that there are no heavy shipping costs connected with producing operations and the pig lead is shipped directly to the purchasers. In Quebec during 1924 two companies were in operation, the British Metals Corporation who were concentrating the zinc dumps at Notre Dame des Anges, by the flotation process, and the Tetreault mine operated by the Tetreault Estate. Both of these companies exported concentrates to the United States and Belgium. The following tables show the capital invested by provinces and the ore mined, milled, and shipped from the different provinces for the years 1923 and 1924.

Because of the high price of lead and the continued fair price for zinc this particular industry shows marked increases in all its different activities.

Table 257.—Capital Employed in the Silver-Lead-Zinc Mining Industry in Canada, 1923 and 1924

Province	Capital employed as represented by			
	Cost of lands, buildings and equipment	Cost of supplies and stock on hand	Cash, trading and operating accounts and bills receivable	Total
1923	$	$	$	$
Quebec	150,000	15,000	.....	165,000
British Columbia	6,139,780	597,296	113,097	6,850,173
Yukon	1,687,401	251,518	249,905	2,188,824
Canada	**7,977,181**	**863,814**	**363,002**	**9,203,997**
1924				
Quebec	150,000	5,000	.....	155,000
Ontario	866,640	264,678	5,834	1,137,152
British Columbia	7,624,835	633,342	360,088	8,618,265
Yukon	1,893,091	309,548	215,455	2,418,094
Canada	**10,534,566**	**1,212,568**	**581,377**	**12,328,511**

Table 258.—Ore Mined and Milled in the Silver-Lead-Zinc Mining Industry, 1923 and 1924

Production	Ontario and Quebec	British Columbia	Yukon	Canada
1923	Tons	Tons	Tons	Tons
Ore mined	66,824	561,808	7,866	636,498
Ore milled	66,824	260,144	.....	326,968
Concentrates produced—lead	5,273	30,929	.....	36,202
" " zinc	4,000	44,476	.....	48,476
1924				
Ore mined	74,932	1,124,343	764	1,200,039
Ore milled	74,932	1,012,651	.....	1,087,583
Concentrates produced—lead	3,286	130,698	.....	133,984
" " zinc	.....	130,305	.....	130,305

Table 259.—Products Shipped by Silver-Lead-Zinc Mines in Canada, 1923 and 1924

Location of mines	No. of mines shipping	Product shipped	Quantity shipped	Net value at shipping point	Total metal content as determined by settlement assay			
					Gold	Silver	Lead	Zinc
			tons	$	ozs.	ozs.	lb.	lb.
1923								
Quebec and Ontario	3	Lead ore	.....	.....	.....	.....	.....	.....
		Lead concentrates	5,273	403,792	667	31,119	6,305,274	.....
		Zinc concentrates	613	7,700	.....	3,624	38,080	488,320
		Total	5,886	411,492	667	34,743	6,343,354	488,320
British Columbia	75	Lead ore	30,201	1,010,896	134	665,090	15,849,921	3,920,630
		Lead concentrates	30,940	2,381,555	244	1,047,907	37,092,272	3,475,553
		Zinc ore	234,140	1,215,113	5	785,334	52,831,454	60,964,991
		Zinc concentrates	44,476	630,301	60	325,267	4,720,118	34,695,423
		Dry ore	684	74,198	29	125,082	59,866	600
		Total	340,441	5,312,063	472	2,948,680	110,553,631	103,057,197
Yukon	6	Lead ore	10,472	896,512	127	2,001,013	7,523,459	1,329,192
Total for Canada	84	.....	**356,799**	**6,620,067**	**1,266**	**4,984,436**	**124,420,444**	**104,874,709**
1924								
Québec and Ontario	3	Lead ore	.....	.....	.....	.....	.....	.....
		Lead concentrates	4,505	506,797	833	83,383	6,059,733	7,700
		Zinc concentrates	3,034	90,674	.....	.....	136,400	3,628,560
		Total	7,539	597,471	833	83,383	6,196,133	3,636,260
British Columbia	76	Lead ore	16,732	937,150	521	1,029,675	7,583,748	1,419,429
		Lead concentrates	130,630	10,672,543	197	2,982,073	165,532,094	16,303,481
		Zinc ore	57,771	337,036	6	262,635	11,840,375	13,539,465
		Zinc concentrates	130,564	3,882,561	106	485,517	10,395,846	112,475,606
		Dry ore	207	14,062	28	22,689	7,638	1,050
		Total	335,904	15,843,352	858	4,782,589	195,359,701	143,739,031
Yukon	4	Lead ore	1,322	160,147	.....	230,423	1,003,911	20,017
Total for Canada	83	.....	**344,765**	**16,600,970**	**1,691**	**5,096,395**	**202,559,745**	**147,395,308**

Table 260.—Shipments of Lead Ores from Canadian Mines, 1913-1924

Year	Lead ores shipped		Lead content in pounds	Silver content in ounces
	Tons	Value		
		$		
1913	85,978	3,276,812	53,807,570	2,564,155
1914	70,207	2,652,802	50,527,130	2,501,820
1915	73,752	2,958,394	48,708,005	2,954,175
1916	84,516	4,568,500	54,124,628	2,582,952
1917	46,799	3,866,862	38,696,116	1,670,064
1918	75,256	4,705,573	46,843,602	2,314,542
1919	54,508	3,044,839	32,147,989	2,185,376
1920	69,493	2,985,848	36,325,507	2,882,178
1921	15,259	671,313	9,517,616	989,374
1922	27,203	1,803,575	21,335,850	2,163,637
1923	76,886	4,692,755	66,770,926	3,745,129
1924	153,396	12,290,699	180,187,124	4,348,243

Table 261.—Shipments of Zinc Ores from Canadian Mines, 1898-1924

Year	Zinc ore shipped		Metallic zinc in ore shipped	Year	Zinc ore shipped		Metallic zinc in ore shipped
	Tons	Value	Pounds		Tons	Value	Pounds
		$				$	
1898	1,162	11,000	788,000	1912	6,415	215,149	5,354,700
1899	865	18,165	814,000	1913	7,889	186,827	7,060,800
1900	261	4,810	212,000	1914	10,893	262,563	9,101,460
1901*				1915	14,895	554,938	12,231,439
1902	158	1,659	142,200	1916	82,077	1,086,249	48,498,078
1903	1,000	10,500	900,000	1917	116,489	1,323,985	64,655,713
1904	597	3,700	477,568	1918	121,200	1,228,195	63,026,464
1905	9,413	139,200	*	1919	135,535	1,049,493	59,959,709
1906	1,154	23,800	*	1920	249,136	1,157,844	91,033,202
1907	1,573	49,100	*	1921	297,406	1,498,716	98,799,093
1908	452	3,215	*	1922	356,096	2,357,846	102,975,964
1909†	18,371	242,699	16,468,204	1923	279,229	1,853,114	96,148,734
1910	5,063	120,003	4,361,712	1924	191,369	4,310,271	129,643,631
1911	2,590	101,072	2,346,849				

*Figures not available. †Includes 7,424 tons shipped late in 1908.

Table 262.—Employees, Salaries and Wages in the Silver-Lead-Zinc Mining Industry in Canada, 1923 and 1924

Class	1923				1924			
	British Columbia		Canada*		British Columbia		Canada*	
	Number	Salaries and Wages	Number	Salaries and Wages	Number	Salaries and Wages	Number	Salaries and Wages
		$		$		$		$
SALARIED EMPLOYEES—								
Superintendents and managers	36	90,168	43	111,635	43	113,269	52	153,149
Technical employees	15	29,500	19	39,136	22	38,880	29	47,451
Clerks and stenographers	22	25,377	26	33,328	35	44,069	45	62,304
Total	73	145,045	88	184,099	100	196,218	126	262,904
WAGE-EARNERS—								
Surface and mill	400	1,386,836	529	1,840,653	680	2,176,239	844	2,680,731
Underground	515		735		730		966	
Total	915	1,386,836	1,264	1,840,653	1,410	2,176,239	1,810	2,680,731
Grand Total	988	1,531,881	1,352	2,024,752	1,510	2,372,457	1,936	2,943,635

*Totals for Canada include data for other mines—{3 in Quebec, 1 in Ontario and 4 in the Yukon in 1923. {2 in Quebec, 1 in Ontario and 4 in the Yukon in 1924.

Table 263.—Number of Wage-Earners in the Silver-Lead-Zinc Mining Industry in Canada, by Months, 1923 and 1924

Month	1923			1924		
	Surface	Underground	Total	Surface	Underground	Total
January	461	632	1,093	619	789	1,408
February	397	621	1,018	655	799	1,454
March	401	622	1,023	692	851	1,543
April	418	631	1,049	722	860	1,582
May	448	755	1,203	778	945	1,723
June	502	739	1,241	818	961	1,779
July	476	739	1,215	796	994	1,790
August	603	750	1,353	822	1,002	1,824
September	614	736	1,350	874	1,045	1,919
October	683	768	1,451	908	903	1,811
November	678	772	1,450	904	891	1,795
December	600	769	1,369	699	815	1,514
Average	529	735	1,264	844	966	1,810

Table 264.—Miscellaneous Expenses in the Silver-Lead-Zinc Mining Industry in Canada, 1923 and 1924

Province	1923	1924
	$	$
Quebec, Ontario and Yukon	615,559	463,669
British Columbia	1,052,373	339,213
Canada	**1,667,932**	**802,882**

Table 265.—Destination of Shipments from Silver-Lead-Zinc Mines in Canada, 1923 and 1924

Product shipped	Tons shipped	Net value at shipping point	Total metal content as determined by settlement assay			
			Gold	Silver	Lead	Zinc
1923		$	ozs.	ozs.	lb.	lb.
To Canadian Smelters—						
Lead ore	30,127	1,007,504	132	661,317	15,804,900	3,920,130
Lead concentrates	35,223	2,724,957	244	1,037,857	42,186,967	3,475,553
Zinc ore	234,140	1,215,113	5	785,334	52,831,454	60,964,991
Zinc concentrates	44,476	630,301	60	325,267	4,720,118	34,695,423
Dry ore	684	74,198	29	125,082	59,866	600
Total	**344,650**	**5,652,073**	**470**	**2,934,857**	**115,603,305**	**103,056,697**
To United States Smelters—						
Lead ore	10,546	899,904	129	2,004,786	7,568,480	1,329,692
Lead concentrates	990	60,390	667	41,169	1,210,579	.....
Zinc concentrates	613	7,700	.....	3,624	38,080	488,320
Total	**12,149**	**967,994**	**796**	**2,049,579**	**8,817,139**	**1,818,012**
1924						
To Canadian Smelters—						
Lead ore	15,149	788,337	237	784,244	6,893,298	1,419,145
Lead concentrates	133,916	11,054,512	197	2,982,073	170,551,579	16,303,481
Zinc ore	57,771	337,036	6	262,635	11,840,375	13,539,465
Zinc concentrates	73,529	2,211,546	106	368,495	6,110,769	61,085,803
Dry ore	207	14,062	28	22,689	7,638	1,050
Total	**280,572**	**14,405,493**	**574**	**4,420,136**	**195,403,659**	**92,348,944**
To Foreign Smelters—						
Lead ore	2,905	308,960	284	475,854	1,694,361	20,301
Lead concentrates	1,219	124,828	833	83,383	1,040,248	7,700
Zinc ore	.....	.....	.....	.....	.....	.....
Zinc concentrates	60,069	1,761,689	.....	117,022	4,421,477	55,018,363
Total	**64,193**	**2,195,477**	**1,117**	**676,259**	**7,156,086**	**55,046,364**

Metallurgical Works.

It was found impossible in several cases to draw any line of demarcation between mining proper and those operations carried on above ground by establishments that give treatment of one kind or another to the crude ore after it is mined, since it has been the custom to consider this preparation for market or for further treatment as part of the mining operations.

In a number of instances, however, it has been possible to obtain certain statistics regarding smelting and refining plants operated in conjunction with mines, and the present section has been designed to present in a correlated manner the principal data furnished by these concerns and by similar plants operated independently of mines, in which the reduction of ores either by fire or by electricity was carried on for the production of the non-ferrous metals or compounds of them.

During the year great progress was made around the smelter at Trail. Production was increased and the work of the enlarging part of the plant to treat the greater tonnage of ore from the Sullivan mine, kept many men employed. The copper smelter and refinery were in operation from May 6th to September 30th. The Granby smelter at Anyox operated throughout the year. The nickel copper smelters in Ontario had the best season since the curtailing of operations in 1921. In the smelting of the cobalt ores, the Deloro Smelting and Refining Company reported a very busy season but the Coniagas Reduction Company at Thorold, Ontario, did practically no work except some cleaning up around the smelter. There were increases in mill outputs in the gold-mining districts of northern Ontario but for reasons already mentioned records of their operations have not been included in this section. The names of the operating companies by provinces, with their principal products follow:—

British Columbia

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

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

Ontario.

The International Nickel Company of Canada, Ltd., Copper Cliff, Ont., operating several mines and a smelter near Copper Cliff, and a refinery for matte at Port Colborne, Ontario, producing nickel and compounds of nickel, converter copper, and small amounts of the precious metals such as gold, silver, platinum and others of the platinum group;

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

The British America Nickel Corporation, operating mines and a smelter near Sudbury, and refining the matte at Deschenes, Que., producing nickel and nickel compounds, copper and some precious metals, (this company went into liquidation in July, 1924);

The Coniagas Reduction Company operating a smelter at St. Catharines, Ontario, and producing silver bullion, the metals and oxides of cobalt and nickel, white arsenic and copper sulphate;

The Deloro Smelting and Refining Company, operating at Deloro, Ontario, smelting cobalt ores and producing silver bullion, metals and oxides of cobalt and nickel, white arsenic, the alloy "stellite" and insecticides;

The Kingdon Mining, Smelting and Manufacturing Company, Galetta, Ontario, producing a pig lead from galena ores;

The Canadian Zinc Products Company operated their zinc oxide plant for a short time during 1921, but it was partially destroyed by fire in August of that year, and has not since been reopened.

New Brunswick.

The North American Antimony Smelting Company, Lake George producing antimony regulus (idle). The company has been re-organized and is now known as the *Antimony Products Corporation.*

The groups selected for review in the following tables are: The nickel-copper smelting and refining group, comprising three companies which operated three smelting establishments, all in Ontario, and two refineries, one of which was in Ontario and the other in Quebec; the silver-cobalt smelters and refineries, including two companies engaged in treating silver ores from the cobalt camp; and the copper-lead-zinc smelters and refineries in which two companies were active, both being in British Columbia.

The smelting operations at the Kingdon Mining and Smelting Company at Galetta are not included in this group but are included in the silver-lead-zinc mining industry because at that particular plant the mining operations predominate.

The capital actually employed in the metallurgical plants of Canada, whose operations are reviewed in this section, amounted to approximately 65 million dollars as against 64 million dollars in 1923 and was made up of 45 million dollars in lands, buildings, plant, machinery and tools, 14 millions in materials on hand, supplies, finished products and ore waiting to be treated, and 6 millions in cash, trading, and operating accounts and bills receivable.

There were 5,521 salaried workers and wage-earners employed in the industry to whom $8,136,251 was paid as against 4,968 in 1923 who received $7,930,236.

Sales of smelter products in 1924 totalled over 42 million dollars in value which was an increase of 7 millions over the total for the previous year. Increases occurred in each of the groups but a six-million-dollar advance over the sales of 1923 in the copper-lead-zinc smelters of British Columbia accounted for the greater part of the increase. Lead and zinc were in demand and production far surpassed that of any previous year; this was the main cause of the increase in sales of these two metals.

The total quantities and values given in the table on smelter products do not agree with the data shown as the mineral production of Canada in Part One of this report, since some portions of the metal produced in Canadian smelters were recovered from foreign ores treated in Canada and also because large quantities of metals mentioned in Part One did not pass through any Canadian smelter but were recovered either by hydro-metallurgical operations or in foreign smelters to which they had been shipped for treatment.

In the table on summary expenditure on metallurgical works in Canada 1924 the smelting industry is looked upon as a manufacturing plant, and the raw materials used are the ores, concentrates, etc.

In some cases it was very difficult to get an average price per ton of ore as the mining, milling and smelting operations as carried on by some companies can not easily be separated. Where no information on the cost of ores was available, estimates were made based on the metal content of the ore and the cost of mining, but an attempt was made to use as fair a price as the information at hand would permit.

In 1924 the total expenditure amounted to $40,181,159 as against, $34,463,275 in 1923.

Sales for the year amounted to $42,154,808 showing that the value added by the smelters in the conversion of raw ores into salcable products of commerce amounted to about 2 million dollars. Or, on the other hand, by adding the net values of the shipments from the mines to the net value of shipments from the metallurgical plants and deducting the total expenditure, the total gain to the mining and metallurgical industry during 1924 amounted to about 29 million dollars as already indicated in Table 223 at the beginning of this section.

Table 266.—Capital Actually Employed in the Metallurgical Plants of Canada, 1923 and 1924

Item	1923				1924			
	Lands, buildings plant, machinery and tools	Materials on hand, supplies, finished products, ore on dump	Cash, trading, and operating accounts, bills receivable	Total	Lands, buildings, plant, machinery and tools	Materials on hand, supplies, finished products, ore on dump	Cash trading and operating accounts, bills receivable	Total
	$	$	$	$	$	$	$	$
Nickel-copper smelters and refineries	23,978,994	6,929,832	1,205,280	32,114,106	24,370,525	7,241,948	1,954,218	33,566,691
Silver-cobalt smelters	1,442,127	434,620	2,174,806	4,051,553	1,176,220	398,585	2,423,752	3,998,557
Copper, lead and zinc smelters and refineries	22,316,186	4,697,724	1,111,362	28,125,272	19,843,526	6,161,347	1,132,591	27,137,464
Total	**47,737,307**	**12,062,176**	**4,491,448**	**64,290,931**	**45,390,271**	**13,801,880**	**5,510,561**	**64,702,712**

Table 267.—Ores, Concentrates, etc., Treated in Canadian Smelters, 1923 and 1924.

Group	1923	1924
	Tons	Tons
Nickel-Copper—		
Ores treated	1,140,160	1,307,694
Matte produced	58,084	65,944
Matte exported for refining	21,450	26,565
Matte treated in Canadian refineries	31,765	34,835
Silver-Cobalt-Nickel—		
Ores treated	751	523
Concentrates treated	2,180	3,032
Residues treated	4,794	1,698
Copper-Lead-Zinc—		
Copper, ores and concentrates	874,567	861,847
Lead ores	39,009	18,036
Lead concentrates	62,693	118,978
Gold ores (imported)	16,716	14,677
Zinc residues	57,385	53,253
Other ores	183	571
Zinc Ore	.....	1,270
Zinc concentrates	111,620	86,768
" ore (imported)	2,730	.....

Table 268.—Products Sold by the Metallurgical Works in Canada, 1924

Industry and Material	Sold	
	Quantity	Value
		$
NICKEL-COPPER SMELTERS AND REFINERIES—		
Matte.....tons	26,565	4,667,136
Nickel, nickel oxide and copper	.....	9,760,022
Residues containing gold.....fine oz	878	17,510
silver..... "	58,145	38,607
platinum..... "	1,353	139,102
palladium..... "	1,744	117,887
others..... "	593	51,120
Total	.....	14,791,404
SILVER-COBALT SMELTERS AND REFINERIES—		
Silver bullion (fine).....fine oz.	4,309,595	2,936,927
Arsenic As_2O_3.....lb.	3,596,165	309,108
Cobalt metal, oxide, salts (metal content)	626,400	1,421,526
Nickel metal, oxide, salts (metal content)	42,482	9,418
Speiss residues exported.....tons	637	235,317
Copper sulphate.....lb.	10,672	533
Silver-lead-bismuth-bullion.....lb.	60,044	87,264
Total	.....	5,009,393
COPPER-LEAD-ZINC SMELTERS—		
Blister copper, refined copper and copper sulphate (copper content).....lb.	34,996,508	5,005,982
Gold.....fine oz.	23,412	484,031
Silver..... "	3,124,831	2,098,186
Lead and zinc and lead bullion.....lb.	.....	14,774,842
Total	.....	22,363,041
Total Sales	.....	**42,154,808**

Table 269.—Summary of Expenditures in Metallurgical Works in Canada, 1923 and 1924

Item	1923	1924
	$	$
Estimated cost of ores, etc. treated, in silver-cobalt smelters	2,000,000	2,208,812
Estimated cost of ores, etc., treated, in nickel-copper smelters	3,420,500	3,923,082
Estimated cost of ores etc., treated, in copper, lead and zinc smelters	9,418,585	14,262,641
Total salaries and wages	7,930,236	8,136,251
Cost of fuel and electricity	*5,221,278	*4,765,483
Miscellaneous expenses	6,472,676	6,884,890
Total expenditures	**34,463,275**	**40,181,159**

*Includes $1,164,444 expended for electric power in 1923 and $945,401 in 1924.

Table 270.—Employees, Salaries and Wages in the Metallurgical Works in Canada, 1923 and 1924

Group	1923				1924			
	On smelter pay-roll		On refinery pay-roll		On smelter pay-roll		On refinery pay-roll	
	No. of employees	Salaries and wages	No. of employees	Salaries and wages	No. of employees	Salaries and wages	No. of employees	Salaries and wages
		$		$		$		$
Nickel-Copper Smelters and Refineries—								
Salaried employees	85	224,759	125	245,248	99	233,329	107	208,388
Wage-earners	1,283	1,733,654	891	1,239,142	1,640	1,867,712	883	1,044,662
Silver-Cobalt-Nickel Smelters and Refineries Combined—								
Salaried employees	56	147,788	.....	.....	56	131,795	.....	.....
Wage-earners	481	475,394	.....	.....	372	341,513	.....	.....
Copper-Lead-Zinc Smelters and Refineries—								
Salaried employees	223	565,649	.....	.....	257	605,673	.....	.....
Wage-earners	1,824	3,298,602	.....	.....	2,107	3,703,179	.....	.....
All the Metallurgical Works—								
Superintendents	72	335,419	6	44,122	70	337,286	7	39,095
Technical employees: engineers, chemists, draughtsmen, etc.	126	316,403	38	58,668	180	360,869	33	43,800
Clerks, stenographers, etc.	166	286,374	81	142,458	162	263,642	67	125,493
Total—Salaried employees	364	938,196	125	245,248	412	970,797	107	208,388
Wage-earners	3,588	5,507,650	891	1,239,142	4,119	5,912,404	883	1,044,662
Grand total	**3,952**	**6,445,846**	**1,016**	**1,484,390**	**4,531**	**6,883,201**	**990**	**1,253,050**

Table 271.—Number of Wage-Earners in the Metallurgical Works in Canada, by Months, 1923 and 1924.

Month	1923				1924			
	Nickel-Copper smelters and refineries	Silver-Cobalt-Nickel smelters and refineries	Copper-Lead-Zinc smelters and refineries	Total	Nickel Copper smelters and refineries	Silver-Cobalt-Nickel smeltere and refineries	Copper-Lead-Zinc smelters and refineries	Total
January	1,533	378	1,735	3,646	2,508	412	1,792	4,712
February	1,558	394	1,710	3,662	2,600	345	1,878	4,823
March	1,522	393	1,798	3,713	2,585	342	1,927	4,854
April	1,832	426	1,845	4,103	2,557	346	1,912	4,815
May	2,116	446	1,817	4,379	2,643	376	1,936	4,955
June	2,359	548	1,845	4,752	2,616	363	2,080	5,059
July	2,485	527	1,889	4,901	2,408	378	2,198	4,984
August	2,564	554	1,969	5,087	1,519	362	2,289	4,170
September	2,609	507	1,828	4,944	1,505	342	2,270	4,117
October	2,586	545	1,898	5,029	1,572	332	2,311	4,215
November	2,503	577	1,825	4,905	1,651	233	2,381	4,265
December	2,412	476	1,727	4,615	1,760	242	2,297	4,299
Average	**2,174**	**481**	**1,824**	**4,479**	**2,523**	**372**	**2,107**	**5,002**

Table 272.—Miscellaneous Expenses Chargeable to Smelting and Refining Operations in Canada, 1923 and 1924

—	1923	1924
	$	$
Nickel-Copper smelters and refineries	3,281,631	3,515,326
Silver-Cobalt smelters and refineries	850,264	378,030
Copper-Lead-Zinc smelters and refineries	2,340,781	2,991,534
Total	**6,472,676**	**6,884,890**

NON-METALLIC MINERAL INDUSTRIES

ASBESTOS

The eastern townships area in the Province of Quebec furnishes about 85 per cent of the world's production of asbestos. Rhodesia, the second producer, markets only the longer fibre stocks, and is therefore an important competitor, as Canadian mines ship both long and short fibre. The Union of South Africa and Russia have also become more important sources of supply, particularly to European markets; several other countries produce asbestos, but in less amounts.

Asbestos, owing to its fibrous structure and to the fact that it will not burn, finds many uses as a fireproofing material, particularly in felts, sheets, theatre drop-curtains, mitts, etc., and also as a principal component of roofings, shingles, pipe-coverings, brake linings and wall board, to mention only a few of the better-known uses. In the 1921 issue of this report, there was a description of the method used, in grading asbestos in the Quebec mills.

The industry in Canada was represented in 1924 by 15 firms. The amount of capital employed, comprising the value of lands, buildings, plant equipment, cost of materials and supplies on hand at the end of the year, and working capital including cash balances and bills receivable was $43,216,966, an increase of $501,409 over the total reported for the preceding year.

Employment was furnished to 2,597 persons including 125 salaried employees and the total disbursements in salaries and wages amounted to $2,977,304. The peak of employment was in May, when 3,034 men were on the rolls.

United States asbestos operators reported a production of 300 tons in 1924. The Rhodesian output in 1924 advanced to 29,278 tons, while the quantity of asbestos produced in the Union of South Africa decreased approximately 1,000 tons to a total of 8,100 tons.

Table 273.—Principal Statistics of the Asbestos Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	17	21,839,090	3,776	4,765,305	395,976	5,420,559	14,792,201
1921	15	41,357,161	2,604	2,657,425	318,033	2,713,440	4,906,230
1922	12	43,997,252	2,572	2,581,644	265,962	2,704,402	5,552,723
1923	14	42,715,557	3,165	3,607,178	920,826	2,524,610	7,522,506
1924	15	43,216,966	2,597	2,977,304	293,563	2,173,901	6,710,830

Table 274.—Capital Employed in the Asbestos Industry in Canada, 1922, 1923 and 1924

—	1922	1923	1924
	$	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—			
Cost of lands, buildings, plant machinery and tools	37,291,835	36,234,918	37,296,894
Cost of supplies and stock on hand	2,717,312	2,965,687	2,437,151
Cash, trading and operating accounts and bills receivable	3,988,105	3,514,952	3,482,921
Total	**43,997,252**	**42,715,557**	**43,216,966**

Table 275.—Employees, Salaries and Wages in the Asbestos Industry in Canada, 1923 and 1924

—	1923				1924			
	Number			Salaries and wages	Number			Salaries and wages
	Male	Female	Total		Male	Female	Total	
				$				$
Salaried Employees—Total	135	9	144	353,562	115	10	125	288,459
Wage-Earners.—								
Mine	1,651	.....	1,651	3,253,616	1,429	.....	1,429	2,688,845
Mill	1,370	.....	1,370		1,043	.....	1,043	
Total	3,021	.....	3,021	3,253,616	2,472	.....	2,472	2,688,845
Grand Total	**3,156**	**9**	**3,165**	**3,607,178**	**2,587**	**10**	**2,597**	**2,977,304**

Table 276.—Number of Wage-Earners in the Asbestos Industry in Canada by Months, 1923 and 1924

Month	1923		1924		Month	1923		1924	
	Mine	Mill	Mine	Mill		Mine	Mill	Mine	Mill
January	1,325	1,174	1,404	1,016	July	1,671	1,384	1,308	947
February	1,405	1,084	1,429	1,037	August	1,637	1,402	1,189	1,014
March	1,386	1,152	1,577	1,119	September	1,675	1,500	1,242	909
April	1,627	1,240	1,808	1,186	October	1,674	1,494	1,241	1,005
May	1,672	1,315	1,806	1,228	November	1,448	1,394	1,218	1,028
June	1,694	1,457	1,519	1,079	December	1,458	1,386	1,255	1,008
Average for 1923									**3,021**
Average for 1924									**2,472**

Table 277.—Monthly Average Prices of Asbestos by Grades, 1923 and 1924

(Price per short ton)

(Computed from quotations in the *Engineering and Mining Journal-Press*)

Month	Crude No. 1	Crude No. 2	Spinning fibres	Magnesia and compressed sheet fibres	Shingle stock	Paper stock	Cement stock	Floats stock
	$	$	$	$	$	$	$	$
1923								
January	675	375	220	150	75	38	18	10
February	500	300	200	150	70	35	18	10
March	500	292	178	133	73	37	21	11
April	500	288	168	125	75	39	23	12
May	500	288	168	125	75	39	23	12
June	500	288	168	125	73	39	19	11
July	500	275	175	125	75	38	23	10
August	453	275	184	125	62	39	19	10
September	438	275	222	115	58	37	23	11
October	425	275	138	93	58	35	19	10
November	397	225	113	75	58	35	19	9
December	397	225	113	75	57	35	19	9
Average	**462**	**262**	**170**	**118**	**67**	**34**	**20**	**10**
1924								
January	388	225	113	75	60	35	19	9
February	350	200	108	75	60	36	23	8
March	350	200	118	75	60	37	23	8
April	350	200	118	75	60	37	23	9
May	350	200	118	75	60	37	23	11
June	363	213	120	85	60	38	23	10
July	363	213	120	85	60	38	23	10
August	350	188	120	76	57	35	18	10
September	313	175	108	70	50	33	20	9
October	350	175	108	65	50	35	20	11
November	350	175	108	65	50	35	20	11
December	313	195	108	65	48	33	20	11
Average	**349**	**197**	**114**	**74**	**56**	**36**	**21**	**10**

COAL

Canada's coal reserves are estimated to constitute more than 16 per cent of the world's known available supply and most of these deposits are located in the western provinces although coal of good quality has been mined in the maritime provinces for a great many years, and it is probable that operations in that field will be continued for many years to come.

In 1924 there were 520 coal mines operated in Canada, of which 351 were in Alberta, 64 in Saskatchewan, 50 in Nova Scotia, 16 in New Brunswick, 38 in British Columbia, and 1 in the Yukon.

The total capital employed by these mines amounted to $146,711,531, of which 54.7 million dollars was invested in Nova Scotia mines; 52.7 million dollars in Alberta mines and 34.4 million dollars in British Columbia properties.

Employment in the coal-mining industry continued uncertain. During the months from April to September, the number of men employed dropped to a low level. Labour troubles in District 18, in which some of the principal coal mines of Alberta and British Columbia are located, greatly reduced the output from these mines. The bargain driven by the men in Nova Scotia proved less advantageous than was expected, and broken time offset the gains due to higher rates of pay. Seven coal mine strikes in the East occurred during the year. In these 12,691 men were involved with a total loss of time amounting to 318,993 working days. In western Canada there were eight disputes, and while only 8,523 men were affected the total loss of time amounted to 1,236,112 working days. In all there were 15 strikes, in which 21,214 men participated, losing in the aggregate 1,555,105 working days. In the preceding year while there were 25 disputes, only 20,986 men were affected and the total loss in working time amounted to only 308,430 days. In 1922 the trend in employment in coal mining was much the same as in 1924, the loss of time due to strikes in that year amounting to 1,222,288 days.

In western Canada, labour disagreements in Alberta and southeastern British Columbia largely accounted for the loss in production in this area. Unable to accept orders on which they could guarantee delivery, the companies continued to lose their cultivated markets; consumers purchased supplies from available sources, and to meet the demand, imported coal was carried into the Middle West. On the conclusion of the strike, the men returned to the mines but in a short time sufficient coal was produced to supply the diminished markets and the mines were closed. Later, a more favourable agreement was negotiated and the companies, with this advantage of lower costs, set about recovering the markets lost during the spring and summer months. Owing largely to labour troubles in the western coal mines, the average number of employees on Canadian coal mine staffs in 1924 dropped to 27,183 as compared with an average of 32,046 for the preceding year. Salaries and wages showed a fall of more than 11 million dollars to $35,123,490 as compared with $46,215,712 in 1923. In the eastern provinces, employment showed little variation in trend during 1924 in comparison with the records for previous years. But in the western area there was a distinctly downward trend in employment from the beginning of the year till April; during the next four months employment remained at the lowest level recorded in several years but in August and September there was some improvement and in the next three months, the number employed in this industry rose to the highest point for the year. The fluctuations in coal-mine employment as shown in the dominion total, corresponded almost exactly with the changes observed in employment in the western mines. In Nova Scotia, the average number employed during the year dropped to 12,994 as compared with 14,119 on the rolls in 1923; Alberta's average was only 7,783 as against 10,592 in the preceding year; British Columbia showed less loss at 5,203 as compared with 6,148 in the preceding year.

Closely related in point of interest to the number of employees, are the data concerning the number of days' work done and the wages paid. In 1924, excluding the salaried employees, there were 25,708 men working in the coal mines of Canada; of these 5,995 worked on the surface and 19,713 underground. Surface men worked on the average 257 days during the year; underground men, 210 days. This number divided into the total sum of wages paid during the year, showed an average earning power per man of $5.62 per working day. In 1923, the average computed on the same basis was $5.57 per day and in 1922 it was $5.18.

To assist the industry, the Dominion Government made provision for the payment of a subvention of $150,000 in order that domestic coal, particularly from the Maritime Provinces, might be marketed in central Canada. Depression in the iron and steel industry, the principal mainstay of eastern Canadian coal mines, was also a check to production.

Yet in spite of the fact that production of coal in Canada was so much lower in 1924 than in 1923, imports of foreign coal also showed a very considerable decrease. Domestic supplies of anthracite, it is true, were only slightly less in volume than before but the tonnage of bituminous coal imported showed a loss of five million tons. Industrial depression reduced the apparent consumption of coal in Canada by 6·80 million tons below the amount used in 1923.

Table 278.—Capital Employed in the Coal Mines of Canada, as at December 15, 1924

—	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon	Canada
	$	$	$	$	$	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—							
Value of buildings, plant machinery and tools	48,096,232	1,242,828	2,545,523	44,474,725	31,896,185	202,500	128,457,993
Cost of supplies on hand and coal on bank	3,108,035	43,236	59,381	1,152,713	774,181	.....	5,137,549
Cash, trading and operating accounts and bills receivable	3,503,977	522,290	297,913	7,075,493	1,716,316	.....	13,115,989
Total	**54,708,244**	**1,808,354**	**2,902,820**	**52,702,931**	**34,386,682**	**202,500**	**146,711,531**

Table 279.—Number of Employees, Salaries and Wages Paid in the Coal Mines in Canada, by Provinces, 1924

Province	Average number of employees					Salaries and wages		
	Salaried employees		Wage-earners		Total	Salaries	Wages	Total
	Male	Female	Surface	Underground				
						$	$	$
Nova Scotia	467	27	2,314	10,186	12,994	905,196	12,449,708	13,354,904
New Brunswick	27	3	162	446	637	64,676	583,749	648,425
Saskatchewan	41	4	115	404	564	67,531	501,404	568,935
Alberta	598	22	1,975	5,188	7,783	1,189,215	11,008,916	12,498,131
British Columbia	265	22	1,428	3,488	5,203	671,701	7,379,084	8,050,785
Yukon	.....	.....	1	1	2	.....	2,310	2,310
Canada	**1,397**	**78**	**5,995**	**19,713**	**27,183**	**3,198,319**	**31,925,171**	**35,123,490**

Table 280.—Number of Wage-Earners in the Coal Mines of Canada by Months and by Provinces, 1923 and 1924

Month		Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon	Canada
January	1923	13,575	634	619	12,384	6,587	-	33,799
	1924	13,144	603	728	12,047	5,978	-	32,500
February	1923	13,449	657	589	11,544	6,534	-	32,773
	1924	12,928	621	636	11,234	6,023	-	31,442
March	1923	13,692	646	546	10,083	6,300	-	31,267
	1924	13,253	649	537	9,614	5,682	-	29,735
April	1923	13,580	668	432	8,624	6,074	-	29,378
	1924	13,371	622	420	2,650	4,350	-	21,413
May	1923	13,569	598	371	7,821	5,627	-	27,986
	1924	13,051	629	376	2,758	4,260	-	21,074
June	1923	13,487	615	360	8,133	5,448	-	28,043
	1924	12,721	612	380	2,978	4,205	-	20,896
July	1923	12,588	628	350	8,450	5,425	-	27,441
	1924	11,587	624	327	2,879	4,234	6	19,657
August	1923	13,255	624	361	9,084	5,586	-	28,910
	1924	11,476	570	336	3,716	4,227	6	20,331
September	1923	13,393	553	402	9,686	5,647	2	29,683
	1924	11,753	585	386	4,911	4,314	6	21,955
October	1923	13,516	554	599	10,693	5,696	-	31,058
	1924	12,199	577	574	10,078	5,180	-	28,608
November	1923	13,209	565	748	11,203	5,819	-	31,544
	1924	12,317	598	757	11,090	5,039	-	29,801
December	1923	13,318	611	692	11,310	5,825	-	31,756
	1924	12,201	643	766	12,008	5,503	-	31,091
Average	**1923**	**13,385**	**612**	**505**	**9,917**	**5,881**	**2**	**30,300**
	1924	**12,500**	**608**	**519**	**7,163**	**4,918**	**2**	**25,708**

Table 281.—Average Number of Wage-Earners, in the Coal Mines of Canada, by Classes and by Provinces, 1924

Classification	Province						Canada		
	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon	Surface	Underground	Total
SURFACE—									
Administration	91	13	11	124	31	.....	227	43	270
Foremen and clerks	157	24	10	200	118	.....	494	24	518
Screenmen and loaders	601	35	37	462	155	.....	1,286	4	1,290
UNDERGROUND—									
Officials	422	2	7	298	151	.....	18	842	880
Hand cutters and helpers	1,909	429	284	1,905	1,554	2	21	6,062	6,083
Machine cutters	1,433	4	10	308	46	.....	.....	1,801	1,801
Machine loaders and helpers	1,645	1	23	1,084	88	.....	2	2,839	2,841
Horse haulage employees	822	3	47	559	372	.....	30	1,773	1,803
Mechanical haulage employees	1,521	.....	3	207	335	.....	31	2,035	2,066
Ventilation employees	343	.....	1	70	67	.....	4	477	481
Roadmakers	301	.....	12	148	67	.....	2	526	528
Timbermen	608	11	4	253	139	.....	13	1,002	1,015
Pumpmen	132	5	7	48	37	.....	14	215	229
MISCELLANEOUS—									
Enginemen	243	11	13	157	79	.....	477	26	503
Firemen	202	3	11	104	52	.....	372	.....	372
Machinists	256	2	2	63	75	.....	395	3	398
Carpenters and masons	111	4	4	62	79	.....	258	2	260
Other mechanics	222	3	2	96	119	.....	293	149	442
All other white employees	1,481	58	22	1,015	736	.....	1,752	1,560	3,312
Japanese	.....	.....	.....	.....	116	.....	1	115	116
Chinese	.....	.....	.....	.....	497	.....	305	192	497
Indians	.....	.....	.....	.....	3	.....	.....	3	3
Total	**12,500**	**608**	**519**	**7,163**	**4,916**	**2**	**5,995**	**19,713**	**25,708**

Table 282.—Number of Wage-Earners, Work Done by Months, and Wages Paid in the Coal Mines of Canada, 1924

Month	Number of employees			Days' work done			Total wages
	Surface	Underground	Total	Surface	Underground	Total	
January	7,568	24,932	32,500	161,056	427,142	588,198	
February	7,371	24,071	31,442	143,541	351,419	494,960	Monthly records not available
March	6,961	22,761	29,735	156,037	447,179	603,216	
April	5,054	16,359	21,413	114,766	329,682	444,448	
May	4,997	16,077	21,074	103,122	253,774	356,896	
June	4,907	15,989	20,896	105,141	264,899	370,040	
July	4,588	15,069	19,657	96,707	259,716	356,423	
August	4,846	15,485	20,331	111,386	248,192	359,578	
September	5,259	16,696	21,955	109,710	289,903	399,613	
October	6,629	21,979	28,608	137,387	394,239	531,626	
November	6,744	23,057	29,801	140,827	441,288	591,115	
December	7,009	24,082	31,091	153,635	431,091	584,729	
Total	.....	.....	.....	**1,542,315**	**4,138,825**	**5,681,142**	**$ 81,925,171**
Average	**5,995**	**19,713**	**25,708**	**257 days per year**	**210 days per year**	**221 days per year**	**$ 5.62 per day**

Table 283.—Power Employed in the Coal Mines of Canada, by Provinces, 1924

Class	Nova Scotia		New Brunswick		Saskatchewan		Alberta		British Columbia		Canada	
	No. of units	Total h.p. rated	No. of units	Total h.p. rated	No. of units	Total h.p. rated	No. of units	Total h.p. rated	No. of units	Total h.p. rated	No. of units	Total h.p. rated
Stationary engines (including those used for hoisting, pumping, etc.):—												
Steam engines and turbines	423	69,772	13	513	35	1,798	297	34,031	119	20,358	887	126,472
Gas engines	.....	.....	.....	.....	2	11	8	67	.....	.....	10	78
Oil and gasoline engines	3	26	.....	.....	3	8	49	332	4	81	59	447
Hydraulic turbines or water wheels	.....	.....	.....	.....	.....	.....	.....	.....	6	12,000	6	12,000
Electric motors:—												
Operated by power generated by the establishment	367	31,703	8	160	17	462	213	5,924	183	13,213	788	51,462
Operated by purchased power	51	1,878	.....	.....	4	20	274	12,267	13	782	345	14,947
		B.H.P.		B.H.P.		B.H.P.		B.H.P.		B.H.P.		B.H.P.
Boilers installed	193	43,207	7	515	11	1,300	209	26,838	93	13,881	513	85,741
Electric power used during the year—												
Quantity in kilowatt-hours		57,215,219		1,140,000		47,500		14,030,132		21,896,003		94,328,944
Value $		738,205		29,938		958		295,707		321,314		1,386,122

FELDSPAR

The first record of production in the feldspar industry in Canada dates back to about the year 1890. The production during that year was approximately 700 tons and since that date the records show an increase until in 1924, 44,804 tons were produced.

The initial development work in this industry was made on deposits located in Templeton and Hull townships, in the province of Quebec. In the townships of Bedford and Portland, Ontario, near Bedford and Verona, development work was started on large feldspar deposits in the year 1900. The activities of these Ontario feldspar properties during the next few years, owing to their proximity to the American market (potteries located in New Jersey), were responsible for the almost complete cessation of work on Quebec deposits. A small quantity of high-grade dental spar has been produced from the Villeneuve quarry in Portland township, Quebec, for a number of years.

Plants for the fine-grinding of feldspar in Canada are located at Kingston, Toronto and Oshawa; the first two establishments were operated during 1924 producing about 2,200 tons of ground spar. The grinding capacity of these two plants is approximately 7,500 tons per annum.

Although feldspar occurs in many deposits throughout Canada, operations in this industry in 1924 were confined to the provinces of Ontario and Quebec. With the exception of some 2,100 tons used for domestic purposes, the entire Canadian output was shipped to United States grinding plants in the form of crude spar for use in the ceramic industry.

Twenty-five firms reported operations in 1924, comprising 8 in Quebec and 17 in the province of Ontario.

Table 284.—Principal Statistics of the Feldspar Industry in Canada, 1920-1924.

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	20	(*)	277	152,379	(*)	(*)	280,895
1921	23	484,633	143	146,776	4,237	55,628	230,754
1922	25	388,310	225	127,182	5,231	60,829	248,402
1923	25	948,973	298	193,001	13,965	55,542	237,601
1924	25	953,525	290	223,937	16,866	*	358,540

(*) Data not available.

Table 285.—Capital Employed in the Feldspar Industry in Canada, 1923 and 1924

—	1923	1924
	$	$
CAPITAL EMPLOYED AS REPRESENTED BY:		
Cost of lands, buildings, plant machinery and tools	897,047	890,337
Cost of supplies and stock on hand	35,418	38,534
Cash, trading and operating accounts and bills receivable	16,508	24,654
Total	**948,973**	**953,525**

Table 286.—Employees, Salaries and Wages in the Feldspar Industry in Canada, 1923 and 1924

Year		Number			Salaries and wages
		Male	Female	Total	
					$
SALARIED EMPLOYEES—Total	1923	16	1	17	23,973
	1924	9	1	10	20,580
WAGE-EARNERS—Total	1923	281	.....	281	169,028
	1924	280	.....	280	203,357
Grand total	**1923**	**297**	**1**	**298**	**193,001**
	1924	**289**	**1**	**290**	**223,937**

Table 287.—Number of Wage-Earners in the Feldspar Industry in Canada, by Months; 1923 and 1924

Month	Number		Month	Number	
	1923	1924		1923	1924
January	199	218	July	242	298
February	230	205	August	282	276
March	214	191	September	249	240
April	186	176	October	239	251
May	210	247	November	238	220
June	276	279	December	182	166
Average for 1923					**281**
Average for 1924					**280**

GYPSUM

The first record of the production of gypsum in Canada shows that in 1822 minor operations, consisting of the extraction of a few tons of this commodity for use as fertilizer, were conducted on a bed of gypsum near Paris, Ontario. The first mill for manufacturing gypsum was erected in 1823. Since that date operations in this district have been carried on almost continuously. At the present time the Ontario Gypsum Company, operating at Lythmore and Caledonia is the only producer.

Prior to 1833, activities in the gypsum industry in Nova Scotia consisted principally of minor operations carried on by individual producers. The crude material was shipped to mills located in the United States. Several attempts were made by local producers to work up the crude rock, but these were not successful owing to the almost total dependence on the American market. When the United States duty was made prohibitive, all local milling operations ceased. During 1924, fine ground gypsum was produced in Nova Scotia only by the Windsor Plaster Company of Windsor.

The centre of activities in the gypsum industry in New Brunswick is near Hillsborough, Albert County. Operations have been carried on in this district since 1847. In 1854 there was a change in the ownership of the quarries, and shortly after this date a plaster mill was erected to supply both local and American consumers. At the present time two companies are carrying on extensive operations in this district.

Developments in the gypsum industry in Manitoba are of comparatively recent date, the year 1901 marking the first active intensive work on deposits in the province. The Manitoba Union Mining Company in that year erected a crushing and calcining mill at the head of Portage Bay on Lake Manitoba.

The principal gypsum deposits operated in Canada during 1924 were located in the following centres: Hants and Victoria counties, Nova Scotia; Albert county, New Brunswick; Haldimand county, Ontario; Gypsumville, Manitoba; and in the Lillooet District, British Columbia.

Of the nine firms producing gypsum in the Maritime provinces, five were controlled by American capital. The output of these five mines was exported in the raw form to the United States, for treatment in the manufacturing plants owned by the same interests. The output from the other mines was quarried and calcined principally for consumption in Canada.

In Ontario and Manitoba the raw gypsum was used mainly in the manufacture of cement, wall plaster, wall-board, fire-proof tile and blocks, and plaster of paris. The British Columbia product was sold as land plaster for agricultural purposes.

Comparative figures for the capital employed by operating gypsum companies in 1923 and 1924 are shown in the following table. Owing to the fact that there was only one operator in Ontario, one in Manitoba, and one in British Columbia, statistics regarding the companies in these provinces have been combined.

Table 288.—Principal Statistics of the Gypsum Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	11	*	1,016	955,602	*	*	1,893,991
1921	11	3,849,776	1,039	774,551	116,554	565,839	1,785,538
1922	13	4,092,090	1,055	909,072	127,246	436,705	2,160,898
1923	15	4,249,628	1,225	1,017,556	190,906	552,930	2,243,100
1924	14	4,423,697	1,219	1,114,468	141,818	458,268	2,208,108

*Data not available.

Table 289.—Capital Employed in the Gypsum Industry in Canada by Provinces, 1923 and 1924

—	1923				1924			
	Nova Scotia	New Brunswick	Ontario, Manitoba and British Columbia	Canada	Nova Scotia	New Brunswick	Ontario, Manitoba and British Columbia	Canada
	$	$	$	$	$	$	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—								
Cost of lands, buildings, plant machinery and tools	1,423,491	465,461	1,283,554	3,172,506	1,999,854	444,364	1,356,767	3,800,985
Cost of all materials and supplies on hand	131,507	97,088	145,609	374,204	168,500	94,335	126,771	389,606
Cash, trading and operating accounts and bills receivable	406,225	36,942	259,751	702,918	51,586	30,553	150,967	233,106
Total	1,961,223	599,491	1,688,914	4,249,628	2,219,940	569,252	1,634,505	4,423,697

Table 290.—Employees, Salaries and Wages in the Gypsum Industry in Canada, 1923 and 1924

	1923				1924			
	Number			Salaries and wages	Number			Salaries and wages
	Male	Female	Total		Male	Female	Total	
				$				$
SALARIED EMPLOYEES—								
Total	48	9	57	111,073	49	9	58	126,306
WAGE-EARNERS—								
Mine	805	.....	805	906,483	913	.....	913	988,162
Mill	363	.....	363		248	.....	248	
Total	1,168	.....	1,168	906,483	1,161	.....	1,161	988,162
Grand total	**1,216**	**9**	**1,225**	**1,017,556**	**1,210**	**9**	**1,219**	**1,114,468**

Table 291.—Average Number of Wage-Earners in the Gypsum Industry in Canada by Provinces, 1924

Month	Nova Scotia		New Brunswick		Ontario		Manitoba		Canada	
	Mine	Mill	Mine	Mill	Mine	Mill	Mine	Mill	Mine	Mill
January	440	35	68	72	65	62	5	30	578	199
February	425	36	73	65	89	60	5	43	572	204
March	447	40	73	71	90	73	15	49	625	233
April	510	41	106	68	72	80	18	64	706	253
May	710	48	174	73	75	71	18	64	977	256
June	785	54	155	70	80	67	19	66	1,039	257
July	724	54	130	72	98	87	19	64	971	277
August	628	55	95	73	113	91	16	64	852	283
September	628	54	123	73	111	68	17	65	879	260
October	772	54	75	74	97	67	19	64	963	259
November	641	46	56	70	81	70	16	37	794	223
December	449	40	66	66	65	70	26	35	606	211
Average	**707**	**51**	**106**	**71**	**84**	**72**	**16**	**54**	**913**	**248**

MICA

Increased activity noted in the mica industry in Canada during 1923, continued throughout 1924. Large quantities of scrap mica were shipped to the United States to be ground for use in the manufacture of prepared roofings. According to a survey made in 1922, the consumption of mica by Canadian industries in that year, was as follows: roofing materials, 359 tons; wall paper, 200 tons; electrical goods 31 tons; and rubber, 22 tons.

Important deposits of mica in Canada are located in the counties of Hull and Labelle in Quebec, and Lanark, Leeds and Frontenac in Ontario. The product of these mines, in the main part, is shipped first to mica trimming shops, conveniently located, where it is either rough-cobbed or split and trimmed prior to exportation to the United States or Great Britain.

Fifty operators in Canada reported shipments of mica during 1924. Of this number 30 were in Quebec, and 20 in Ontario.

Statistics relating to the extensive mica-trimming shops in Ontario and Quebec have not been included in this report, but have been treated under a separate heading in the report on "Manufactures of Non-Metallic Minerals."

Table 292.—Principal Statistics of the Mica Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	20	(a)	186	145,247	(a)	(a)	376,022
1921	20	576,237	104	74,432	4,354	19,743	70,063
1922	20	441,802	147	64,641	1,807	45,825	152,263
1923	33	223,650	219	112,469	4,772	60,216	326,974
1924	50	249,876	223	127,201	5,532	(a)	357,272

(a) Data not available.

Table 293.—Capital Employed in the Mica Mining Industry in Canada by Provinces, 1923 and 1924

	1923			1924		
	Quebec	Ontario	Canada	Quebec	Ontario	Canada
	$	$	$	$	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—						
Cost of lands, buildings, plant machinery and tools	49,100	25,676	74,776	29,621	32,078	61,699
Cost of all materials and supplies on hand	20,847	46,652	67,499	49,003	67,822	116,825
Cash, trading and operating accounts and bills receivable	43,740	37,635	81,375	45,759	25,593	71,352
Total	**113,687**	**109,963**	**223,650**	**124,383**	**125,493**	**249,876**

Table 294.—Number of Wage-Earners, by Months, and Wages Paid in the Mica Industry in Canada, 1923 and 1924

Month	Number		Month	Number	
	1923	1924		1923	1924
January	133	192	July	223	196
February	141	175	August	249	179
March	159	177	September	252	155
April	153	192	October	232	139
May	204	198	November	230	142
June	224	199	December	210	146

Average for 1923	213
1924	220

Total wages paid in 1923	$ 103,022
Total wages paid in 1924	$ 124,668

NATURAL GAS

No records are available prior to 1892, as to the production of natural gas in Canada. An estimate of the value of gas produced during that year placed the total at $150,000.

The extensive developments of the oilfields in Ontario made available for consumption large quantities of natural gas. From 1892 to 1902 inclusive, Ontario was the only contributor of this commodity. In 1903, the first production from other provinces was recorded. The value of natural gas produced during 1903 was approximately $202,000 and from that year onward, there was an annual increase in production until in 1917, the grand total value was $5,045,298. From that date until 1922, considerable decreases in valuation were recorded.

The producing fields in Alberta, during 1924 were, the Medicine Hat; Bow Island (about 40 miles west of Medicine Hat); Viking field (80 miles southeast of Edmonton) and the Turner Valley field (35 miles southeast of Calgary). The total number of wells reported as producing at the end of the year was 70, as compared with 63 wells reported active in 1923.

The producing wells in the province of New Brunswick are confined to the Stony Creek field in Albert county, about eight miles south of Moncton. The natural gas produced is used largely for power, domestic heating and lighting purposes in Moncton. At the end of 1924 there were 26 wells in operation, 5 more than were reported active at the beginning of the year.

Table 295.—Principal Statistics of the Natural Gas Industry in Canada, 1920-1924

Year	Number of firms	Number of wells	Capital employed	Number of employees	Salaries and wages	Miscellaneous expenses	Selling value of products
			$		$	$	$
1920	104	1,954	(a)	616	643,320	(a)	4,232,642
1921	103	2,021	30,368,478	885	882,907	1,405,222	4,594,184
1922	132	1,981	31,373,817	921	939,194	1,458,675	5,846,501
1923	192	2,060	38,722,854	867	1,050,366	1,789,097	5,884,618
1924	186	2,031	50,561,757	1,240	1,315,405	(a)	5,708,636

(a) Data not available.

Table 296.—Capital Employed in the Natural Gas Industry in Canada by Provinces, 1923 and 1924

	1923				1924			
	New Brunswick	Ontario	Alberta	Canada	New Brunswick	Ontario	Alberta	Canada
	$	$	$	$	$	$	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—								
Cost of lands, buildings, plant machinery and tools	.....	22,167,954	12,095,436	34,263,390	.....	22,279,988	22,026,163	44,306,151
Cost of all materials and supplies on hand	.....	372,100	371,377	743,477	.....	369,970	531,612	901,582
Cash, trading and operating accounts and bills receivable	.....	3,030,918	423,458	3,454,376	.....	2,131,765	2,960,648	5,092,413
Total	**261,611**	**25,570,972**	**12,890,271**	**38,722,854**	**261,611**	**24,781,723**	**25,518,423**	**50,561,757**

Table 297.—Employees, Salaries and Wages in the Natural Gas Industry in Canada, 1923 and 1924

	1923				1924			
	Number			Salaries and wages	Number			Salaries and wages
	Male	Female	Total		Male	Female	Total	
				$				$
SALARIED EMPLOYEES—Total	136	60	196	287,074	395	65	460	503,461
WAGE-EARNERS—Total	671	.....	671	763,292	780	.....	780	811,944
Grand total	**807**	**60**	**867**	**1,050,366**	**1,175**	**65**	**1,240**	**1,315,405**

Table 298.—Number of Wage-Earners in the Natural Gas Industry in Canada, by Months and by Provinces, 1924

Month	New Brunswick	Ontario	Alberta	Canada
January	23	296	285	604
February	8	280	277	565
March	9	275	286	570
April	29	283	349	661
May	38	309	419	766
June	38	372	431	841
July	35	435	519	989
August	32	439	527	998
September	32	395	460	887
October	26	393	400	829
November	32	397	411	840
December	27	333	351	711
Average	**28**	**355**	**397**	**780**

Table 299.—Number of Gas Wells in Canada, by Provinces, 1923 and 1924

—		New Brunswick	Ontario	Manitoba	Alberta	Canada
Productive wells at beginning of year	1923	19	1,901	1	60	1,981
	1924	21	1,975	1	63	2,060
Number of productive wells drilled	1923	1	90		2	93
	1924	5	62		9	76
Number of dry wells drilled	1923		24			24
	1924		20			20
Number of wells abandoned	1923		68		2	70
	1924		83			83
Productive wells at end of year	1923	21	1,975	1	63	2,060
	1924	26	1,934	1	70	2,031

Table 300.—Natural Gas Wells in Ontario, by Townships, 1924

Township	No. of producing wells in operation Dec. 31, 1924	No. of wells abandoned this year	No. of dry wells drilled this year	No. of producing wells drilled this year
Amabel	2			
Bayham	52	4		
Bertie	91		1	3
Binbrook	63	3		
Caledon E.	3	1	1	
Caistor	46	2		
Canboro	158	5		
Cayuga, North	56	6	2	5
Cayuga, South	58			
Charlotteville	16			
Crowland	50		1	1
Dawn	5			
Dorchester, North	3			
Dover, West	8	1		
Dunn	14			
Enniskillen	3			
Euphemia	6			
Gainsboro	2			
Glanford	26	1		
Gosfield	7		1	3
Harwich	29			
Houghton	3			
Howard	33			
Humberstone	99	4	1	1
Mersea	4			
Middleton	19			2
Malahide	2	2		
Moulton	113	2	1	10
Oakland	1		2	1
Oneida	33	1	2	1
Onondaga	43			
Rainham	100	9		
Raleigh	20	2		
Romney	103	4		7
Sarnia	14			
Seneca	177	8	3	10
Sherbrooke	12	1		
Tilbury, East	139	3	2	5
Wainfleet	49	3		
Walpole	156	14	1	11
Walsingham, North	6			
Walsingham, South	7	1		
Windham	4			
Willoughby	39	2		
Woodhouse	60	4	2	2
Total	**1,934**	**83**	**20**	**62**

PETROLEUM

The production of petroleum in Canada dates back to 1857 when a shallow well was dug near Enniskillen (now known as Oil Springs), in the province of Ontario. Early in January, 1862, a pioneer oil prospector brought in the first flowing well at Oil Springs, Ontario, and

before the fall of the same year there were approximately 35 producing wells in operation. According to available information some of these wells produced from 3,000 to 6,000 barrels per day.

In 1865, Petrolia came into existence as a large producer and since that date has maintained its position among the leading oil-fields in Canada. Prior to this discovery, oil deposits were located in Kent County, at Bothwell. Although Petrolia, Oil Springs and Bothwell are by far the oldest producing fields in Canada, these three fields continue to rank as the premier producers in this country.

On December 31, 1924, there were 2,456 wells in operation in Ontario, while at the close of the previous year, 2,681 wells were active.

The outstanding feature of this industry in Ontario during 1923 was the bringing in of an oil well in Romney Township on the shore of Lake Erie. In 1924, the production from this well amounted to approximately 3,000 barrels. The importance of this well is that it lies in the Trenton group. Production from the Trenton group has made the neighbouring state of Ohio one of the large producers of petroleum and natural gas in America. Heretofore, this formation had not been explored to any extent in Ontario.

The first attempt to develop the oil deposits in Westmoreland County in New Brunswick, was made in 1859. The four wells drilled then were not successful as fresh water seeped in, ruining them. No further drilling was attempted until 1879, then two more wells were sunk, one at St. Joseph and the other at Dover. From 1900 to 1906 some 72 wells were drilled, as follows: 67 in Westmoreland county, 4 in Albert county and 1 in Kent county. This marked the opening up of the present Stony Creek oil and gas field. Fourteen petroleum wells were in operation in this district on December 31, 1924.

In May, 1914, considerable interest was taken in the Turner Valley oil field in Alberta. The centre of this field is about 25 miles south of Calgary. In 1924 only 3 companies, operating 3 petroleum wells reported production in this district.

The new oil fields in the Mackenzie district of the Northwest Territories have been the scene of considerable activity during the past several years. Drilling operations were begun in this district, about 40 miles below Fort Norman, early in 1920.

In the Coutts-Sweetgrass district, southern Alberta, a number of companies continued drilling operations throughout 1924, although no production was reported.

Data regarding wells located in New Brunswick have been included in the section on "Natural Gas."

Table 301.—Principal Statistics of the Petroleum Industry in Canada, 1920-1924

Year	Number of firms	Number of wells	Capital employed	Number of employees	Salaries and wages	Miscellaneous expenses	Selling value of products
			$		$	$	$
1920	122	3,027	(a)	202	182,787	(a)	822,235
1921	120	3,009	3,214,159	190	215,791	136,277	641,533
1922	120	2,880	2,764,099	160	167,176	116,678	611,176
1923	117	2,694	2,934,213	151	118,231	79,019	522,018
1924	119	2,473	5,650,086	158	152,957	(a)	467,400

(a) Data not available.

Table 302.—Capital Employed in the Petroleum Industry in Canada, by Provinces, 1923 and 1924

	1923			1924		
	Ontario	Alberta	Canada	Ontario	Alberta	Canada
CAPITAL EMPLOYED AS REPRESENTED BY—	$	$	$	$	$	$
Cost of lands, buildings, plant machinery and tools	2,023,414	771,715	2,795,129	2,011,173	3,530,922	5,542,095
Cost of all materials and supplies on hand	21,016	27,992	49,008	24,883	15,497	40,380
Cash, trading and operating accounts and bills receivable	64,035	26,041	90,076	33,135	34,476	67,611
Total	**2,108,465**	**825,748**	**2,934,213**	**2,069,181**	**3,580,895**	**5,650,086**

Table 303.—Employees, Salaries and Wages in the Petroleum Industry in Canada, by Provinces, 1923 and 1924

	1923			1924		
	Ontario	Alberta	Canada	Ontario	Alberta	Canada
SALARIED EMPLOYEES—						
Total.....No.	14	3	17	24	5	29
Salaries	$ 16,456	$ 3,613	$ 20,069	18,046	6,190	24,236
WAGE-EARNERS—						
Total.....No.	130	4	134	110	19	129
Wages	$ 95,032	$ 3,130	$ 98,162	89,590	39,131	128,721
Grand total.....No.	144	7	151	134	24	158
Salaries and wages	$ 111,488	$ 6,743	$ 118,231	107,636	45,321	152,957

Table 304.—Monthly Average Number of Wage-Earners in the Petroleum Industry in Canada, by Provinces, 1923 and 1924

Month	1923			1924		
	Ontario	Alberta	Canada	Ontario	Alberta	Canada
January	108	3	111	98	25	123
February	109	2	111	103	23	126
March	111	2	113	107	35	142
April	110	2	112	108	25	133
May	115	5	120	111	24	135
June	117	4	121	110	18	128
July	122	4	126	112	17	129
August	123	4	127	113	15	128
September	118	4	122	120	11	131
October	113	2	115	116	7	123
November	108	3	111	108	5	113
December	105	2	107	108	5	113
Average	**130**	**4**	**134**	**110**	**19**	**129**

Table 305.—Petroleum Wells in Canada, 1923 and 1924

		New Brunswick	Ontario	Alberta	Canada
Productive wells at beginning of year	1923	9	2,867	4	2,880
	1924	9	2,681	4	2,694
Number of productive wells drilled	1923	.....	15	.....	15
	1924	4	9	.....	13
Number of wells abandoned	1923	.....	11	.....	11
	1924	.....	58	.....	58
Number of productive wells at end of year	1923	9	2,681	4	2,694
	1924	14	2,456	3	2,473

SALT

The production of salt in the province of Ontario was first recorded in 1866 when a company was formed to drill for oil on the north bank of the Maitland river, and, while no success attended the efforts of the drillers in their search for oil, a bed of rock salt was found at a depth of 964 feet. In September, 1866, this company (incorporated under the name of the Goderich Petroleum Company, later changed to "Goderich Salt Company") commenced pumping brine. In the initial working in connection with these deposits the refining was done by the kettle method, which was soon discarded and replaced by the pan method of evaporation.

Wells were drilled and plants erected at Clinton and Seaforth, Ontario, and four refineries were in operation at Goderich in 1879; at the present time there are only two firms operating at Goderich.

In 1924, wells were operated in Ontario at Windsor, Sandwich, Courtright, Exeter, Goderich, Kincardine, Sarnia, Warwick, Wingham and in Anderdon township. Mining of rock salt was carried on by one firm in Nova Scotia, at Malagash, Cumberland County.

For the whole of Canada, eleven firms, operating twelve salt works, reported activity during 1924. Two of these plants were engaged primarily in the production of brine for use in the manufacture of caustic soda and soda ash in the chemical works of the producing companies.

Table 306.—Principal Statistics of the Salt Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	12	2,221,606	345	472,031	531,880	409,493	1,544,724
1921	12	2,267,708	277	411,832	527,013	381,126	1,673,685
1922	10	2,205,184	371	432,261	309,000	407,105	1,628,323
1923	11	2,406,992	368	412,597	356,794	404,046	1,713,516
1924	11	2,479,563	364	431,618	342,118	424,578	1,374,780

Table 307.—Capital Employed in the Salt Industry in Canada, 1923 and 1924

	1923	1924
	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—		
Cost of lands, buildings, machinery and tools	1,545,576	1,584,581
Cost of all materials and supplies on hand	278,106	247,412
Cash, trading and operating accounts and bills receivable	583,310	647,570
Total	**2,406,992**	**2,479,563**

Table 308.—Employees, Salaries and Wages in the Salt Industry in Canada, 1923 and 1924

	1923				1924			
	Number of employees		Total	Salaries and wages	Number of employees		Total	Salaries and wages
	Male	Female			Male	Female		
				$				$
SALARIED EMPLOYEES— Total	37	15	52	103,227	37	14	51	113,740
WAGE-EARNERS— Total	292	24	316	309,370	278	35	313	317,878
Grand total	**329**	**39**	**368**	**412,597**	**315**	**49**	**364**	**431,618**

Table 309.—Number of Wage-Earners in the Salt Industry in Canada, by Months, 1923 and 1924

Month	1923		1924		Month	1923		1924	
	Male	Female	Male	Female		Male	Female	Male	Female
January	253	24	227	24	July	307	24	300	34
February	265	26	243	29	August	253	25	283	38
March	260	24	260	28	September	292	25	287	38
April	283	23	300	27	October	305	25	273	37
May	300	23	303	29	November	306	24	279	37
June	278	25	291	29	December	275	22	264	33

MISCELLANEOUS NON-METALLIC MINERAL INDUSTRIES

Table 310.—Capital Employed in the Miscellaneous Non-Metallic Mineral Industries in Canada, 1923 and 1924

Industry	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, plant machinery and tools	Cost of all materials and supplies, on hand	Cash, trading and operating accounts and bills receivable	Total	Lands, buildings, plant machinery and tools	Cost of all materials and supplies on hand	Cash, trading and operating accounts and bills receivable	Total
	$	$	$	$	$	$	$	$
Graphite	.....	.....	.....	.....	561,354	72,477	14,116	647,947
Grindstones	96,567	29,638	33,889	160,094	86,073	26,073	43,949	156,095
Iron oxides	176,253	32,527	560	209,340	151,546	31,527	10,560	193,633
Magnesite*	1,706,874	127,186	53,198	1,887,258	.....	.....	.....	.....
Quarts	940,954	87,202	16,300	1,044,456	887,590	97,943	6,330	991,863
Talc	509,693	29,020	140,624	679,337	522,368	33,294	140,124	695,786
Other non-metallics[1]	3,093,438	356,528	25,461	3,475,427	2,152,035	260,342	16,242	2,428,619
Total	**6,523,779**	**662,101**	**270,032**	**7,455,912**	**4,360,966**	**521,656**	**231,321**	**5,113,943**

*Included with "Other Non-Metallics", in 1924.
[1] Includes actinolite, alunite, barytes, corundum, fluorspar, garnets, graphite, magnesium sulphate, mineral waters, pyrites, sodium carbonate, sodium sulphate, tripolite, and volcanic ash.
[2] Graphite taken separately in 1924.

Table 311.—Employees, Salaries and Wages in the Miscellaneous Non-Metallic Mineral Industries in Canada, 1923 and 1924

		1923					1924				
		Superintendents and managers	Technical employees	Clerks and stenographers	Wage-earners and wages	Total	Superintendents and managers	Technical employees	Clerks and stenographers	Wage-earners and wages	Total
Graphite[2]	No.	.....	.....	.....	.....	.....	3	.....	2	70	75
	Salaries $	.....	.....	.....	.....	.....	7,800	.....	2,700	44,949	55,449
Grindstones	No.	5	.....	1	56	62	5	.....	1	70	76
	Salaries $	12,000	.....	2,000	36,200	50,200	12,000	.....	2,000	50,312	64,312
Iron oxides	No.	1	.....	2	57	60	1	.....	.....	37	38
	Salaries $	3,000	.....	2,500	43,556	49,056	3,000	.....	.....	30,221	33,221
Magnesite*	No.	4	2	5	63	74	.....	.....	.....	.....	.....
	Salaries $	8,110	3,217	6,129	90,475	107,931	.....	.....	.....	.....	.....
Quarts	No.	6	1	4	267	278	4	2	3	148	157
	Salaries $	20,497	5,000	3,140	255,552	284,189	9,134	6,900	5,000	134,828	155,862
Talc	No.	4	1	3	52	60	4	1	3	53	61
	Salaries $	8,400	1,800	2,700	46,421	59,321	8,115	1,300	4,510	45,295	59,220
Other non-metallics[1]	No.	13	6	9	159	187	9	.....	6	124	139
	Salaries $	26,425	5,299	9,496	109,237	150,457	16,915	.....	4,830	61,192	82,937
Total	**No.**	**33**	**10**	**24**	**654**	**721**	**26**	**3**	**15**	**502**	**546**
	Salaries $	**78,432**	**15,316**	**25,965**	**581,441**	**701,154**	**56,964**	**8,200**	**19,040**	**366,797**	**451,001**

*Included with "Other Non-Metallics," in 1924.
[1] Includes actinolite, alunite, barytes, corundum, fluorspar, garnets, graphite, magnesium sulphate, manganese mineral waters, pyrites, sodium carbonate, sodium sulphate, tripolite and volcanic ash.
[2] Manganese is taken with metallics in 1924.
[3] Graphite is shown separately in 1924.

Table 312.—Number of Wage-Earners, by Months, in the Miscellaneous Non-Metallic Mineral Industries in Canada, 1924

Month	Graphite	Grind-stones	Iron-oxides	Quartz	Talc	Other non-metallics	Total
January	45	4	21	72	30	78	250
February	42	5	22	71	29	74	243
March	55	5	26	127	42	77	332
April	56	23	20	134	45	64	342
May	60	84	42	153	51	63	453
June	62	123	34	161	63	117	560
July	61	145	36	140	50	69	501
August	87	120	36	119	57	78	497
September	69	82	36	129	58	67	441
October	53	73	37	128	57	75	423
November	22	47	38	75	58	70	310
December	24	17	30	66	46	63	246
Average	**70**	**70**	**37**	**148**	**53**	**124**	**502**

STRUCTURAL MATERIALS AND CLAY PRODUCTS

CEMENT.

Portland cement was produced in Canada during 1924 by 6 companies operating 10 plants with a total daily capacity of 34,200 barrels. In addition to these, there were 10 other cement mills equipped and available for the manufacture of this product.

According to statistics compiled for 1921, the cement industry is controlled almost entirely by Canadian capital. Of the total par value of all securities outstanding in 1921, approximately 86.5 per cent was owned in Canada; 10.6 per cent in Great Britain, 1.9 per cent in United States, and the balance in other countries.

The essential elements entering into the production of Portland cement are lime, silica and alumina. These materials are found in limestone and clay, the Trenton variety of limestone being used principally. Puzzolan cement was produced from blast furnace slag by the Dominion Iron and Steel Company in 1921 but since that date this firm's cement mill has not been in operation.

Table 313.—Principal Statistics of the Cement Industry in Canada, 1920-1924

Year	Number of plants	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	13	44,941,686	2,301	3,757,641	3,457,796	1,738,152	14,798,070
1921	14	49,160,180	2,751	3,443,884	2,788,820	2,602,029	14,195,143
1922	11	41,573,737	1,753	2,315,240	2,457,456	2,976,152	15,438,481
1923	10	38,284,494	1,842	2,551,784	2,809,414	2,947,242	15,064,661
1924	10	36,766,574	1,837	2,531,622	2,872,711	1,524,158	13,398,411

Table 314.—Capital Employed in the Cement Industry in Canada, 1923 and 1924

—	1923	1924
	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—		
Cost of lands, buildings, plant, machinery and tools	33,922,549	32,467,170
Cost of materials and supplies on hand	2,931,641	2,897,251
Cash, trading and operating accounts and bills receivable	1,430,304	1,402,153
Total	**38,284,491**	**36,766,574**

Table 315.—Employees, Salaries and Wages in the Cement Industry in Canada, 1923 and 1924

Class	1923		1924	
	Number of employees	Salaries and wages	Number of employees	Salaries and wages
		$		$
Salaried employees.....Total	112	195,748	97	205,994
Wage-earners.....Total	1,730	2,356,036	1,740	2,325,628
Grand total	1,842	2,551,784	1,837	2,531,622

Table 316.—Number of Wage-Earners in the Cement Industry in Canada, by Months, 1923 and 1924

Month	1923	1924	Month	1923	1924
January	1,455	1,264	July	2,001	1,833
February	1,471	1,585	August	2,053	1,974
March	1,488	1,460	September	2,073	2,020
April	1,528	1,647	October	1,871	1,955
May	1,779	1,770	November	1,705	1,799
June	1,880	1,851	December	1,542	1,638
Average for 1923					**1,730**
Average for 1924					**1,740**

CLAY PRODUCTS

The production of clay products in Canada for the past three years has been tabulated in considerable detail in another section of this report, and the object of this description is a consideration of the statistics regarding the more important financial aspects and the general conditions of the industry.

The clay products industry was divided into five main groups as follows: brick and tile, clay sewer-pipe, fire brick and fire clay, stoneware and pottery, and kaolin and other clays. The number and location by provinces of the plants operating in 1924 are shown in the subjoined tables.

Capital employed, as represented by the value of lands, buildings, fixtures, machinery and tools, finished stocks on hand and available cash, for the whole clay products industry was less by $2,483,377 in 1924 than in the preceding year.

The principal fuel employed was bituminous coal, and as most of the important brick plants are located in the neighbourhood of the large industrial centres of Ontario and Quebec, the industry is largely dependent on imported coal. Wood is used by many of the smaller plants in outlying parts.

Natural gas is of material assistance to the clay industries at Medicine Hat and Redcliff, Alberta. The Medalta Potteries at Medicine Hat bring their clays in from Saskatchewan and, owing to their low costs, are able to ship stoneware into Ontario and Quebec markets in competition with the potteries of those provinces. The clays near Redcliff are obtained by mining and are consequently very difficult to dry and burn; the advantage of having cheap fuel at hand enables the operators to produce pressed brick at reasonable costs.

In the tables on the primary mineral production of Canada, statistics relating to the clay products industry include only data supplied by companies using Canadian clays either alone or with imported clays. But there are a few other companies in Canada producing clay products from imported clays exclusively. For this reason, and to complete the survey of the industry as a whole, additional tables have been prepared which contain information regarding the operations of these companies in 1924.

Tables 317 to 321 relate to data included in mineral production tables; tables 322 to 325 show corresponding information concerning companies using imported clays only.

Table 317.—Principal Statistics of the Clay Products* Industry in Canada, 1923 and 1924

—	1923				1924			
	Brick and tile	Clay sewer pipe	Firebrick and fireclay	Stoneware and pottery	Brick and tile	Clay sewer pipe	Firebrick and fireclay	Stoneware and pottery
Number of active plants	204	5	6	4	192	5	7	6
Capital employed $	24,866,834	3,022,522	1,786,353	314,862	24,423,104	3,149,838	1,850,385	387,667
Salaried employees	320	28	19	12	268	28	27	8
Salaries paid $	574,189	89,860	57,656	16,439	480,139	96,385	71,100	10,984
Average number of wage-earners	3,634	431	173	107	3,064	439	181	105
Wages paid $	3,471,298	471,655	228,721	100,782	2,591,240	509,213	187,416	103,941
Fuel cost $	2,254,445	307,681	90,286	14,607	1,508,573	28,148	74,431	14,642
Miscellaneous expenses $	1,410,051	307,810	61,277	88,233				
Value of products sold or used $	8,220,269	1,421,002	605,968	230,924	7,046,355	1,343,197	581,838	240,687

*Not including Kaolin and Other Clays.

Table 318.—Establishments Reporting Shipments in the Clay Products Industry in Canada, by Provinces, 1924

Province	Number of establishments in groups indicated					
	Brick and tile	Clay sewer pipe	Firebrick and fireclay	Stoneware and pottery	Kaolin and other clays	Total
Prince Edward Island	1					1
Nova Scotia	6	1	3			10
New Brunswick	3			2		5
Quebec	16	1	1			18
Ontario	136	3	2	2		143
Manitoba	5					5
Saskatchewan	7					7
Alberta	9		1	2		12
British Columbia	9					9
Canada	**192**	**5**	**7**	**6**		**210**

Table 319.—Capital Employed in the Clay Products Industry in Canada, by Provinces, 1923 and 1924

—	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings, plant machinery and tools	Cost of supplies and products on hand	Cash, trading and operating accounts	Total	Lands, buildings, plant machinery and tools	Cost of supplies and products on hand	Cash, trading and operating accounts	Total
	$	$	$	$	$	$	$	$
BY INDUSTRIES—								
Brick and tile—								
Nova Scotia	791,339	54,268	24,143	869,750	546,313	19,121	7,945	573,379
New Brunswick	71,746	5,785	21,468	98,999	94,699	2,500		97,199
Quebec	6,547,919	592,302	154,466	7,294,687	7,827,840	562,906	347,737	8,738,483
Ontario	9,774,918	1,427,725	1,961,391	13,164,034	9,468,472	1,235,732	1,553,463	12,257,667
Manitoba	242,199	61,700	63,901	367,800	123,344	89,704	39,454	252,502
Saskatchewan	647,559	76,060	11,836	735,455	644,582	73,535	3,345	721,462
Alberta	1,189,673	143,950	44,912	1,378,535	654,141	114,787	29,847	798,775
British Columbia	707,582	189,187	60,805	957,574	769,123	140,623	73,891	983,637
Total for Canada	19,972,935	2,550,977	2,342,922	24,866,834	20,128,514	2,238,908	2,055,682	24,423,104
Clay sewer pipe—								
Total for Canada	2,376,618	459,259	186,645	3,022,522	2,223,563	568,921	357,354	3,149,838
Firebrick and fireclay products—								
Total for Canada	1,098,003	236,506	451,844	1,786,353	1,155,833	321,088	373,464	1,850,385
Stoneware and pottery—								
Total for Canada	162,130	78,212	74,520	314,862	185,759	82,340	119,568	387,667
Kaolin and other clays—								
Total for Canada	2,303,800			2,303,800				
BY PROVINCES—								
Total for clay and clay products—								
Nova Scotia	1,254,660	157,802	27,433	1,439,895	1,055,085	142,677	10,514	1,208,276
New Brunswick	85,181	22,706	26,988	134,875	110,077	25,637	9,635	145,349
Quebec	9,558,829	716,065	417,247	10,692,141	8,545,161	733,378	586,825	9,865,364
Ontario	11,865,372	1,742,251	2,168,123	15,775,746	11,407,739	1,653,952	1,890,482	14,952,173
Manitoba	242,199	61,700	63,901	367,800	123,344	89,704	39,454	252,502
Saskatchewan	647,559	76,060	11,836	735,455	644,582	73,535	3,345	721,462
Alberta	1,552,104	359,183	279,598	2,190,885	1,038,558	351,751	291,922	1,682,231
British Columbia	707,582	189,187	60,805	957,574	769,123	140,623	73,891	983,637
Canada	**25,913,486**	**3,324,954**	**3,055,931**	**32,294,371**	**23,693,669**	**3,211,257**	**2,906,068**	**29,810,994**

Table 320.—Employees, Salaries and Wages in the Clay Products Industry in Canada 1923 and 1924

	1923				1924			
	Number			Salaries and wages	Number			Salaries and wages
	Male	Female	Total		Male	Female	Total	
				$				$
SALARIED EMPLOYEES—Total	342	37	379	738,144	297	34	331	658,008
WAGE-EARNERS—Total	4,313	38	4,351	4,273,556	3,778	11	3,789	3,382,710
Grand total	**4,655**	**75**	**4,730**	**5,011,700**	**4,075**	**45**	**4,120**	**4,041,318**

Table 321.—Number of Wage-Earners in the Clay Products Industry in Canada, by Months and by Industries, 1924

Month	Brick and tile	Clay sewer pipe	Firebrick and fireclay	Stoneware and pottery	Kaolin and other clays	Total for clay and clay products
January	1,448	420	143	101	.....	2,912
February	1,357	401	141	111	.....	2,010
March	1,755	349	147	112	.....	2,363
April	2,304	411	159	122	.....	2,996
May	3,198	443	185	122	.....	3,948
June	3,605	467	185	114	.....	4,371
July	3,731	471	176	115	.....	4,493
August	3,351	474	153	111	.....	4,089
September	2,990	471	149	83	.....	3,693
October	2,551	470	147	83	.....	3,251
November	2,160	460	146	87	.....	2,853
December	1,870	434	151	89	.....	2,544
*Average for 1924	3,061	439	181	105	.....	3,789
*Average for 1923	3,634	431	173	107	6	4,351

* Average computed by totalling the average number of wage-earners employed by each reporting company.

Table 322.—Capital Employed by Companies in Canada Using Only Imported Clays, 1923 and 1924

	1923	1924
	$	$
CAPITAL EMPLOYED AS REPRESENTED BY—		
Cost of lands, buildings, plant machinery and tools	1,073,038	961,927
Cost of supplies and stock on hand	514,499	415,535
Cash, trading and operating accounts	501,975	300,071
Total	**2,089,512**	**1,677,533**

Table 323.—Employees, Salaries and Wages Paid by Companies in Canada Using Only Imported Clays, 1923 and 1924

	1923				1924			
	Number employed			Salaries and wages	Number employed			Salaries and wages
	Male	Female	Total		Male	Female	Total	
				$				$
SALARIED EMPLOYEES—Total	43	11	54	116,871	36	9	45	104,277
WAGE-EARNERS—Total	600	.....	600	659,588	424	20	444	462,866
Grand Total	**643**	**11**	**654**	**776,459**	**460**	**29**	**489**	**567,143**

Table 324.—Number of Wage-Earners Employed by Companies in Canada Using Only Imported Clays, by Months, 1923 and 1924

Month	Number		Month	Number	
	1923	1924		1923	1924
January	565	520	July	647	410
February	541	513	August	613	415
March	553	479	September	585	422
April	566	471	October	572	420
May	592	443	November	574	440
June	619	411	December	597	364
Average 1923					**600**
Average 1924					**444**

Table 325.—Fuel and Electricity Used by Companies in Canada Using Only Imported Clays, 1923 and 1924

		1923		1924	
		Quantity	Value	Quantity	Value
			$		$
Bituminous coal	short tons	13,356	104,813	11,294	84,552
Anthracite coal	"	4,298	56,067	3,167	40,296
Coke	"	25	328	201	2,156
Oil (fuel)	imp. gal.	120,199	14,258	48,191	3,353
Wood	cord	339	1,552	262	1,499
Gas	M cu.ft	448	314	699	489
Electricity	k.w.h.	.....	10,342	847,732	9,016
Other fuel		.....	216	.....	130
Total		.....	**187,880**	.....	**141,491**

LIME BURNING

The greatest development in Canada in the business of lime burning has been in Ontario and to a less extent in Quebec. Apart from the fact that the chemical and physical properties of the limestone in these provinces, make it suitable for burning in kilns, the more extensive building and construction operations carried on, provide a ready market for the burned lime.

In the whole of Canada during 1924 there were 49 producing plants, 25 plants being located in Ontario, 11 in Quebec, 1 in Nova Scotia, 5 in New Brunswick, 2 in Manitoba, 2 in Alberta and 3 in British Columbia. The total capital employed in the lime industry amounted to approximately 5 million dollars. The 36 plants in Ontario and Quebec reported $3,039,125, capital employed, while the 3 plants in British Columbia showed $1,252,610 under this item.

Returns received from operators in 1923 showed 197 active kilns, the daily capacity of which was 2,456 tons. Eight hydrators were in operation during that year, comprising four Clyde, one Shaffer, one Kritser and one special type. High calcium limestone was used by 45 firms, dolomite by 10 firms and both high calcium and dolomite by 1 operator.

In the manufacture of lime, fuel is one of the principal items of cost. Wood was widely used throughout Ontario and Quebec where the supply is plentiful and where many of the kilns are small, but considerable quantities of coal were also used. In the British Columbia plants, wood only was used.

Table 326.—Principal Statistics of the Lime Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	58	(a)	1,069	1,314,186	(a)	(a)	3,818,553
1921	66	4,990,969	931	949,966	698,992	407,620	2,781,197
1922	63	4,984,940	1,110	1,013,486	735,168	522,222	3,165,005
1923	50	6,050,954	1,197	1,191,416	953,709	806,916	3,266,608
1924	49	5,165,964	927	970,672	740,878	757,898	3,178,541

(a) Data not available.

Table 327.—Capital Employed in the Lime Industry in Canada, by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings plant machinery and tools	Cost of supplies and products on hand	Cash, trading and operating accounts	Total	Lands, buildings plant machinery and tools	Cost of supplies and products on hand	Cash, trading and operating accounts	Total
	$	$	$	$	$	$	$	$
New Brunswick	210,539	36,208	55,302	302,049	240,483	36,939	29,725	277,147
Quebec	1,664,892	191,324	177,401	2,033,617	916,965	112,848	138,928	1,168,741
Ontario	1,438,929	225,916	234,903	1,899,748	1,565,850	159,893	144,641	1,870,384
Manitoba	448,223	36,443	6,193	490,859	405,884	26,916	4,500	437,300
Alberta	134,564	8,325	18,048	160,937	134,563	8,617	16,602	159,782
British Columbia	1,017,905	61,308	84,531	1,163,744	1,108,148	66,754	77,708	1,252,610
Canada	**4,915,052**	**559,524**	**576,378**	**6,050,954**	**4,341,893**	**411,967**	**412,104**	**5,165,964**

Table 328.—Employees, Salaries and Wages in the Lime Industry in Canada, by Provinces, 1923 and 1924

—		New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada
1923								
SALARIED EMPLOYEES—								
Total	No.	12	23	37	6	2	14	94
	$	15,148	49,130	57,007	9,877	5,000	34,166	170,328
WAGE-EARNERS—								
Total—								
Male	No.	97	255	542	79	14	116	1,103
Wages	$	*72,470	212,297	549,613	58,229	13,862	114,617	1,021,388
Total Employees	**No.**	**109**	**278**	**579**	**85**	**16**	**130**	**1,197**
Total Salaries and Wages	**$**	**87,618**	**261,427**	**606,620**	**68,106**	**18,862**	**148,783**	**1,191,416**
1924								
SALARIED EMPLOYEES:—								
Total	No.	15	19	39	6	2	10	91
	$	21,735	37,575	74,320	9,140	4,750	21,357	168,877
WAGE-EARNERS—								
Total—								
Male	No.	77	180	398	56	12	113	836
Wages	$	56,592	158,968	402,292	38,232	13,370	132,341	801,795
Total Employees	**No.**	**92**	**199**	**437**	**62**	**14**	**123**	**927**
Total Salaries and Wages	**$**	**78,327**	**196,543**	**476,612**	**47,372**	**18,120**	**153,698**	**970,672**

*Includes Nova Scotia.

Table 329.—Number of Wage-Earners in the Lime Industry in Canada, by Provinces and by Months, 1924

Month	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada
January	79	144	429	53	3	96	804
February	70	176	435	54	9	99	843
March	77	163	421	52	13	114	840
April	77	188	401	49	11	120	846
May	93	186	408	63	18	120	888
June	93	198	375	61	17	114	858
July	79	183	373	64	13	105	817
August	73	181	351	57	12	90	764
September	74	169	353	55	12	118	781
October	84	192	389	55	10	139	849
November	76	153	397	53	10	107	796
December	47	156	391	55	9	102	750
Average for 1924	**77**	**180**	**398**	**56**	**12**	**113**	**836**
Average for 1923	**97**	**255**	**542**	**79**	**14**	**116**	**1,103**

SAND AND GRAVEL

For statistical purposes, the sand and gravel industry has been divided into two parts comprising the operations of (1) railway companies producing sand and gravel for ballast and other purposes; (2) all other producers.

The figures given in the following tables do not include the operations of railway companies except where specifically mentioned. The railway companies were not asked to furnish any statistics for this industry other than the figures for production, as, owing to the varied nature of their operations, it would have been impossible for them to give the detailed data generally required. Among the other operating plants in this industry, of which there were 558, in Canada in 1924, it was found that the production of sand and gravel was often a subsidiary part of the business transacted. On this account the figures shown for capital employed in 1924 refer in small part to other industries, but on the whole, relate as closely as possible to the industry under review.

It will be readily apparent from an inspection of the tables on employees that totals do not represent the actual number of persons engaged in the industry as a great many of the smaller operators had no paid help. Also, in some instances the labour was provided by those requiring sand and gravel. The following tables which show comparative figures for salaried officials, wage-earners, and fuel costs are self-explanatory.

Table 330.—Principal Statistics of the Sand and Gravel Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	186	(a)	1,546	1,343,212	(a)	(a)	4,291,067
1921	218	(a)	590	454,910	47,641	265,403	2,537,249
1922	342	4,098,928	750	684,626	99,069	445,222	3,502,935
1923	598	4,487,005	801	692,161	99,409	270,554	3,016,518
1924	558	5,194,037	927	848,741	134,378	.....	3,181,083

(a) Data not available.

Table 331.—Capital Employed in the Sand and Gravel Industry in Canada, by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Lands, buildings plant machinery and tools	Cost of supplies and products on hand	Cash, trading and operating accounts	Total	Lands, buildings plant machinery and tools	Cost of supplies and products on hand	Cash, trading and operating accounts	Total
	$	$	$	$	$	$	$	$
Nova Scotia	16,500	2,500	7,425	26,425	16,500	2,500	3,000	22,000
New Brunswick	5,500	56	.....	5,556	5,500	51	.....	5,551
Quebec	320,252	3,285	20,693	344,230	267,727	2,922	33,890	301,539
Ontario	2,249,874	231,109	365,612	2,846,595	3,148,359	56,491	257,178	3,462,028
Manitoba	372,914	12,945	34,874	420,733	352,394	9,678	46,795	408,867
Saskatchewan	39,750	.....	.....	39,750	40,750	.....	.....	40,750
Alberta	201,978	160	212	202,350	278,218	14,744	4,598	297,560
British Columbia	578,384	655	22,327	601,366	585,789	654	66,299	652,742
Canada	**3,785,152**	**250,710**	**451,143**	**4,487,005**	**4,695,237**	**87,040**	**411,760**	**5,194,037**

Table 332.—Employees, Salaries and Wages in the Sand and Gravel Industry in Canada, by Provinces, 1923 and 1924

Province	1923				1924			
	Number of employees			Salaries and wages	Number of employees			Salaries and wages
	On salary	On wages	Total		On salary	On wages	Total	
				$				$
Nova Scotia	3	37	40	14,556	2	16	18	10,508
New Brunswick	1	10	11	1,841	1	13	14	1,717
Quebec	9	83	92	51,741	8	177	185	80,922
Ontario	67	481	548	512,522	63	486	549	552,370
Manitoba	6	19	25	28,340	7	29	36	38,503
Saskatchewan	.....	5	5	3,993	.....	3	3	3,013
Alberta	2	29	31	18,575	4	54	58	44,958
British Columbia	8	41	49	60,593	8	56	64	116,720
Canada	**96**	**705**	**801**	**692,161**	**93**	**834**	**927**	**848,741**

Table 333.—Number of Wage-Earners in the Sand and Gravel Industry in Canada, by Months and by Provinces, 1924

Month	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Canada
January	6	13	22	173	3	1	1	45	264
February	8	1	29	172	3	1	1	50	265
March	9	1	55	196	3	1	1	52	318
April	9	1	79	324	16	2	79	53	563
May	13	1	165	453	33	3	112	54	834
June	18	1	188	507	31	3	75	54	877
July	20	1	158	493	35	3	56	63	829
August	19	1	175	475	31	3	46	69	819
September	19	1	203	456	31	3	12	65	790
October	18	1	172	428	25	3	38	58	743
November	14	1	150	387	13	1	45	54	665
December	3	1	116	264	5	1	25	52	467
*Average	16	13	177	486	29	3	54	56	834

*Average computed by totalling the average number of wage-earners employed by each reporting company.

STONE

Operations in the stone-quarrying industry in Canada in 1923 were carried on by 170 firms. The number of producers in each province was as follows: Nova Scotia, 10; New Brunswick, 10; Quebec, 68; Ontario, 65; Manitoba, 3; Alberta 3; and British Columbia 11.

The statistics collected under mineral production for the stone industry are confined to quarrying operations and stone-dressing works conducted in conjunction with the quarry. It must be borne in mind when reviewing the tabulated statistics for this industry that there is a considerable quantity of stone quarried by farmers, etc., for local foundation and concrete work, of which no accurate general information can be obtained.

Table 334.—Principal Statistics Relating to the Stone Quarrying Industry in Canada, 1920-1924

Year	Number of firms	Capital employed	Number of employees	Salaries and wages	Cost of fuel	Miscellaneous expenses	Selling value of products
		$		$	$	$	$
1920	168	(a)	3,487	3,302,253	(a)	(a)	7,580,351
1921	145	11,138,035	2,067	2,017,272	141,442	2,369,130	6,343,696
1922	162	13,004,233	2,859	2,673,241	167,139	1,259,552	5,989,864
1923	158	13,725,677	2,850	2,665,520	400,517	1,130,639	5,920,578
1924	170	14,317,148	2,877	2,768,256	383,800	1,329,233	6,407,757

(a) Data not available.

Table 335.—Capital Employed in the Stone Quarrying Industry in Canada, by Provinces, 1923 and 1924

Province	1923				1924			
	Capital employed as represented by				Capital employed as represented by			
	Cost of lands, buildings, plant machinery and tools	Cost of supplies and stock on hand	Cash, trading and operating accounts and bills receivable	Total	Cost of lands, buildings, plant machinery and tools	Cost of supplies and stock on hand	Cash, trading and operating accounts and bills receivable	Total
	$	$	$	$	$	$	$	$
Nova Scotia	1,090,694	36,090	14,166	1,140,950	1,116,723	24,341	11,713	1,152,777
New Brunswick	116,406	22,084	21,260	159,750	100,386	29,266	27,265	156,917
Quebec	3,804,242	246,153	526,406	4,576,801	4,096,958	366,228	535,230	4,998,416
Ontario	6,398,215	259,625	427,251	7,085,091	6,139,998	253,106	518,030	6,911,134
Manitoba	210,906	6,184	45,435	262,525	205,123	8,885	62,961	276,969
Alberta	.....	.....	.....	.....	8,000	.....	.....	8,000
British Columbia	350,837	29,725	119,998	500,560	454,723	152,193	206,019	812,935
Canada	**11,971,300**	**599,861**	**1,154,516**	**13,725,677**	**12,121,911**	**834,019**	**1,361,218**	**14,317,148**

Table 336.—Employees, Salaries and Wages in the Stone Quarrying Industry in Canada, by Provinces, 1923 and 1924

—	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	British Columbia	Canada
1923							
SALARIED EMPLOYEES—							
No.	8	8	92	76	6	11	201
Total.....Salaries $	10,256	8,140	143,819	146,516	11,775	23,935	344,441
No.	138	107	1,241	963	63	137	2,649
WAGE-EARNERS.....Wages $	89,447	70,685	1,102,923	853,173	69,043	135,808	2,321,079
Total—Employees	**146**	**115**	**1,333**	**1,039**	**69**	**148**	**2,850**
Salaries and wages.....$	**99,703**	**78,825**	**1,246,742**	**999,689**	**80,818**	**159,743**	**2,665,520**
1924							
SALARIED EMPLOYEES—							
No.	4	8	93	67	5	17	196
Total.....Salaries $	6,881	11,200	155,216	131,862	8,694	38,631	352,484
No.	87	78	1,370	892	52	176	*2,681
WAGE-EARNERS.....Wages $	54,254	39,235	1,235,159	813,724	56,241	208,242	*2,415,772
Total—Employees	**91**	**86**	**1,471**	**959**	**57**	**193**	*2,877
Salaries and wages.....$	**61,135**	**50,435**	**1,390,375**	**945,586**	**64,935**	**246,873**	*2,768,256

*Includes 20 wage-earners receiving $8,917 in Alberta.

PART THREE

DIRECTORY

In the following pages the names and addresses of all the principal operators in the Canadian mineral industry are given, and the location of the properties worked in 1924 is also shown.

METALLIC MINERAL INDUSTRIES

The Auriferous Quartz Mining Industry

Name of Operator	Address	Name of Mine	Location of Mine
Nova Scotia			
Cons. Mines and Power Co.	170 Summer St., Boston	Sherbrooke	Guysboro Co.
Hall and Hilchey	Caribou Gold Mines	Bessie A. Hall	Halifax Co.
*Hiseler and Emmet	60 Edward St., Halifax	Fisk Block	Queens Co.
*Inglis and Ramey	Gottingen St., Halifax	I.X.L.	Hants Co.
Joseph Lenihan	1749 Hower Av. E. Cleveland, Ohio	Malaga	Queens Co.
*Malaga Gold Mines	Malaga	Malaga	Queens Co.
Maritime Gold Mines, Ltd.	Moose River Gold Mines	Moose River	
Short and Ashley	Oldham		
Ontario			
Kirkland Lake Area—			
*Bidgood Gold Mines, Ltd.	Haileybury	Bidgood	Lebel Tp.
*Canadian Kirkland Gold Mining Co.	Haileybury	Canadian Kirkland	Teck Tp.
*Harvey Kirkland Mines, Ltd.	506 C.P.R. Bldg., Toronto	Harvey Kirkland	Lebel Tp.
*Hunton Kirkland Gold Mines, Ltd.	Haileybury	Hunton	Kirkland Lake.
*Kirk Gold Mines Co	911 Kent Bldg., Toronto		Lebel Tp.
Kirkland Lake Gold Mining Co., Ltd.	810 Lumsden Bldg., Toronto	Kirkland Lake	Teck Tp.
*Kirkland Townsite Gold Mines	Haileybury		Teck Tp.
Lake Shore Mines, Ltd.	Kirkland Lake	Lake Shore	Teck Tp.
*Lebel Oro Mines, Ltd	Bk. of Toronto Bldg., Toronto		Lebel Tp.
Teck Hughes Gold Mines, Ltd.	Kirkland Lake	Teck Hughes	Teck Tp.
Tough Oakes Burnside Gold Mines.	217 Bay St., Toronto	Tough Oakes, Burnside	Teck and Lebel Tp.
Wright-Hargreaves Mines, Ltd.	Bridgeburg	Wright-Hargreaves	"
Boston Creek Area—			
*Barry-Hollinger Gold Mines, Ltd.	Boston Creek	Barry-Hollinger	Pacaud Tp.
*Gold Hill Mining Co.	Haileybury	Gold Hill	Catherine Tp.
Larder Lake Area—			
Argonaut Gold, Ltd.	Argonaut	Argonaut	Gauthier Tp.
*Crown Reserve Mining Co., Ltd.	Larder Lake	Pancake	Larder Lake.
Northland Gold Mine, Ltd.	Box 119, Haileybury	Northland	Gauthier Tp.
Lightning River Area—			
*Blue Quartz Gold MinesLtd.	328 Confed. Life Bldg, Toronto	Blue Quartz	Painkiller Lake.
Northwestern Ontario Area—			
*British Canadian Mines, Ltd.	8 Bloor St. E., Toronto	Foley	Rainy River District.
*Contact Bay Mines, Ltd.	326 Cutler Bldg., Rochester, N.Y.	Contact Bay	Van Horn Tp.
Painkiller Area—			
Clifford Gold Mines, Ltd.	328 Confederation Life Bldg., Toronto	Clifford	Painkiller Lake.
Porcupine Area—			
Barlow and Faulkenham	Matheson	L. 9266	Munro Tp.
*Beaumont Gold Mines, Ltd.	1601 Royal Bank Bld., Toronto	Beaumont	Tisdale Tp.
*Canadel Gold, Ltd.	Box G, Timmins	Canadel	Tisdale and Whitney Tp.
Clifton Porcupine Mines, Ltd.	South Porcupine	Clifton	Deloro Tp.
*Coniarum Mines Ltd.	50 Ontario St., St. Catharines	Coniarum	Tisdale Tp.
Consolidated West Dome Mines, Ltd.	Bk of Hamilton Bldg., Toronto	Dome Lake, West Dome.	Tisdale Tp.
Dome Mines Company, Ltd.	South Porcupine	Dome	Tisdale Tp.
Hayden Gold Mines Co., Ltd.	Buffalo	Hayden	Deloro Tp.
Hollinger Consolidated Gold Mines, Ltd.	Timmins	Hollinger	Tisdale Tp.
*Kerr Lake Mining Co., Ltd.	Cobalt	Goldale	Tisdale Tp.
*Lake Matachewan Gold Mg. Co.	156 Yonge St., Toronto		Powell Tp.
*London Gull Lake Mines	293 Bay St., Toronto		
*March Gold, Ltd.	South Porcupine	March Gold	Deloro Tp.
McIntyre Porcupine Mines, Ltd.	602 Standard Bank Bldg., Toronto	McIntyre	Tisdale Tp.
*Night Hawk Peninsula Mines, Ltd.	Toronto	Night Hawk	Cody Tp.
*Ore Chimney Mining Co.	Northbrook		Barrie Tp.
Porcupine Paymaster Mines, Ltd.	South Porcupine	Paymaster	Deloro Tp.
*South Keora Mines, Ltd.	C.P.R. Bldg., Toronto	South Keora	
*Thomas Gold Mining Co.	c/o Excelsior Bldg., Toronto	Thomas	Thomas Tp.
Vipond Consolidated Mines, Ltd.	302 Bay St., Toronto	Vipond	Tisdale Tp.
Sudbury Area—			
*Buckingham Mines, Ltd.	West Shining Tree	Buckingham	Asquith Tp.
*Kingston Mines	Temple Bldg., Toronto	Kingston	McMurchy Tp.
*Wm. Mundell	Metagama	Ina	
*Thesaurus Gold Mines, Ltd.	Elk Lake	Thesaurus	Baden Tp.
Manitoba			
*Bingo Gold Mines Ltd.	Winnipeg	Bingo	Pas Dist.
Lake Superior Metals Co.	c/o J. W. Harris, Masonic Temple, Winnipeg	Gold Pan	Rice Lake.
Manitoba Metals Mining Co.	Bk. of Ham. Bldg., Toronto	Rex	Herb Lake.

*Operating but not producing.

The Auriferous Quartz Mining Industry—Concluded

Name of Operator	Address	Name of Mine	Location of Mine
British Columbia			
*Fairview Mining Co.	Fairview	Susie	Yale.
Fraser, N.	Anyox	Esperanza	Nass River
Hedley Gold Mining Co., Ltd.	Hedley	Nickel Plate	Similkameen.
I.X.L. Mining and Milling Co.	Kimberley	I.X.L.	Rossland.
*Kalum Lake Mines, Ltd.	Terrace	Portland	Skeena
Norcross, D. H.	P.O. Box 296, Nelson	Granite	Nelson.
Pioneer Gold Mines	Lorne Mine	Pioneer	Lillooet
Premier Gold Mining Co., Ltd.	Premier	Premier	Skeena.
M. E. Purcell	Spokane, Wash.	Golden Drip	Kootenay
Windpass Gold Mining Co.	Box 1024, Fernie	Windpass	Yale.

The Copper-Gold-Silver Mining Industry

Quebec			
Arntfield Syndicate	13 King St. W., Toronto		Boischatel Tp.
Crown Reserve Mg. Co.	Montreal		Dessera, Que
Eustis Mining Company	Eustis	Eustis	Ascot.
Huronian Belt Co.	302 Bay St., Toronto		Rouyn Tp.
McIntyre Porcupine Mine	Standard Bk. Bldg., Toronto		Rouyn Tp.
Nipissing Mg. Co., Ltd.	Cobalt		Rouyn Tp.
Normetal Mines Ltd.	Royal Bk. Bldg., Toronto		Rouyn Tp.
Rouyn Gold Mines, Ltd.	St. James St., Montreal		Rouyn Tp.
Stabell Gold Mines, Ltd.	King St. E., Toronto	Stabell	Dubuisson Tp.
The Chance Syndicate	800 University St., Montreal		Boischatel Tp.
Union Mining Corp.	Box 222 Amos, Que.		Dubuisson Tp.
British Columbia			
Belmont Surf Inlet Mines, Ltd.	Surf Inlet	Surf Inlet	Skeena District.
Britannia Mining and Smelting Co.	Britannia Beach	Britannia	Vancouver Is.
*Coast Copper Co., Ltd.	703 Birks Bldg., Vancouver	Old Sport Merry Widow	Vancouver Is.
Consolidated Mining & Smelting Co. of Canada, Ltd.	Rossland	Rossland Group	West Kootenay, Nelson Division.
*Dome Mountain Gold Mining Co., Ltd.	Telkwa	Dome Mt.	
Wm. Dumont	Blewett	Central	Eagle Creek.
*Federal Mg. & S. Co.	Telkwa	{Diamond Bell, Silver Queen}	Owen Lake.
*Gabbro Copper Mines, Ltd.	415 Sayward Bldg., Victoria	Gabbro	Jordan River District, Victoria Division.
Granby Consolidated Mining, Smelting and Power Co., Ltd.	Anyox	{Hidden Creek Group, Outsider}	Observatory Inlet, Nass Division.
Kamloops Copper Co.	Duluth, Minn.	Iron Mask	Kamloops Division.
*Kickbush, F. C.	Chilliwack	Empire	Lillooet District.
F. T. Patterson	Refuge Bay	Patterson	Coast Dist.
*Princeton Mining and Development Co.	Princeton		Similkameen Dist.
Rossland Velvet Mines, Ltd.	Rossland	Velvet	Near Rossland.
W. S. Santo	Cranbrook	Santo	Bull River.

Iron Mining Industry

Quebec			
Baie St. Paul Titanic Iron Ore Co.	Baie St. Paul	Glen	St. Urbain.
Ontario			
Moose Mountain, Ltd.	Sellwood		Sellwood.
British Columbia			
Pacific Coast Steel Co.	Van Anda	Good Hope	Van Anda.

*Operating but not shipping.

Manganese Industry

Name of Operator	Address	Name of Mine	Location of Mine
NEW BRUNSWICK			
Thompson, F. M.	Hillsborough	Dawson	Albert Co.

Molybdenum Industry

QUEBEC			
Canadian Wood Molybdenite Co.	Quyon	Moss	Onslow Tp.

Nickel-Copper Mining Industry

ONTARIO			
British American Nickel Corp., Ltd.	Ottawa	Murray	Nickelton.
International Nickel Co. of Canada, Ltd	67 Wall St., New York	Creighton	Sudbury.
Mond Nickel Co., Ltd.	Coniston	Worthington Levack	Drury and Levack Tp.
		Garson, Victoria No. 1 and Frood Extension.	

The Silver-Cobalt Mining Industry

ONTARIO			
*Canadian Lorrain Silver Mines, Ltd.	Haileybury	Canadian Lorrain	South Lorrain.
*Capital Silver Mines	Standard Bk. Bldg., Toronto.	Capital	Haultain.
Castle-Trethewny Mines	Standard Bk. Bldg., Toronto.	Castle Trethewny	Haultain Tp.
Cobalt Contact Mines	North Cobalt	Cobalt Contact	Burke Tp.
*Coleroy Gowganda Mines, Ltd.	15 Toronto St., Toronto	Coleroy	Gowganada.
Conigas Mines, Ltd.	50 Ontario St., St. Catharines.	Conigas Ruby	Coleman Tp.
		Beaver	"
Crown Reserve Mining Co., Ltd.	Larder Lake	Crown Reserve	"
*Doherty Esson Mg. Syndicate	King St. E., Toronto	Penn. Canadian	Cobalt.
Everett Mines, Ltd.	Bank of Hamilton Building, Toronto	Everett	Gowganada.
Galvin, M. J.	Sandwich	Mother Lode	James Tp.
Genesee Mining Co., Ltd.	Cobalt	Genesee	Coleman Tp.
Keeley Silver Mines, Ltd.	302 Bay St., Toronto	Keeley	South Lorrain.
Kerr Lake Mining Co., Ltd.	61 Broadway, New York	Kerr Lake	Coleman Tp.
La Rose Mines, Ltd.	Cobalt	La Rose	"
*Lorrain Cons. Mines, Ltd.	Bank of Hamilton Building, Toronto	Lorrain	Silver Centre
McKinley-Darragh-Savage Mines of Cobalt, Ltd.	Cobalt	McKinley-Darragh-Savage	"
McLeod, J. H.	Box 156, Cobalt	Foster	Coleman Tp.
Menago Mining Co., Ltd.	Sudbury	Colonial	"
		Buffalo	"
		Lorrain Trout Lake	"
		Lorrain Operating Co.	
Mining Corporation of Canada, Ltd.	1512 Bank of Hamilton Bldg., Toronto	Towasite	"
		City of Cobalt	"
		Peterson Lake	"
Nipissing Mining Co., Ltd.	Cobalt	Nipissing	"
		Alladdin	

*Operating but not shipping.

The Silver-Cobalt Industry—Continued.

Name of Operator	Address	Name of Mine	Location
ONTARIO—*Concluded*			
O'Brien, M. J., Ltd	Cobalt	O'Brien	Coleman Tp.
		Miller-Lake-O'Brien	Gowganda.
*Oxford Cobalt Silver Mines, Ltd	Woodstock	Oxford Cobalt	Gillies.
Penn Canadian Mines, Ltd	1011 Chestnut St., Philadelphia	Penn Canadian	Cobalt.
J. H. Rattray	Box 921, Cobalt	Provincial	Cobalt.
		Silver Bar	
Sweet, Joe	Cobalt	Silver Queen	Coleman Tp.
*Tonopah Canadian Mines	Bullitt Bldg., Philadelphia	Walsh	Gowganda.
Trethewey Silver-Cobalt Mines, Ltd.	Standard Bank Bldg., Toronto	Castle	Gowganda.

The Silver-Lead-Zinc Industry

QUEBEC			
British Metal Corp	263 St. James St., Montreal	Concentrating plant	Notre Dame.
Tétreault Mines	730 Delorimier Ave., Montreal	Tétreault	Notre-Dame des Anges.
ONTARIO			
Kingdon Mining, Smelting and Manufacturing Co., Ltd	Galetta	Kingdon	Galetta.
BRITISH COLUMBIA			
Ainsworth Mining Division—			
Bridge & Forsyth	Ainsworth	Firebrand Fraction	Ainsworth.
Bridge and Kennedy (H. Gingerich)	Kaslo	Silver Hoard	Ainsworth.
Burgess, W. H	Kaslo	Whitewater	Retallack.
Carter, J. A	Kaslo	Martin	Kaslo Ck.
Cons. Mg. & S. Co. of Can., Ltd	Tadanac	Highland, No. 1	Ainsworth.
Cork-Province Mines, Ltd	Kaslo	Cork-Province	Zwicky.
Florence Silver Mining Co., Ltd. (D. E. Sanders)	518 Sutton Blk., Spokane, Wash	Florence	Ainsworth.
*Green and Green	Kaslo	Silver Bell	Kaslo Creek.
Harris, A. J	Zincton	Charleston	Retallack.
McCready, G. E	Zincton	Caledonia	Blaylock.
McPherson and Sherman	Ainsworth	Spokane-Trinket	Ainsworth.
United Mines Ltd	Realty Bldg., Spokane	United	Ainsworth
Atlin Mining Division—			
Atlin Silver-Lead Mines (J. M. Ruffner)	Atlin	Ruffner Gp	Atlin.
Fort Steele Mining Division—			
Consolidated Mining and Smelting Co. of Canada, Ltd	Kimberley	Sullivan, St. Eugene	Kimberley.
Golden and Windermere Division—			
Bruce, R. Randolph	Invermere	Paradise	Toby Creek.
Galena Ghat Mines, Ltd	Invermere	White Cat	Slade Ck.
New Monarch Mines Co., Ltd	701 Dom. Bldg., Vancouver	Monarch	Field.
Grand Forks Mining Division—			
Williams, A. L	Edgewood	Lightning Peak	Grand Forks.
Greenwood Mining Division—			
Eholt Mining Co., Ltd	505 Eagle Bldg., Spokane	Combination	Greenwood.
*Jack Paul Mining Co	610 Hutton Blk., Spokane, Wash	Riverside	Greenwood.
McIntosh & Crane	Beaverdell	Bell	Wallace Mountain.
Rambo, W. H	Beaverdell	Standard Fraction	Wallace Mountain.
Wallace Mountain Mines, Ltd	Box 176, Penticton	Sally Group	Beaverdell.
Strathmore Syndicate	Greenwood	Strathmore	Greenwood.
Nelson and Arrow Lake Mining Divisions—			
Consolidated Mining and Smelting Co of Canada, Ltd. (to lessee)	Trail	Molly Gibson	Kokanee Creek.
Forster, H. E	Wilmer	Millie Mack	Cariboo Creek.
Iron Mountain, Ltd	Nelson	Emerald	Salmo.
Johnson, J. M	Lytton	Independent	Cariboo.
*Shepherd Mining Co	Riondel	Kirby	Riondel.
Omineca Mining Division—			
Duthie, J. F. (John R. Turner)	Smithers	Henderson & Mamie	Hudson Bay Mtn.
Osoyoos Mining Division—			
British American Mg. Corp	Similkameen	Horn Silver	Similkameen.
Portland Canal Mining Division—			
*Glacier Creek Mining Co., Ltd	Victoria	Glacier Creek	Portland Canal.
L. and L. Glacier Ck. Mines, Ltd	Victoria	L. and L.	Portland Canal.
Porter-Idaho Syndicate	Stewart	Porter-Idaho	Stewart.
*Silverado Mines, Ltd	Victoria	Silverado	Portland Canal.
Slocan and Slocan City Mining Divisions—			
*American Boy Mining Co	Sandon	American Boy	Sandon.
Bottalla, Emil	New Denver	Apex	Slocan.
Byrne, M. J	Sanlon	Gem	Carpenter Creek.
*Cartwright, C. E	502 North West Bldg., Vancouver.	Black Prince & Two Friends	Lemon.
Clark & Mann	Sandon	Carnation	Sandon.
Clover, H	New Denver	Mollie Hughes	New Denver.
Cunningham, C	Alamo	Alamo, Queen Bess, Sovereign, Wonderful, Van Roi	Alamo.

*Operating but not shipping.

The Silver-Lead-Zinc Industry—Concluded

Name of Operator	Address	Name of Mine	Location
BRITISH COLUMBIA—*Concluded*			
Mountain Chief Mines	New Denver	Mountain Chief, Mammoth	New Denver.
Galena Mining and M. Co	Silverton	Galena Farm	Silverton.
Lucky Jim Lead & Zinc Co., Ltd	Spokane, Wash	Lucky Jim	Zincton.
O'Neail, D. B	Slocan	L.T. Group	Slocan.
Ottawa Mining & Milling Co	Slocan	Ottawa	"
Petty, Geo	Sandon	Lone Bachelor Victor	Sandon.
Rambler-Cariboo Mines, Ltd. (W. A. Cameron)	New Denver	Rambler-Cariboo	Three Forks.
Rosbery-Surprise Mining Co., Ltd	New Denver	Rosun	New Denver.
Ruth Hope Mining Co., Ltd	Vancouver	Ruth	Sandon.
Silversmith Mines, Ltd	Box 1772, Spokane, Wash	Silversmith	Sandon.
*Slocan Silver Mines, Ltd	Alamo	McAllister	Three Forks.
Standard Silver-Lead Mining Co	Silverton	Standard	Silverton.
Shannon, E	New Denver	Peg Leg	Slocan.
Trenery, Thos	Rosebery	Jo Jo	Carpenter Ck.
Zimmerman, Kurt	Slocan City	Anna	Springer Creek.
Trail Creek, Trout Lake, Revelstoke & Lardeau Mining Divisions—			
*Waverley Mines Co	Albert Canyon	Waverley	Revelstoke.
Wilson, J. H	Poplar Creek	Mother Lode	Trout Lake.
YUKON			
Keno Hill, Ltd	120 Broadway, New York	Keno Hill, Friendship Sadie.	Keno Hill, Mayo Division.
Treadwell Yukon Co., Ltd	Crocker Bldg., San Francisco, Cal.	Ladue	" "

Canadian Smelters and Refineries

ONTARIO		
British American Nickel Corp	Jackson Bldg., Ottawa	Nickelton, Ont., and Deschênes, Que.
Cobalt Reduction Co. (Mining Corp. of Canada.)	Cobalt	Cobalt.
Coniagas Reduction Co	St. Catharines	Thorold.
Deloro Smelting & Refining Co	Deloro	Deloro.
International Nickel Co. of Can	67 Wall St., New York	Copper Cliff.
Kingdon Mining, Smelting and Power Co	Galetta	Galetta.
Mond Nickel Co	Coniston	Coniston.
Nipissing Mining Co	Cobalt	Cobalt.
BRITISH COLUMBIA		
Consolidated Mining and Smelting Co	Trail	Trail, Roesland, Kimberley.
Granby Consolidated Mining, Smelting and Power Co	Anyox	Anyox.

*Operating but not shipping.

In the Yukon Territory, development operations were carried on by many individual operators and by a few incorporated companies in the Keno Hill area.

NON-METALLIC MINERAL INDUSTRIES

Actinolite Mining Industry

Name	Address	Location of Plant
The Actinolite Mining Co., Ltd.	Bloomfield, N.J.	Kaladar Township, Ont.

Asbestos Mining Industry

QUEBEC—		
Asbestos Corporation of Canada, Ltd.	Canada Cement Bldg., Montreal	King, Thetford Tp. Beaver, Coleraine Tp. British Canadian
Asbestos Mines, Ltd.	282 St. Catherine St., Montreal	Boston, Broughton Tp.
Bennett-Martin Asbestos and Chrome Mines Ltd.	Thetford Mines	Vimy Ridge, Ireland Tp. Thetford, Thetford Tp.
Black Lake Asbestos and Chrome Co., Ltd.	282 St. Catherine St., Montreal	Union, Coleraine Tp. Imperial, Coleraine Tp. Southward, Coleraine Tp.
Canada Asbestos & Chrome Co.	Black Lake	Coleraine.
Canadian Johns-Manville Co., Ltd.	450 St. James St., Montreal	Jeffrey, Shipton Tp.
Consolidated Asbestos, Ltd.	Phillips Square, Montreal	Thetford, Thetford Tp.
Federal Asbestos Co.	Phillips Square, Montreal	Federal, Thetford Tp.
Johnson's Company	Thetford Mines	Johnson's, Thetford Tp. Johnson's, Coleraine Tp.
Kensbey and Mattison Co.	Ambler, Penn., U.S.A.	Bell, Thetford Tp.
Maple Leaf Asbestos Corp., Ltd.	Thetford Mines	Maple Leaf, Coleraine Tp.
Northern Asbestos Co.	Thetford Mines	
Pennington Asbestos Co.	Thetford Mines	Pennington, Thetford Tp.
Quebec Asbestos Corporation	East Broughton	Quebec, Broughton Tp.
ONTARIO—		
Porcupine Asbestos Mining Syndicate	Timmins	Bowman, Deloro.

Barytes Mining Industry

NOVA SCOTIA—		
Brandram-Henderson, Ltd.	Montreal, P[illegible]	Lake Ainslie, Inverness County.

The Coal Mining Industry*

NOVA SCOTIA—		*District*—
Acadia Coal Co., Ltd.	Stellarton	Pictou.
Anglo Coal Co., Ltd.	Glace Bay	Cape Breton.
Athol Coal Co.	Athol	Cumberland.
Boston Coal Co.	River Hebert	Cumberland.
Bras d'Or Coal Co.	Little Bras d'Or Bridge	Cape Breton.
Carter Coal Co.	Maccan	Cumberland.
Cumberland Railway & Coal Co.	Glace Bay	Cumberland.
Dominion Coal Co., Ltd.	Glace Bay	Cape Breton.
Emmerson Coal Co., Ltd.	River Hebert	Cumberland.
Fundy Mining Co.	Joggins Mines	Cumberland.
Greenwood Coal Co., Ltd.	Thorburn	Pictou.
Indian Cove Coal Co., Ltd.	Sydney Mines	Cape Breton.
Intercolonial Coal Mining Co.	Westville	Pictou.
Inverness Railway and Coal Co.	Inverness	Inverness.
Lawson Coal Co.	Amherst	Cumberland.
Maritime Coal, Railway and Power Co., Ltd.	Joggins Mines	Cumberland.
Minudie Coal Co., Ltd.	River Hebert	Cumberland.
National Coal Co., Ltd.	New Glasgow	Cumberland.
Nova Scotia Steel and Coal Co., Ltd.	Sydney Mines	Cape Breton.
Port Hood Coal Co. (D. Prendergast)	Port Hood	Inverness.
Provincial Mining Co. (Twin Seam Coal Co.)	Chignecto	Cumberland.
River Hebert Coal Co.	River Hebert	Cumberland.
Sterling Coal Co.	River Hebert	Cumberland.
Victoria Coal Co., Ltd.	River Hebert	Cumberland.
NEW BRUNSWICK—		*County*—
Avon Coal Co., Ltd.	St. John	Queens.
Coakley, M.	Minto	Sunbury.
McDougall Bros.	Minto	Queens.
Minto Coal Co., Ltd.	St. John	Queens.
Miramichi Lumber Co., Ltd.	Minto	Queens. Sunbury.
Reade, L. W. (c/o Grand Lake Coal Co.)	Minto	Queens.
Rothwell Coal Co., Ltd.	Rothwell	Queens.
Welton, Harvey	Minto	Grand Lake.
Welton & Henderson	Minto	Queens.

The Coal Mining Industry—Continued

Name	Address	Location of Plant
SASKATCHEWAN—		*Municipality*—
Addie, W.	Estevan	Near Estevan.
Bienfait Mine	Bienfait	Near Bienfait.
Big Lump Coal Co. (formerly Bourgouin & Smith).	Estevan	Near Estevan.
Crescent Collieries, Ltd.	Bienfait	Near Bienfait.
Eastern Collieries of Bienfait, Ltd.	Estevan	Near Estevan.
Estevan Coal and Brick Co., Ltd.	Box 210, Estevan	Near Estevan.
Lignite Coal Mines, Ltd. (formerly Andrew A. Miller).	c/o T. P. Roberts, Taylorton	Taylorton.
Mackenzie, Geo. A. (formerly Western Collieries, Ltd.)	110 P. Burns Bldg., Calgary, Alta.	Roche Percee.
Manitoba and Saskatchewan Coal Co., Ltd.	503 Ave. Block, Winnipeg, Man.	Bienfait.
Nice, A.	Estevan	Near Estevan.
Nicholson, H.	Estevan	Near Estevan.
Pierre McCallum, Ltd. (formerly Bienfait Commercial Co.)	Bienfait	Near Bienfait.
Shand Brick and Coal Co.	Shand	Shand.
Western Dominion Collieries	305 Trust and Loan Bldg., Winnipeg, Man.	Taylorton.
ALBERTA—		
Bituminous—		*District*—
Blue Diamond Coal Co., Ltd.	602 Standard Bank Bldg., Toronto, Ont.	Jasper Park.
Brazeau Collieries, Ltd.	Nordegg	Brazeau.
Cadomin Coal Co., Ltd.	282 Main St., Winnipeg, Man.	Mountain Park.
Canmore Coal Co., Ltd.	Canmore	Canmore.
Hillcrest Collieries	Hillcrest	Crow's Nest Pass.
International Coal Co., Ltd.	Coleman	Crow's Nest Pass.
Luscar Collieries, Ltd.	708 Tegler Bldg., Edmonton	Mountain Park.
McGillivray Creek Coal Co.	Coleman	Crow's Nest Pass.
Mohawk Bituminous Mines, Ltd.	414 Lancaster Bldg., Calgary	Crow's Nest Pass.
Mountain Park Coal Co.	708 Tegler Bldg., Edmonton	Mountain Park.
Pass Bituminous Collieries, Ltd.	Burmis	Crow's Nest Pass.
West Canadian Collieries, Ltd.	Blairmore	Crow's Nest Pass.
Sub-bituminous—		
Alexo Coal Mining Co., Ltd.	Alexo	Saunders.
Balkan Coal Co., Ltd.	Robb	Yellowhead.
Bighorn and Saunders Creek Collieries	Saunders	Saunders.
Blackstone Coal Co., Ltd.	733 Regler Bldg., Edmonton	Yellowhead.
Coal Valley Mining Co., Ltd.	806 McLeod Bldg., Edmonton	Yellowhead.
Estel, L. (Glacier Coal Co., Ltd.)	Lundbreck	Pincher Creek.
Foothills Collieries, Ltd.	2[illegible] Portage Ave., Winnipeg, Man.	Yellowhead.
Saunders Ridge Coal Co.	[illegible]saur	Yellowhead.
Stanley, C. H. (formerly Acorn Coal Co., Ltd.)	West Saunders	Saunders.
Sterling Collieries, Ltd.	911 McLeod Bldg., Edmonton	Yellowhead.
Superior Collieries, Ltd.	3 McDougall Court, Edmonton	Yellowhead.
Lignite—		
Ajax Coal and Mining Co.	Medicine Hat	Medicine Hat.
Alberta Block Coal Co., Ltd.	Drumheller	Drumheller.
Anderson, W. J.	Sheerness	Hanna.
Ardley Hardite Collieries, Ltd.	Ardley	Trochu.
Atlas Coal Co., Ltd.	Drumheller	Drumheller.
Bay Coal Co., Ltd.	Taber	Taber.
Big Valley Collieries	Box 34, Edmonton	Big Valley.
Bish Bros. and Le Gear	Forestburg	Battle River.
Blackfoot Indian Agency	Gleichen	Gleichen.
Bray, Ed.	Alix	Trochu.
Bush Mine Coal Co.	11213-65th St., Edmonton	Clover Bar.
Caledonian Collieries, Ltd.	Drumheller	Drumheller.
Canadian Coal Co., Ltd.	206 Quebec Bldg., Edmonton	Cardiff.
Canadian Dinant Coal Co.	Dinant	Camrose.
Canadian Pacific Railway Co.	Dept. of Natural Resources, Calgary	Banff. Lethbridge. Taber.
Capital Collieries, Ltd.	Wayne	Wayne.
Carbon Gem Mine Co.	Carbon	Carbon.
Challenger Coal Co.	Ardley	Trochu.
Chappell, E. (formerly North American Collieries).	Tofield	Camrose.
Chinook Coal Co.	117 Sherlock Bldg., Lethbridge	Lethbridge.
City of Lethbridge Coal Mines	Lethbridge	Lethbridge.
Commonwealth Coal Co., Ltd. (formerly Oscar Collieries, Ltd.).	Sheerness	Hanna.
Consolidated Diamond Collieries, Ltd.	Diamond City	Lethbridge.
Co-operative Coal Co.	Elcan	Taber.
Craig Coal Co., Ltd.	Drumheller	Drumheller.
Crown Coal Co. (Penn. Coal Co., Ltd.)	1351-82nd St., Edmonton	Edmonton.
Dawson Coal Co., Ltd.	7 McDougall Court, Edmonton	Edmonton.
Dobell Coal Co., Ltd.	138 St. Peter St., Quebec, P.Q.	Tofield.
Donaldson, C. S., Coal Co.	Suite 1, Hill Block, Lethbridge	Lethbridge.
Edmonton Collieries, Ltd.	10117-102nd St., Edmonton	Edmonton.
Elgin Coal Co., Ltd.	Drumheller	Drumheller.
Ellis Coal Co., Ltd.	Box 46, Three Hills	Three Hills.
Excelsior Collieries, Ltd.	11th Ave. and 11th St. W., Calgary	Wayne.
Fraser-McKay Collieries	10055-101st St., Edmonton	Clover Bar.
Gibson Collieries	Drumheller	Drumheller.
Great West Coal Co., Ltd. (Black Diamond Mine).	10026-101A Ave., Edmonton	Clover Bar.

The Coal Mining Industry*—Continued

Name	Address	Location of Plant
ALBERTA—*Concluded*—		
Lignite—Concluded—		*District*—
Great West Coal Co., Ltd. (Star Mine)	506 Lombard Bldg., Winnipeg, Man.	Rosedale.
Humberstone Coal Co., Ltd	11213-65th St., Edmonton	Clover Bar.
Hy-Grade Coal Co	Drumheller	Drumheller.
Ideal Coal Co	28 Mackie Blk., Calgary	Wayne.
Jewel Collieries, Ltd	Wayne	Wayne.
Keith Fulton Coal Co	Clover Bar	Clover Bar.
Kleenburn Collieries, Ltd	Eyremore	Brooks.
Lakeside Coals Co., Ltd	711 Tegler Bldg., Edmonton	Wabamun.
Lethbridge Coal Co	Box 784, Lethbridge	Lethbridge.
Majestic Coal Co., Ltd	Taber	Taber.
Marcus Coal Mines, Ltd. (formerly McIntyre & Sons)	914 McLeod Bldg., Edmonton	Clover Bar.
Midland Collieries, Ltd	Midlandvale	Drumheller.
Mid-West Collieries, Ltd	Drumheller	Drumheller.
Moonlight Coal Co., Ltd	Rosedale Station	Rosedale.
National Collieries	Round Hill	Camrose.
Newcastle Coal Co., Ltd	Drumheller	Drumheller.
Newcastle Junior Mining	Drumheller	Drumheller.
North American Collieries, Ltd	909 Lancaster Bldg., Calgary	Lethbridge. Pembina.
North Star Coal Co	Cardiff	Cardiff.
Oliphant, John	Taber	Taber.
Otterwell Coal Mine	Clover Bar	Clover Bar.
Palisade Coal Co	Three Hills	Three Hills.
Partridge Coal Co	Rosedale Station	Rosedale.
Peerless Carbon Coal Mines, Ltd	Carbon	Carbon.
Peerless Carbon Collieries, Ltd	Carbon	Carbon.
Redcliff Brick and Coal Co., Ltd.	Box 135, Redcliff	Medicine Hat.
Reid & Brown, c/o Premier Coal Co., Ltd	11247-69th St., Edmonton	Edmonton.
Rosedale Coal Co., Ltd.	Rosedale	Rosedale.
Rose Deer Coal Mining Co., Ltd.	Wayne	Wayne.
Rosemount Coal Co., Ltd	Rosedale	Rosedale
Round Hill Collieries, Ltd.	Round Hill	Camrose.
Shannon Coal Co., Ltd.	Carbon	Carbon.
Spicer Coal Co., Ltd.	Dinant	Camrose.
Standard Coal Co	Box B, Wayne	Wayne.
Stoney Creek Collieries, Ltd.	Camrose	Camrose.
Sturgeon Valley Collieries, Ltd	Carbondale	Namao.
Superior Grade Coal Co	Wayne	Wayne.
Thomas, I. D., Coal Co	Nacmine	Drumheller.
Tofield Coal Co	Tofield	Tofield.
Vimy Coal, Light and Power Co	Big Valley	Big Valley.
Warnebaldt, Julius	Sheerness	Hanna.
Western Commercial Co., Ltd	Wayne	Wayne.
Western Gem Coal Co., Ltd	Drumheller	Drumheller.
BRITISH COLUMBIA—		*District*—
Canadian Collieries, Ltd.	600 Belmont Bldg., Victoria	Island.
Coalmont Collieries, Ltd.	Coalmont	Inland.
Corbin Coal and Coke Co	Corbin	Crow's Nest Pass.
Crow's Nest Pass Coal Co	Fernie	Crow's Nest Pass.
East Wellington Coal Co.	Box 633, Nanaimo	Island.
Fleming Coal Co., Ltd	Merritt	Inland.
Granby Con. Mg. S. & P. Co.	Cassidy, V.I.	Island.
Keystone Coal Co., Ltd.	Merritt	Inland.
King & Foster	Box 655, Nanaimo	Island.
Middlesboro Collieries, Ltd.	Middlesboro	Inland.
Nanoose Wellington Collieries, Ltd.	Wellington	Island.
Princeton Coal and Land Co	Princeton	Inland.
Western Fuel Corporation of Canada	Nanaimo	Island.

*Operators producing 500 tons or over, per month.

The Feldspar Industry

MINES—		
QUEBEC—		
Cameron, J. & J.	Box 11, Buckingham	Buckingham Tp.
Canadian Amber Mica Co.	Box 246, Montreal	Portland W. Tp.
Couture, Louis	Glen Almond	Buckingham Tp.
Lapointe, E.	Notre Dame de la Salette	Portland W. Tp.
Laurentian Feldspar Co., Ltd.	86 Notre Dame St., W., Montreal	Portland Tp.
O'Brien and Fowler	Bk. of Nova Scotia Bldg., Ottawa, Ont.	Derry Tp.
St. Lawrence Feldspar, Ltd.	55 St. Francois Xavier St., Montreal	Saguenay Co.
Winning, Bush	N.D. de la Salette	Portland Tp.
ONTARIO—		
Anderson, J. G.	Lucknow	Dryden, Davis, Head, James Tps.
Cameron, John A.	Madawaska	Murchison Tp.
Checkley, H. R.	Sudbury	Dill Tp.
Craig, T. H.	Veronn	Portland Tp.
Feldspars, Ltd.	293 Bay St., Toronto	Bedford, Portland and Loughborough Tps.

The Feldspar Industry—Concluded

Name	Address	Location of Plant
MINES—*Concluded*		
ONTARIO—*Concluded*		
Feldspar Mines Corp., Ltd	1507 Bank of Hamilton, Toronto	Monteagle Tp.
Feldspar Quarries, Ltd	60 Front St., Toronto	Portland Tp.
Genesee Feldspar Co	82 Augustine St., Rochester, N.Y.	Monteagle Tp.
Holditch, W. E	Sudbury	Dill Tp.
Hurlburt, G. W	Ess Creek	Stacey Quarry.
Industrial Minerals Corp	805 Bank of Hamilton, Toronto	Monmouth Tp.
Kemp Feldspar Co	Toronto	Dill Tp.
MacMaster, Duncan	Markstay	Markstay.
McQuire-Robinson	Parry Sound	Conger Tp.
Martin, E. L	Kingston	Bedford Tp.
Perth Feldspar & Mining Co., Ltd	Perth	Bathurst Tp.
Rock Products Co	Nicholas Bldg., Toledo, Ohio, U.S.A.	Bathurst Tp.
MILLS—		
ONTARIO		
Feldspar Milling Co., Ltd	33 Richmond St. W., Toronto	Toronto.
Frontenac Floor and Wall Co., Ltd	Kingston	Kingston.

The Fluorspar Industry

ONTARIO—		
Campbell, Charles	Walker House, Toronto	Madoc.
Cross & Wellington	Madoc	Huntingdon Tp.
Noyes Mining Co., Ltd	Peterboro	Huntingdon Tp.

Garnets

ONTARIO—		
Boyle, Robin	18 Toronto St., Toronto	Renfrew Co.

The Graphite Industry

QUEBEC—		
Canadian Graphite Corporation	425 Phillip's Place, Montreal	Boyer Township.
North American Graphite Co	50 Spadina Ave., Toronto	Buckingham Tp.
Quebec Graphite Co., Ltd	4 Fenchurch, London, E.C.	Lochaber Township.
ONTARIO—		
Black Donald Graphite Co., Ltd	Calabogie	Brougham Township.

The Grindstone Industry

NOVA SCOTIA—		
Mic-Mac Grindstone Co., Ltd	Woodburn	Woodburn.
Sutherland, Jas. W	Quarry Id	Quarry Id.
NEW BRUNSWICK—		
The Miramichi Quarry Co., Ltd	Quarryville	Quarryville.
The Read Stone Co., Ltd	Sackville	Stonehaven.
BRITISH COLUMBIA—		
MacDonald, J. A. and C. H	Vancouver	

The Gypsum Industry

NOVA SCOTIA—		
Higginson Manufacturing Co	Newburg, N.Y.	Newport Station, Hants Co.
Ingonish Gypsum Co., Ltd	Canada Cement Bldg., Montreal, Que	Victoria Co.
Iona Gypsum Products Co	Box 60, Sydney	Iona.
Newark Plaster Co	Ottawa Brook	Ottawa Brook, Victoria Co.
O'Neill, P. M., Gypsum Co	Box 2223 Montreal	Cheticamp.
Rock Plaster Corp	40 Rector St., New York, N.Y.	Walton, Hants Co.
St. Croix Gypsum Mining & Mfg. Co., Ltd	St. Croix	St. Croix, Hants Co.
Wentworth Gypsum Co., Ltd	Windsor	Wentworth, Hants Co.
Windsor Plaster Co., Ltd	Windsor	Windsor, Hants Co.
NEW BRUNSWICK—		
Albert Manufacturing Co	Hillsborough	Hillsborough, Albert Co.
Hillsborough Plaster, Quarrying and Manufacturing Co	Hillsborough	Edgetts Landing, Albert Co.
ONTARIO—		
The Ontario Gypsum Co., Ltd	Paris	Caledonia, Seneca Tp. Lythmore, Oneida Tp.
MANITOBA—		
Manitoba Gypsum Co., Ltd	Box 3057, Winnipeg	Gypsumville.
BRITISH COLUMBIA—		
Basque Ranch Ltd	Vancouver	Basque Ranch.

The Iron Oxide Mining Industry

Name	Address	Location of Plant
QUEBEC—		
Argall, Thos. H.	Three Rivers	Point du Lac, St. MauriceCo.
Canada Paint Co., Ltd.	572 William St., Montreal	Red Mill, Champlain Co.
Montmorency Paint Products Co., Ltd.	6 d'Aiguillon St., Quebec	Montmorency Co.
BRITISH COLUMBIA—		
McDonald, R. W.	823 Fifth Ave. West, Calgary, Alta.	Windermere District.

The Magnesite Industry

QUEBEC—		
International Magnesite Co., Ltd.	Calumet	Hartington Township.
North American Magnesite Producers, Ltd.		Grenville Township.
Scottish Canadian Magnesite Co.	Magnesite	Grenville Township.

The Mica Industry

QUEBEC—		
Ahearn, W.	538 McLaren St., Ottawa, Ont.	Hull Tp.
Argall, W. A.	Laurel	Argenteuil Co.
Blackburn Bros.	Union Bank Bldg., Ottawa, Ont.	Templeton Tp.
Brown, C. C. and J. F.	Cantley	
Canadian Amber Mica Co.	246 Station B, Montreal	Portland W. Tp.
Chaslock, Isidore	High Falls	Portland W. Tp.
Cross, W. C.	Cascades	Hull Tp.
De Rainville, J.	St. Pierre de Wakefield	
Flynn, H. T.	106-8 Montcalm St., Hull	Hull Tp.
Gatineau Valley Mining Co.	Hull	Wakefield.
Laurentide Mica Co., Ltd.	110 Queen St. W., Ottawa, Ont.	East Templeton Tp.
Lawlor, Thos.	Wrightville	
McLaurin, John	St. Rose de Lima	Templeton.
McGlashan, R. J. & Co.	Cantley	Hull Tp.
Maisonneuve, H.	Perkins Mills	
Martin, A. G.	River Desert	Cameron Tp.
Morris, J.	Wilson's Corners	Wakefield Tp.
Poulin & Holmes	Cantley	Hull Tp.
Wallingford Mica and Mining Co., Ltd.	Perkins	Templeton Tp.
Watts and Noble	217 Lyon St., Ottawa, Ont.	Portland W. Tp.
Wilson, S. E.	Cascades	
Winning, Bush	Notre Dame de la Salette	Portland Tp.
ONTARIO—		
Brown and Fahey	Elgin	Loughborough, Tp.
Gould Lake Mining Association	Sydenham	
Kent Bros. and Estate J. M. Stoness	Kingston	Loughborough Tp.
Lee, W. W.	Bedford Mills	
McFadden, R. J.	Sydenham	
McNamara, H. E.	Sydenham	
McLaren, W. L.	Perth	
Martin, A. G.	231 Besserer St., Ottawa	Loughborough Tp.
Roberts, P. H.	Sydenham	Frontenac Tp.
Sills, A. C.	Sydenham	Loughborough Tp.
Sullivan and Rogers	Portland	Bastard Tp.
The Loughborough Mining Co., Ltd.	Sydenham	Loughborough Tp.
Trousdale, P. J.	Sydenham	
Wood, F. J.	Godfrey	

The Natural Gas Industry

NEW BRUNSWICK—		
New Brunswick Gas & Oilfields, Ltd.	Box 196, Moncton	Stony Creek, Albert Co.
ONTARIO—		
Aldrich Gas and Oil Co., Ltd.	Merchants' Bank Bldg., Hamilton	Rainham Tp.
Allied Gas and Oil Co. (formerly Clover Gas & Oil Co.)	Welland	Moulton Tp.
Attercliffe Gas Co.	Attercliffe	Canboro Tp.
Azoff Gas Co.	Canfield	North Cayuga Tp.
Beer, Geo.	Binbrook	Binbrook Tp.
Bennett, J.	Ridgetown	Howard Tp.
Bertie Natural Gas Co., Ltd.	Ridgeway	Bertie Tp.
Binbrook Gas Co.	Binbrook	Binbrook Tp.
Caledon Natural Gas Fields, Ltd.	Hamilton	Caledon Tp.
Canada Cement Co., Ltd.	Montreal, Que.	Humberstone Tp.
Canby, B. F.	R. R. 2, Marshville	Wainfleet Tp.
Canboro Gas & Oil Co.	Selkirk	Canboro, Cayuga N., Rainham and Seneca Tps.
Canfield Natural Gas Co.	Canfield	Cayuga N. Tp.
Castle Oil and Gas Co.	Imperial Bank Chambers, Niagara Falls	Euphemia Tp.
Chippawa Development Co., Ltd.	Chippawa	Willoughby Tp.
Chippawa Oil and Gas Co., Ltd.	Tavistock	Caistor and Gainsboro Tps.
Coleman, J. A.	Wellandport	Wainfleet and Gainsboro Tps.

The Natural Gas Industry—Continued

Name	Address	Location of Plant
ONTARIO—*Concluded*		
Dominion Natural Gas Co., Ltd	518 Jackson Bldg., Buffalo, N.Y., U.S.A	Bayham, Binbrook, Caistor, Canboro, Cayuga N., Cayuga S., Charlotteville, Dunn, Glandford, Houghton, Humberstone, Malahide, Middleton, Moulton, Oakland, Oneida, Onondaga, Rainham, Seneca, Walpole, Walsingham N., Walsingham S., Windham, Woodhouse Tps.
Dunn Natural Gas Co., Ltd	Dunnville	Dunn and Sherbrooke Tps.
Eastside Gas Co	R. R. 2, Lowbanks	Sherbrooke.
Empire Limestone Co	19 Hudson St., Buffalo, N.Y., U.S.A.	Humberstone Tp.
Fisherville Gas Co	Fisherville	Rainham Tp.
Hamilton Gas and Oil Co	17 Main St., E., Hamilton	Seneca Tp.
Hart and Harrington	Attercliffe Station	Canboro Tp.
Hoffman, Albert	Dunnville	Moulton Tp.
Hoover, D. E	Selkirk	Rainham Tp.
Industrial Natural Gas Co., Ltd	Thorold	Bertie, Crowland, Humberstone Tps.
Jasperson, B	Kingsville	Tilbury East and Gosfield South Tps.
Jones, J. S	Port Maitland	Dunn Tp.
Kindy, D. and Son	Selkirk	Rainham.
King Gas Co., Ralph	Hamilton	Charlotteville, Middleton, Rainham, Seneca, Walpole Tps.
Lalor, F. R.	Dunnville	Moulton Tp.
Lawson, J. J	Stromness	Moulton Tp.
Maple Leaf Gas Co	48 St. John's Rd., Buffalo, N.Y., U.S.A	Moulton Tp.
Marshall, Jas	Hamilton	Glanford and Seneca Tps.
May, A. G	Selkirk	Seneca Tp.
Medina Natural Gas Co., Ltd	Box 339, Chatham	Bayham and Houghton Tps.
Michener, E. C	Marshville	Wainfleet and Gainsboro Tps.
Midfield Gas Co., Ltd	9 Maple Ave., Hamilton	N. Cayuga, Oneida Tp.
Niece, Hosea and Son	Lowbanks	Sherbrooke Tp.
Northern Gas and Gasoline Co	Hepworth	Amabel Tp.
North Shore Gas Co., Ltd	Selkirk	Rainham Tp.
Oil Springs Oil & Gas Co., Ltd	Oil Springs	Enniskillen Tp.
Petrol Oil & Gas Co., Ltd	301 York Bldg., Toronto	Dover West Tp.
Pilkington Bros., Ltd	St. Catharines	Crowland Tp.
Port Colborne-Welland Natural Gas and Oil Co., Ltd.	Port Colborne	Onoida, Onondaga, and Seneca Tps.
Progressive Oil and Gas Co	212 Main & Hughson St., Hamilton	N. Dorchester Tp.
Provincial Natural Gas & Fuel Co. of Ontario, Ltd	103 Queen St., Niagara Falls	Bertie, Crowland, Humberstone, Wainfleet, Willoughby Tps.
Root, Mrs. Esther	Dunnville	Cayuga, S.
Sarnia Gas & Oil Co	145½ Front St., Sarnia	Sarnia Tp.
Smith, R. H	Lowbanks	Moulton Tp.
Southern Ontario Gas Co., Ltd	518 Jackson Bldg., Buffalo, N.Y., U.S.A	Gosfield, Mersea, Romney, Raleigh, Tilbury East Tps.
Sparham, A. F	Caledonia	Glanford Tp.
Springvale Gas & Oil Co	Hagersville	Walpole Tp.
Sterling Gas Co., Ltd	Port Colborne	Humberstone, Moulton, Sherbrooke and Wainfleet Tps.
Stevensville Gas & Fuel Co., Ltd	Stevensville	Bertie Tp.
Sundy Gas and Oil Co	Dunnville	Canboro Tp.
Union Natural Gas Co. of Canada, Ltd	48½ Market St., Chatham	Dawn, Dover W., Raleigh, Romney, Tilbury E. Tps.
United Gas Companies, Ltd	518 Jackson Bldg., Buffalo, N.Y.	Canboro, Cayuga N., Moulton, Seneca and Wainfleet Tps.
Vacuum Oil & Gas, Ltd	509 Lumsden Bldg., Toronto	Dover West and Middleton Tps.
Van Sickle, A. W	Onondaga	Onondaga Tp.
Wainfleet-Moulton Gas Co	R. R. 1, Lowbanks	Moulton and Wainfleet Tps.
MANITOBA—		
Haskill, E. C	Box 64, Treherne	Treherne.
ALBERTA—		
Alberta Clay Products Co., Ltd	Box 672, Medicine Hat	Medicine Hat.
British Petroleums Ltd	918 Rogers Bldg., Vancouver, B.C.	Wainwright.
Canada Cement Co., Ltd	Canada Cement Co., Bldg., Montreal	Dauntless.
Canadian Pacific Railway Co	Montreal, Que	Medicine Hat.
Canadian Western Natural Gas, Light, Heat & Power Co., Ltd	215–6th Ave. West, Calgary	Near Barnwell; Bow Island; Brooks; Dunmore; and Calgary.
Canadian Western Power & Fuel Co	Redcliff	Redcliff.
Dominion Glass Co., Ltd	285 Beaver Hall Hill, Montreal, Que.	Redcliff.
Hedley Shaw Milling Co., Ltd	Medicine Hat	Medicine Hat.

The Natural Gas Industry—Concluded

Name	Address	Location of Plant
ALBERTA—*Concluded*		
Jennings Refining Co., Ltd	315 Maclean Block, Calgary	Turner Valley.
Medicine Hat, Corporation of	Medicine Hat	Medicine Hat.
Northwestern Utilities Ltd	10305 Jasper Ave., Edmonton	Viking.
Northwest Co., Ltd	56 Church St. Toronto, Ont.	
Ogilvie Flour Mills Co., Ltd	Medicine Hat	Medicine Hat.
Redcliff Brick & Coal Co., Ltd	Redcliff	Redcliff.
Royalite Oil Co., Ltd	239–6th Ave., Calgary	Turner Valley.
Southern Alberta Oils, Ltd	Calgary	Turner Valley.
Suffield, Village of	Suffield	Suffield.
Town of Bow Island	Bow Island	Bow Island.
Wetaskiwin, Corporation of	Wetaskiwin	Wetaskiwin.
United Electric & Engineering Co., Ltd	1721–11th St. West, Calgary	Bassano.

The Petroleum Industry

NEW BRUNSWICK—		
New Brunswick Oil and Gasfields, Ltd	Box 190, Moncton	Stony Creek, Albert Co.
ONTARIO—		
Ajax Oil and Gas Company	509 Lumsden Blg., Toronto	Raleigh Tp.
Anderson Bros. & Thompson	Oil Springs	Enniskillen Tp.
Anderson, J. H.	Oil Springs	"
Atkinson, John	R.R. No. 3, Petrolia	Plympton Tp.
Bailey, John R.	R.R. No. 3, Petrolia	Moore Tp.
Barrett, C. H.	Petrolia	Enniskillen Tp.
Bothwell Oil Co., Ltd	120 Bay St., Toronto	Zone Tp.
Braybrook, J. T.	R.R. No. 3, Petrolia	Enniskillen Tp.
Brock, Thos. A.	Petrolia	"
Brydges, Ed. O.	R.R. No. 3, Petrolia	"
Canada Crude Oil Producers Ltd	Confederation Life Bldg., Toronto	"
Canadian Dutch Oil, Ltd	7 Adelaide St., E., Toronto	Onondaga Tp.
Canadian Oil Producing and Refining Co., Ltd	Petrolia	Enniskillen Tp.
Carleton, George	R.R. No. 2, Petrolia	"
Carman and Fairbank	Petrolia	Zone Tp.
Crocker-Parks Oil Co., Ltd	Oil Springs	Enniskillen Tp.
Crotty and Elliott	Bothwell	Zone Tp.
Durling, Arthur C.	Petrolia	Enniskillen Tp.
Dempsey, James	Petrolia	"
Donald, Geo.	Oil Springs	Enniskillen Tp.
Duncan Bros.	Petrolia	Moore Tp.
Edward, F. H.	Petrolia	Enniskillen Tp.
Erie Investments, Ltd	320 Bay St., Toronto	Mosa Tp.
Fairbank, C. O.	Petrolia	Zone Tp.
Fairbank, J. H., Estate	R.R. No. 4, Petrolia	Enniskillen Tp.
Goudie, John	R.R. No. 3, Petrolia	"
Head, John	Corunna	Moore Tp.
Hillis, James T. and Sons	Oil Springs	Enniskillen Tp.
Houston, King, Estate of	382 Richmond St., London	Enniskillen Tp.
Howlett, Fred	Box 3, Petrolia	"
Jewell, Dan	Oil Springs	"
Johnson, Thos.	Petrolia	"
Kerr, John, Estate	Petrolia	"
Kerr, Mrs. Ross	Sarnia	"
Lern, Chas.	Petrolia	Moore Tp.
Lewis, John J. Estate	Oil Springs	Enniskillen Tp.
McDougall, D.	Petrolia	Enniskillen Tp.
McGillivray, Geo. A.	London	"
McLellan, Peter	Corunna	Moore Tp.
McPhedran, John	R.R. No. 3, Petrolia	Enniskillen Tp.
McManus, Alex	R.R. No. 1, Wyoming	Plympton Tp.
Maitland, Jas. B.	R.R. No. 2, Sarnia	Sarnia Tp.
Maw, Frank	R.R. No. 3, Petrolia	Enniskillen Tp.
Miller, Frank J.	R.R. No. 2, Sarnia	Sarnia Tp.
Miller, S. M.	R.R. No. 3, Petrolia	Moore Tp.
Miller, W. W.	R.R. No. 3, Petrolia	"
Montgomery, Thos.	R.R. No. 3, Petrolia	Enniskillen Tp.
Morningstar, R. B. & L. H.	Oil Springs	"
Morris, Geo.	Petrolia	"
Mott and Mitchell	Oil Springs	"
Mutual Oil Producing Co.	Box 539, London	"
Neath, Arthur	Chatham	Raleigh Tp.
Onondaga Oil and Gas Ltd	Room 8, Temple Bldg, Brantford	Onondaga Tp.
Ontario Lands and Oil Co., Ltd	Petrolia	Enniskillen Tp.
Ontario Petroleum Co.	Glencoe	Mosa Tp.
Osborne Oil Producers, Ltd	Box 700, Petrolia	Moore Tp.
Parks, Mrs. E. M.	R.R. 3, Petrolia	Enniskillen Tp.
Paul, John D.	R.R. No. 1, Wyoming	Plympton Tp.
Peace River Development	1 Mail Bldg., Toronto	Dunwich Tp.
Rainsberry, Ed. L.	Petrolia	Sarnia Tp.
Rainsberry, Nicholas J.	R.R. No. 3, Petrolia	"
Rainsberry, Walter and Sons	Petrolia	Enniskillen Tp.
Rowe, E. P.	292 Rushton Rd., Toronto	Zone Tp.
Schumacher, Bowen W.	Room 1010, No. 112 West Adams St., Chicago, Ill.	Enniskillen.
Southern Ontario Gas Co., Ltd	518 Jackson Bldg., Buffalo, N.Y.	Romney Tp. & Raleigh Tp.
Sproule Bros.	Oil Springs	Enniskillen Tp.

The Petroleum Industry—Concluded

Name	Address	Location of Plant
ONTARIO—*Concluded*		
Sproule and Johnston	Oil Springs	Enniskillen.
Taylor, P. V. & Co	1031 Lumber Exchange Bldg., Chicago, Ill.	Zone Tp.
Union Natural Gas Co	Chatham	Dover Tp.
Walker Oil and Gas of Bothwell	129 Chatham St. W., Windsor	Zone Tp.
Wallen, Alex. C	Oil Springs	Enniskillen Tp.
Wallen, John, Estate	Oil Springs	"
Wallen and Wallen Estate	Oil Springs	"
Walsh, Mrs. Thos	Petrolia	"
Warwick, Jos	Oil Springs	"
Watt, P. J	River & View Aves., London	"
Woodward, J	Oil Springs	Enniskillen Tp.
Woodward, W	Oil Springs	"
ALBERTA—		
Canada Southern Oil and Refining Company	Black Diamond	Turner Valley Oil Field.
Sheep River Oil Company	422 P. Burns Bldg., Calgary	" "
Southern Alberta Oils, Ltd	407 Grain Exchange Bldg., Calgary	" "

The Pyrites Industry

QUEBEC—		
Eustis Mining Co	Eustis	
ONTARIO—		
Grasselli Chemical Co., Ltd	Hamilton	Blythefield Tp.
Nichols Chemical Co., Ltd	Montreal, Que	"Northpines Mine," Drayton Tp. "Sulphide Mine," Hungerford Tp.
BRITISH COLUMBIA—		
Consolidated Mining & Smelting Co. of Canada, Ltd	Trail	"Sullivan Mine," Kimberley
Granby Consolidated Mining, Smelting & Power Co., Ltd	Anyox	"Hidden Creek," near Anyox

The Quartz Industry

QUEBEC—		
Coleman Bigelow	Buckingham	Buckingham Tp.
Cote, Alex	Buckingham	
O'Brien & Fowler	c/o M. J. O'Brien, Ltd., Ottawa, Ont.	Derry Tp.
Silico, Limited	103 St. Francois-Xavier, Montreal	Parish of St. Canut.
ONTARIO—		
Dominion Mines and Quarries, Ltd	Canada Life Bldg., 46 King St. West, Toronto	District of Algoma. (East Neebish Quarry and Killarney Quarry.)
Maloney, M. J	Marmora	Marmora
Mond Nickel Co., Ltd., The	Coniston	Neelon Tp.
Todesco, C. W	Jack Fish	Near Jack Fish.
Wright & Co	960 Queen St., Sault Ste. Marie	Deroche Tp.
BRITISH COLUMBIA—		
Granby Consolidated Mining, Smelting & Power Co., Ltd	Anyox	Anyox.

The Salt Industry

NOVA SCOTIA—		
Malagash Salt Products, Ltd	New Glasgow	Malagash, Cumberland Co.
ONTARIO—		
Brunner-Mond, Canada, Ltd	Canadian Bank of Commerce Bldg., Toronto	Amherstburg, Essex Co.
Canadian Salt Co., Ltd	719 Sandwich St. W., Windsor	Windsor and Sandwich, Essex Co.
Dominion Salt Co., Ltd., The	412 N. Front St., Sarnia	Sarnia, Lambton Co.
Elarton Salt Works Co., Ltd	Warwick	Warwick, Lambton Co.
Exeter Salt Works Co., Ltd	Exeter	Exeter, Huron Co.
Goderich Salt Co., Ltd	Goderich	Goderich, Huron Co.
Kincardine Salt Co., Ltd	Kincardine	Kincardine.
Western Canada Flour Mills Co., Ltd	Goderich	Goderich, Huron Co.
Western Salt Co., Ltd	43 Victoria St., Toronto	Courtright, Lambton Co.
Wingham Salt Co	Wingham	Wingham, Huron Co.

The Sodium Carbonate Mining Industry

Name	Address	Location of Plant
BRITISH COLUMBIA—		
Austin, C. W.	70 Mile House	
Coulson, John A. and Son	Burley	White Elephant
Lillooet Soda Co., Ltd.	502 North West Bldg., Vancouver	Lillooet.

The Sodium Sulphate Mining Industry

SASKATCHEWAN		
Bishopric and Lent Co.	Winton Place, Cincinnati, Ohio, U.S.A.	Frederick Lake
Salts & Chemicals, Ltd.	207 Weber Chambers, Kitchener, Ont.	Maskakee Lake

The Talc and Soapstone Mining Industry

QUEBEC—		
Robertsonville Soapstone Quarry Co.	Robertsonville	Thetford Tp.
ONTARIO—		
Asbestos Pulp Co., Ltd.	Madoc	"Connolly Mine", Huntingdon Tp.
Gillespie Co., Ltd., Geo. H. (Mill)	Madoc	Plant at Madoc
Henderson Mines, Ltd.	Madoc	"Henderson Mine," Huntingdon Tp.
BRITISH COLUMBIA—		
Eagle Talc and Mining Co.	W. G. Dickinson, 627 Yates St., Victoria	Victoria Mining Division.

The Tripolite Industry

NOVA SCOTIA—		
Oxford Tripoli Co., Ltd.	Oxford	Silica Lake.

The Volcanic Ash Industry

SASKATCHEWAN—		
Van Kel Cleaners, Ltd.	Swift Current	Waldeck.

STRUCTURAL MATERIALS AND CLAY PRODUCTS

The Cement Industry

Name	Address	Location
QUEBEC—		
Canada Cement Co., Ltd.	Canada Cement Co. Bldg., Montreal	Montreal East
ONTARIO—		
Canada Cement Co., Ltd.	Canada Cement Co. Bldg., Montreal	Belleville
	Que.	Port Colborne
Hanover Cement Co., Ltd.	371 Bay St., Toronto	Hanover
St. Mary's Cement Co., Ltd.	49 Wellington St. E., Toronto	St. Mary's.
MANITOBA—		
Canada Cement Co., Ltd.	Canada Cement Co. Bldg., Montreal, Que.	Tuxedo.
Commercial Cement Co., Ltd.	913 Union Bank Bldg., Winnipeg,	Babcock
ALBERTA—		
Canada Cement Co., Ltd.	Canada Cement Co. Bldg., Montreal, Que.	Exshaw
Marlboro Cement Co.	P.O. Box 430, Edmonton	Marlboro.
BRITISH COLUMBIA—		
British Columbia Cement Co., Ltd.	305 Belmont House, Victoria	Bamberton

The Clay Products Industry—Brick and Tile

PRINCE EDWARD ISLAND—		
Prince Edward Island Brick and Tile Co.	Dept. of Agriculture, Charlottetown	Richmond.
NOVA SCOTIA—		
Brooks, Geo.	New Glasgow	Plymouth
Brooks, Stephen, and Sons	Box, 359, New Glasgow	New Glasgow.
Miller, Jas. B.	Elmsdale	Barney's Brook
Nova Scotia Clay Works, Ltd.	Havelock St., Amherst	Elmsdale.
		Pugwash.
Shaw, Ltd., L. E.	Avonport	Avonport
NEW BRUNSWICK—		
Loggie Co., Ltd., W. S.	Chatham	Nelson
Northampton Brick Co., Ltd.	Woodstock	Northampton
Ryan and Sons, M.	Box 575, Fredericton	Fredericton, Woodstock Rd.
QUEBEC—		
Alex. Mills Brick Co., The	Ormstown	Ormstown
Ascot Tile and Brick Co., Ltd.	Ascot Corner	Ascot Corner
Bell, W. and D.	1286 St. Valier St., Quebec	Little River Rd.
Citadel Brick, Ltd.	421 St. Paul St., Quebec	Boischatel
Desrochers, Joseph	Warwick	Warwick.
Granby Clay Products, Ltd.	P.O. Box 266, Granby	Granby
La Cie de Briques de Matane	Matane	Matane
Laliberte, Lucius	Deschaillons	Deschaillons
L'Industrielle de St. Tite, Ltd.	St. Tite	St. Tite.
Longpre, Emile	St. Felix de Valois	St. Felix de Valois.
Metis Shale Brick Co., Ltd., The	St. Octave de Metis	Grand Remon.
National Brick Co. of Laprairie, Ltd.	Canada Cement Co. Bldg, Montreal.	Delson.
		Laprairie.
Proulx & Frères	P.O. Box 384, Richmond	Richmond.
St. Lawrence Brick Co., Ltd., The	71 St. James St., Montreal	Laprairie.
Sherbrooke Brick Co., Ltd.	Wellington St., Sherbrooke	Sherbrooke.
ONTARIO—		
Alvinston Brick & Tile Co., Ltd.	Box 26, Alvinston	Alvinston.
Atlas Brick Co., Ltd.	30 Toronto St., Toronto	Milton Heights
Baird, H. C. and Son	Park Hill	Park Hill
Baker, Geo. E.	Arnprior	Arnprior.
Bartonville Pressed Brick Co., Ltd.	620 Lister Block, Hamilton	Bartonville.
Batchelor, Samuel	Box 6, Proton	Proton.
Bay of Quinte Brick Works	239 Dundas St., Belleville	Belleville.
Belle River Brick and Tile Co.	Box 80, Belle River	Belle River.
Booth Brick & Lumber Co., The	Box 61, New Toronto	Etobicoke
Brampton Pressed Brick Co.	Brampton	Brampton
Broadwell, B., and Son	Kingsville	(Near) Kingsville
Brownscombe, H. & Sons	Box 47, Cargill	Cargill.
Caledon Mountain Shale Products	88 St. David St., Toronto	Credit Forks.
Campbell, Neil F.	R.R. No. 1, West Lorne	West Lorne.
Canadian Fireclay Products, Ltd.	60½ Adelaide St. E., Toronto	New Toronto
Canadian Pressed Brick Co., Ltd.	63 Ottawa St., S., Hamilton	Bartonville.
Chapman, John	Napanee	Napanee.
Cheeseman, Peter	670 King St.W., Hamilton	Hamilton.
Cooksville Shale Brick Co., Ltd.	26 Queen St. E., Toronto	Cooksville.
Cooper, W. H.	312 Clyde Bldg., Hamilton	Hamilton
Cornhill, James & Sons, Ltd.	Grand Ave. E., Chatham	Chatham,
Crang, Jethro	22 Thorne Crescent, Toronto	Toronto.

The Clay Products Industry—Brick and Tile—Continued

Name	Address	Location
ONTARIO—*Continued*		
Crawford Bros.	451 King St. W., Hamilton	Hamilton.
Curtin, Frank	R.R. No. 4, Lindsay	Lindsay.
Curtis Bros.	Box 809, Peterboro	Peterboro.
DeLaplante, J. E.	Dawes Rd., Coleman P.O., Toronto	Dawes Road.
Deller, Albert	Brownsville	Brownsville.
Deller Bros.	R.R. No. 2, Norwich	(Near) Norwich.
Dolan, John	R.R. No. 2, Watford	Warwick.
Dominion Sewer Pipe and Clay Industries, Ltd.	Swansea	Aldershot.
Donaldson, S. E.	R.R. 4, Harriston	Fulton Mills.
Don Valley Brick Works	114 Federal Bldg, Toronto	Todmorden.
Dublin Brick & Tile Yard	Dublin	Dublin S.
Elliott, Charles	Bluevale	Bluevale.
Elliott, Wm.	Glenannan P.O.	Glenannan.
Elliott, James, Jr.	519 Wellington St., Sault Ste. Marie	E. Korah Tp.
Forman, Stephen	R.R. 5, St. Mary's	St. Mary's.
Fort William Brick & Tile Co.	509 Victoria Ave., Fort William	W. Fort William.
Fox, Geo. J.	Box 243 Dresden	Dresden.
Frid Bros.	Macklin St. & Dundas Road, Hamilton	Hamilton.
Gamage, C. R.	R.R. No. 2, Dresden	Dresden.
Gardiner, Wm.	Box 83, Blenheim	Blenheim.
Godfrey, Thomas & Co.	Carleton Place	Carleton Place.
Grimsby Brick and Tile Co.	Grimsby	Grimsby.
Hallatt, Herbert & Son	Box 93, Comber	Comber.
Hallatt, Wm.	Richards Block, Chatham	Merlin.
Halton Brick Co., Ltd.	28 Symes Rd., West Toronto	Near Terra Cotta.
Hamilton Pressed Brick Co.	Kensington Ave. S., Hamilton	Hamilton.
Hill, A. W.	R. R. 1., Coatsworth	Stevenson.
Hill, Aaron	Essex	Essex.
Hircock Bros. & Co.	Box 83, Bowmanville	Bowmanville.
Hitch, D. A.	Erie St. N., Ridgetown	Ridgetown.
Hitch, Thos.	1st Ave., Box 254, St. Thomas	St. Thomas.
Hodder, J. H.	Dutton	Dutton.
Hohl, John	R.R. No. 1, Wellesley	Lisbon.
Houston Co., Ltd., The	Tweed	Tweed.
Howlett, Fred	Box 3, Petrolia	Petrolia.
Interprovincial Brick Co. of Canada, Ltd.	30 Toronto St., Toronto	Cheltenham.
Jackson Bros.	290 Rawdon St., Brantford	Brantford.
Janes, D. A.	R.R. No. 1, Mt. Brydges	Mt. Brydges.
Jamieson Lime Co.	Renfrew	Renfrew.
Jasperson B. Brick & Tile Yards	Kingsville	Coatsworth.
Jervis, Wm J.	Dorchester Station	Dorchester Station.
Johnson, James, Sr.	R. R. No. 3, Pembroke	Pembroke.
Kerr, Frederick	Crediton	Crediton E.
Kerr and Pettman	Goderich	Ben Miller.
Koebel, Joseph Z.	Box 54, St. Clements	St. Clements.
Kruse Bros.	Seaforth	Tuckersmith
Lalley Geo. A. and Son	Foxboro	Foxboro
Lowes Bros.	R.R. No. 3, Chatham	Chatham East.
McComb, Chester	Denfield	Elginfield.
McCormick Bros.	R.R. No. 5, Watford	Kingsford Junction.
McIvor Bros.	Division St., Cobourg	Cobourg.
McMahon, Robert	R.R. No. 2, Kerwood	Strathroy.
MacKay Bros.	R.R. No. 1, Dutton	Dutton.
Martin, Thos. E.	Thamesville	Thamesville.
Merkleys, Ltd.	9 Fraser Bldg., Ottawa	Billings Bridge.
Middleton, C.	Wyoming	Wyoming.
Midland and Penetanguishine Brick Works	Box 143, Penetanguishene	Penetanguishene.
Milton Pressed Brick Co., The	Milton	Milton.
Miner, M. F.	Kingsville	Streetsville. Kingsville.
Missouri Tile Yard (W. H. Deller)	Thorndale, R.R. No. 4	Thorndale.
Moscow Brick and Tile Works	R.R. No. 1, Greenock	Riverdale.
New, Edward	133 George St., Hamilton	Hamilton.
O'Dell, Wm. and Son	R.R. No. 1, Ingersoll	Ingersoll.
Ollman Bros.	Macklin St., Box 241, Hamilton	Hamilton.
Ontario Denison Tile Co., Ltd.	24 Wyandotte St., Windsor	Tilbury. Fletcher.
Ontario Paving Brick Co., Ltd.	353 Weston Rd., South, West Toronto	S. Toronto.
O'Reilly, T. E.	320 Bay St., Ottawa	Hog's Back.
Ottawa Brick Mfg. Co., Ltd., The	53 Queen St., Ottawa	Hog's Back.
Ott Brick & Tile Mfg. Co., Ltd., The	35 King St. E., Kitchener	Kitchener.
Owen Sound Brick Co., Ltd., The	859-2nd Ave. E., Owen Sound	Owen Sound.
Parks, Henry W.	R.R. No. 2, Dresden	Dresden.
Paxton & Bray	230 Queenston St., St. Catharines	St. Catharines.
Pembroke Brick Co., The	Pembroke	Pembroke.
Phillips, Thomas & Son	R.R. No. 2, Lucknow	St. Helens.
Phinn Bros.	238 Briscoe St. London	London.
Phippen & Field	150 Dawes Rd., Toronto	Toronto.
Piggott, G. E., & Co.	20 Guestville Ave., Mt. Dennis	Mount Dennis.
Port Credit Brick Co., Ltd., The	Port Credit	Port Credit.
Port Rowan Brick & Tile Co.	Port Rowan	Port Rowan.
Price and Cumming	Salisbury Ave., Humber Bay	Humber Bay.
Price and Smith	458 Greenwood Ave., Toronto	Toronto.
Provincial Brick Plant	Parliament Bldg., Toronto	Mimico.
Red Star Brick & Tile Yard (W.H. Barnhardt)	Stratford	Stratford.
Reid, Jas.	R.R. No. 3, Belmont	South Dorchester

The Clay Products Industry—Brick and Tile—Concluded

Name	Address	Location
ONTARIO—*Concluded*		
Richardson, Jas. & Son	Kerrwood	Kerrwood.
Riselay Brick Co., Ltd	Main St. W., Hamilton	Hamilton.
Russell, Jos	40 Blake St., Toronto E	Toronto E.
Russell Shale Brick Ltd	100 Standard Bank Bldg., Ottawa	Russell.
Shale Products Ltd	Inglewood	Inglewood.
Smith, Alex. & Son	R. R. No. 2, Dutton	Dutton.
Snelgrove, A	Beaverton	Beaverton.
Sprost, Wm. M	R.R. No. 4, Seaforth	Seaforth.
Standard Brick Co., Ltd., The	363 Broadview Ave., Toronto	Toronto.
Steele, Edwin	Vankleek Hill	Vankleek Hill.
Stevens Bros. (Huntsville Brick Co.)	Box 308, Huntsville	Huntsville.
Stratford Brick, Tile and Lumber Co	Mansion House, Stratford	Stratford.
Streetsville Brick Co., Ltd., The	410 Crown Office Bldg., Toronto	Streetsville.
Stroh, M. C	Conestogo	Conestogo.
Sun Brick Co., Ltd	32 Toronto St., Toronto	Todmorden
Superior Brick and Tile Co., Ltd	426 Victoria Ave., Fort William	Slate River
Sutherland, W. A	Box 293, Parkhill	Parkhill.
Tope, Richard, Estate	171 Queen St., S., Hamilton	Hamilton.
Toronto Brick Co., Ltd	60 Victoria St., Toronto	Milton. Toronto.
Wagstaff, Charles	R.R. No. 4, Lindsay	Lindsay.
Wagstaff, A. H. & Co	348 Greenwood Ave., Toronto	Toronto.
Wallace R. & Son	Box 305, North Bay	North Bay.
Weiss, Aaron	Crediton	Crediton.
Wilson, S. & Sons	R.R. No. 2, Paisley	Lovet.
Winch Bros	Paisley	Paisley.
Windsor Brick & Tile Co	203 Exchange Bldg., Windsor	Near Kingsville.
Woodslee Brick & Tile Yards	South Woodslee	Woodslee.
Wright, Geo. & Sons	Comber	Comber.
MANITOBA—		
Alsip Brick, Tile & Lumber Co., Ltd	200 Tribune Bldg., Winnipeg	Winnipeg.
Marion, Joseph A	Box 30, St. Boniface	Plinguet St., St. Boniface.
Sidney Brick & Clay Works, Ltd	Sidney	Sidney.
Snyder, A. & Company, Ltd	Box 1401, Portage la Prairie	Portage la Prairie.
Wardrop & Sons	Whitemouth	Whitemouth.
SASKATCHEWAN—		
Bruno Clay Works, Ltd	Bruno	Near Bruno.
Dominion Fire Brick and Clay Products, Ltd., The	421 Hammond Bldg, Moosejaw	Claybank.
Elliott, W. H. & Son	1320-3rd Ave. N., Saskatoon	Saskatoon.
Estevan Brick Co., Ltd., The	Estevan	Estevan.
Excelsior Brick Co., Ltd., The	Prince Albert	Prince Albert.
Meota Brick Co	Meota	Meota.
Saskatchewan Penitentiary	Prince Albert	Prince Albert.
ALBERTA—		
Acme Brick Co., Ltd., The	425 Alberta Block, Edmonton	Cannell.
Canada Cement Co., Ltd	Canada Cement Co. Bldg., Phillips Sq., Montreal, Que	Sandstone.
Clark Brick Co	10936-123rd St., Edmonton	Edmonton.
Collins, P	307-15th Ave., W. Calgary	Cochrane.
Gas City Brick Co., Ltd	Box 656, Medicine Hat	Medicine Hat.
Little, J. B. & Sons	Water St., Riverdale, Edmonton	Water St., Riverdale.
Redcliff Brick and Coal Co., Ltd	Box B 5, Redcliff	Redcliff.
Redcliff Pressed Brick Co., Ltd	Box 87, Redcliff	Redcliff.
Redcliff Premier Brick Co., Ltd	Box C 2, Redcliff	Redcliff.
BRITISH COLUMBIA—		
Armstrong Brick Works (C. & A. Oakland)	Armstrong	Armstrong.
Christian Community of Universal Brotherhood, Ltd., The	Grand Forks	Grand Forks.
Clayburn Co., Ltd	850 Hastings St. W., Vancouver	Clayburn. Kilgard.
Furnell and Delong	Gabriola Is	Gabriola Is.
Gorse and Jameson	Enderby	Enderby.
Humber Brick Co	740 Topaz Ave., Victoria	Victoria.
Johnston & Co., Ltd	Box 250, Kamloops	Near Kamloops.
Port Haney Brick Co., Ltd., The	846 Howe St., Vancouver	Port Haney.
Victoria Brick Co., Ltd	3001 Douglas St., Victoria	Victoria.

The Clay Products Industry—Clay Sewer Pipe

NOVA SCOTIA—		
Standard Clay Products, Ltd	New Glasgow	New Glasgow.
QUEBEC—		
Standard Clay Products, Ltd	St. John's	St. John's.
ONTARIO—		
Dominion Sewer Pipe and Clay Industries, Ltd	Swansea	Swansea.
Hamilton and Toronto Sewer Pipe Co., Ltd., The	Wentworth St. N., Hamilton	Hamilton.
Ontario Sewer Pipe and Clay Products, Ltd	Mimico	Mimico.

The Clay Products Industry—Firebrick, Fireclay and Fireclay Products

Name	Address	Location
NOVA SCOTIA—		
Bras d'Or Coal Co., Ltd	Little Bras d'Or	North Sydney
Dominion Iron and Steel Co., Ltd	Sydney	Sydney
Intercolonial Coal Mining Co., Ltd	Westville	Westville.
QUEBEC—		
*Canada Firebrick Co., Ltd	371 Aqueduct St., Montreal	Montreal.
Montreal Terra Cotta Co., Ltd	511 St. Catharines St. West, Montreal	Lakeside.
*Standard Clay Products, Ltd	P.O. Box 819, St. John's	St. John's.
ONTARIO—		
Algoma Steel Corporation Ltd	Sault Ste. Marie	Sault Ste. Marie
*Bailey, Geo., & Co	321 Albany St., Toronto	Toronto.
National Fire Proofing Co. of Canada, Ltd	601 Dominion Bank Bldg., Toronto	Aldershot.
ALBERTA—		
Alberta Clay Products, Ltd	Box 672, Medicine Hat	Medicine Hat.
BRITISH COLUMBIA—		
Clayburn Co., Ltd	Credit Foncier Bldg., Vancouver	Clayburn.

The Clay Products Industry—Stoneware and Pottery

NEW BRUNSWICK—		
Foley Pottery, Ltd	St. John	St. John.
Mowat, G. Helen	St. Andrews	St. Andrews.
QUEBEC—		
*Canadian Potteries, Ltd	2 Longueuil St., St. John's	St. John's.
*Canada Stoneware Works	Iberville	Iberville.
*Dominion Sanitary Pottery Co., Ltd	189 St. James St., St. John's	St. John's.
ONTARIO—		
*Campbells Sons, R.	100 Locke St., S., Hamilton	Hamilton.
*Canadian General Electric Co	212 King St. West, Toronto	Peterborough.
*Canadian Porcelain Co., Ltd	Paradise Rd., Hamilton	Hamilton.
Davis, John and Sons	60 Heath St. W., Toronto	Toronto.
*Dominion Insulator and Manufacturing Co., Ltd	Niagara Falls	Niagara Falls.
Foster Pottery Co	Main St. W., Hamilton	Hamilton.
*Frontenac Floor and Wall Tile Co., Ltd	Box 178 Kingston	Kingston.
ALBERTA—		
Canada Pottery, Ltd	Medicine Hat	Medicine Hat.
Medalta Stoneware, Ltd	Medicine Hat	Medicine Hat.

The Lime Industry

NOVA SCOTIA—		
Eastern Lime Co. (H. C. Burchell)	Windsor	Windsor.
NEW BRUNSWICK—		
Peters, C. H. & Sons, Ltd	Ward St., St. John	Torryburn.
Provincial Lime Co., Ltd	89 Water St., St. John	Brookville.
Purdy and Green	323 Main St., St. John	St. John.
Randolph and Baker, Ltd	Randolph	Randolph.
Stetson, Cutler & Co., Ltd	Campbellton	Indiantown, St. John.
QUEBEC—		
Armand and Beaudry	Joliette	Joliette.
Boivin, Arthur	Pont Rouge	Pont Rouge.
Dominion Lime Co., The	Box 149, Sherbrooke	Lime Ridge.
Heon, Octave	St. Louis de Champlain	St. Louis de Champlain.
Laurentian Stone Co., Ltd	250 Catherine St., Ottawa, Ont	Hull.
Limoges and Co	40 rue Pouport, Montreal	Montreal.
Montreal Lime Co	31 Prenouveau St., Montreal	Montreal.
St. Maurice Lime Co., Ltd	Three Rivers	St. Louis de France.
Standard Lime Co., Ltd	Joliette	St. Marc des Carrieres. St. Paul de Joliette.
Stinson-Reeb Builders Supply Co., Ltd	240 Dorchester St. W., Montreal	Montreal.
ONTARIO—		
Alabastine Co., Ltd., The	Paris	Elora. Teeswater.
American Cyanamid Co	511-5th Ave., New York City	Niagara Falls.
Beachville White Lime Co., Ltd	Beachville	Beachville.
Brunner-Mond (Canada), Ltd	Canadian Bank of Commerce Bldg., Toronto	Anderdon Township.
Cameron, W. M	Carleton Place	Carleton Place.
Canada Lime Co., Ltd	26 Queen St. E., Toronto	Coboconk
Chalmers Lime Works	689 Seventh St. West, Owen Sound	Owen Sound.
Christie Henderson & Co., Ltd	201 Crown Office Bldg., Toronto	Hespler. Kelso. Puslinch.

*Imported clays only.

The Lime Industry—Concluded

Name	Address	Location
ONTARIO—*Concluded*		
Dominion Sugar Co., Ltd.	Chatham	Chatham. Wallaceburg.
Gallagher Lime and Stone Co., Ltd.	James Street, Hamilton	Hamilton.
Harvey, E., Ltd.	12 Douglas St., Guelph	Rockwood.
Jamieson Lime Co.	Hall St., Renfrew	Renfrew.
Marshall, James	Hamilton	Hamilton
Robertson Co., Ltd., D.	26 Queen St. East, Toronto	Milton.
Standard White Lime Co., Ltd.	15 Douglas St., Guelph	Beachville. Guelph.
Standard Chemical Co., Ltd.	524 St. Ambroise St., Montreal, Que	Eganville.
Toronto Brick Co., Ltd.	60 Victoria St., Toronto	Coboconk
Toronto Lime Co., Ltd.	26 Queen St. E., Toronto	Limehouse.
Vogan, Samuel	Gould St., Wiarton	Wiarton.
Weppler, Henry	R.R. No 2, Prieeville	Glenelg Tp.
MANITOBA—		
Moosehorn Lime Co., Ltd., The	214 Avenue Bldg., Winnipeg	Moosehorn.
Winnipeg Supply and Fuel Co., Ltd.	214 Avenue Bldg., Winnipeg	Stonewall.
ALBERTA—		
Loder Lime Co., Ltd.	Kananaskis	Kananaskis.
Summit Lime Works	803-6th Avenue S., Lethbridge	14 miles east of Crow's Nest.
BRITISH COLUMBIA—		
Hedley Gold Mining Co., Ltd.	Hedley	Hedley.
Pacific Lime Co., Ltd.	602 Pacific Bldg., Vancouver	Blubber Bay, Texada Island.
Rosebank Lime Co.	602 Pacific Bldg., Vancouver	Esquimalt Harbour.

The Stone Quarrying Industry—Granite

NOVA SCOTIA—		
Fairview Crushed Stone Co., Ltd.	371 Roy Bldg., Halifax	Fairview.
Hoyt, C. M.	Middleton	Nictaux W.
Queensport Granite Co., Ltd.	Queensport	Queensport.
Rice, Elmer	Lawrencetown	Nictaux W.
Rice, W. D.	Nictaux W.	"
NEW BRUNSWICK—		
Granite Street Pavement and Construction Co., Ltd.	Evandale	Hampstead.
McGrattan, and Sons Ltd.	St. George	St. George.
Meating, Epps. Company, Ltd.	St. George	"
Milne, Coutts & Co., Ltd.	St. George	"
Mooney, B. and Sons, Ltd.	112 Queens St., St. John	Queens County.
O'Brien and Baldwin	St. George	St. George.
Public Works, Department of	City Hall, St. John	St. John.
QUEBEC—		
B. and R. Granite Quarry	Beebe	Stanstead Tp.
Bernier, Aug.	Roberval	Roberval.
Brodie's Limited	1070 Bleury St., Montreal	Guenette. Mt. Johnson. Graniteville.
Brunet, Joseph	663 Cote des Neiges Rd., Montreal	Chatham Tp.
Cloutier, Jos.	Beebe	Beebe.
Dumas, Art. & Cie Enr.	Riviere à Pierre	Riviere à Pierre.
Duncan, Wm.	R.R.I, Beebe	Beebe.
La Carriere Buissière, Limitée	St. Sebastien	St. Sebastien.
Lacasse, J. C.	Beebe	Beebe.
McIntosh, Robert	R. R. 1, Beebe	Beebe.
Mountain Granite Co.	Beebe	Beebe.
Norton, S. B.	Beebe	Beebe.
Paquet, Adolphe	St. David de Lévis	St. David de Lévis.
Stanstead Granite Quarries Co., Ltd.	Beebe	Graniteville.
Vachon, Rodrigue and Frère	St. Samuel Station	St. Samuel de Gayhurst.
Voyer, F., and Frère	Riviere à Pierre	Riviere à Pierre.
Westmount Construction Co. Ltd.	28 Royal Ave., N.D.G., Montreal	Chatham, Tp.
ONTARIO—		
Abrams, J. M.	Gananoque	Gananoque.
Bruce Mines Trap Rock Co., Ltd.	Sault Ste. Marie, Mich.	Bruce Mines.
Brown, A. C., Granite Co. Ltd.	Lyndhurst	Leeds Tp.
Campbell and Lattimore	146 King St. West., Toronto	Findley.
Corporation of City of Fort William	City Hall, Fort William	Fort William.
Gordon, D. J., Granite Co.	18 Toronto St., Toronto	Gananoque.
Horne, Wm.	377 Balmoral St., Winnipeg, Man.	Butler.
Mond Nickel Co., Ltd.	Coniston	Drury and Lavack Tps.
Ontario Rock Co., Ltd.	410 Crown Office Bldg., Toronto	Belmont Tp.
Reece-Hall, R.	Parry Sound	McDougall Tp.
Streets and O'Brien	47 Yonge St., Toronto	Gananoque.
BRITISH COLUMBIA—		
B.C. Monumental Works, Ltd.	2250 Main St., Vancouver	Granite Island.
Campbell & Ritchie Mon. Co.	507 Front St., Nelson	Nelson.
Canadian Pacific Railway Company	Montreal, Que.	Mountain Sub-division.
Coast Quarries, Limited	837 Hasting St., Vancouver	Granite Falls.
Gilley Brothers, Ltd.	902 Columbia St. W., New Westminster	Coquitlam Municipality.
Nelson, City of	Box 1028, Nelson	Nelson.
Vancouver Granite Co., Ltd.	815 Bower Bldg., Vancouver	Nelson Island
Vernon Granite and Marble Company	Box 285, Vernon	Yale Dist.

The Stone Quarrying Industry—Limestone

Name	Address	Location
NOVA SCOTIA—		
Dominion Iron and Steel Co., Ltd	Sydney	Pt. Edward, C. B.
Eastern Lime Co. (H. C. Burchell)	Windsor	Windsor.
Nairn, John S	24 Whitney Ave., Sydney	Scotch Lake.
Porter, James R	Stellarton	Stellarton.
NEW BRUNSWICK—		
Peters, C. H., Sons, Ltd	Ward St., St. John	Torryburn.
Provincial Lime Co., Ltd	89 Water St., St. John	Brookville.
Stetson, Cutler and Co., Ltd	Campbellton	St. John.
QUEBEC—		
Baillargeon, P	St. Jean	St. Jean.
Bathurst Co. Ltd	Bathurst, N.B	Port Daniel.
Beaudry, Joseph P	Tache St., Joliette	Joliette
Bousquet, Moise	Terre Haute	Terre Haute.
Canada Carbide Co., Ltd	Power Bldg., Craig St.W., Montreal	Bedford.
Canada Cement Company	Phillips Square, Montreal	Hull.
Cité de Salaberry de Valleyfield	Valleyfield	Cité de Salaberry de Valleyfield.
Cousineau, Alderic	2455 St. Urbain St., Montreal	Montreal.
Deguire Quarry Company	Suite 2, 207 St. James St., Montreal	St. Laurent.
DeLorimier Quarry Company	1952 Iberville St., Montreal	Montreal.
Deschambault Quarry Corporation	52 rue St. Paul, Quebec	St. Marc (Portneuf).
Dussault, Art	St. Marc des Carrieres	St. Marc des Carrieres.
Filion, Adélard	Lachute	Lachute.
Gagnon, Martin	3462 St. Andre St., Montréal	Montreal.
Gaspesian Fertilizer Co. Reg	Port Daniel East	Port Daniel East.
Gauthier, Olivier	St. Marc des Carrières	St. Marc des Carrières.
Gingras Frères Ltd	St. Marc des Carrières	St. Marc des Carrières.
Gravel, Ed. L	Chateau Richer	Chateau Richer.
Institution des Sourds-Muets	3800 rue St. Laurent, Montreal	St. Laurent.
Kennedy Const. Co., Ltd	137 McGill St., Montreal	Terrebonne.
Lapointe, Jos	74 Monté St. Laurent, Cartierville	Cartierville.
Lapointe, Hector	St. Dominique	St. Dominique.
Laurentian Stone Co., Ltd	250 Catherine S., Ottawa, Ont	Hull.
Laval Quarry Co., Ltd	Cap St. Martin	Cap St. Martin.
Lecrenier, Victor	3295 de Gaspé St., Montreal	Cap St. Martin
Mahoney and Rich	88 Bank St., Ottawa, Ont	Merivale Rd.
Maissoneuve Quarry Co., Ltd	4415 Rosemont Blvd., Montreal	Montreal.
Martineau, O., & Son, Ltd	371 Marie Anne Est., Montreal	St. Marc (Portneuf).
Montreal Crushed Stone Co., Ltd	590 Union Ave., Montreal	St. Vincent de Paul.
O'Connor Bros	Huntingdon	Huntingdon.
Paquette, Damien	Village Bélanger	Cap St. Martin.
Quebec Quarry, Ltd	319 St. Paul St., Quebec	Beauport.
Quinlan Cut Stone, Ltd	4414 St. Catherine St., Westmount	Montreal.
Roberge Quarry, Ltd	Beauport	Chateau Richer.
Rogers Quarry Co	1701 Iberville St., Montreal	Montreal.
St. Laurent Quarry, Limited	Cap St. Martin	Cap St. Martin.
St. Vincent de Paul Penitentiary	St. Vincent de Paul	St. Vincent de Paul.
Simard, Alfred	Chambly Basin	St. Joseph Chambly.
Stone and Quarry Ltd	800 Bellechasse St., Montreal	Montreal. St. François de Sales.
Tremblay, Nap	Joffre Ave., Hull	Hull.
Verreault, Elzear	191 rue du Pont, Quebec	Giffard.
Vezina, Joseph	Bergerville	Ste. Foye.
Villeray, Quarry Co., Ltd., The	848 du Rosaire St., Montreal	Montreal.
Wallace Sandstone Quarries, Ltd	120 St. James St., Montreal	Philipsburg.
White Grit Co	171 Waller St., Ottawa, Ont	Portage du Fort
ONTARIO—		
Barton Tp. Quarry	Courthouse, Hamilton	Barton Tp.
Beachville White Lime Co. Ltd	Beachville	North Oxford.
Belton, Peter	43 Glen Ridge Ave., St. Catharines	Grantham.
Beverley Tp. Quarry	Rockton	Beverley Tp.
Bourgie, J. B	Embrun	Embrun.
Brulé, A. A	Billings Bridge	Billings Bridge.
Brunner Mond Canada Ltd	Canadian Bank of Commerce Bldg., Toronto	Anderdon Tp.
Canada Crushed Stone Corporation, Ltd	Dundas	West Flamboro Tp.
Carleton, County of	71½ Sparks St., Ottawa	Osgoode-Gloucester-Nepean.
Cloutier & Grenon	Casselman	St. Isidore de Prescott.
Cook & Son, J. S	Wiarton	Amabel Tp.
Crushed Stone, Ltd	Kirkfield	Kirkfield.
Farmer, Geo. & Sons	45 Bertrand Ave., Ottawa	Osgoode Tp.
Farr, L. G. Mrs	Haileybury	Haileybury.
Foster, R. R	278 Echo Drive, Ottawa	City View.
Galt, Corporation of	Galt	Galt.
Gow, James	Fergus	Fergus.
Grenville Crushed Rock Co., Ltd	Merrickville	Oxford Tp.
Hagersville Contracting Co., Ltd	Hagersville	Walpole Tp.
Hagersville Crushed Stone Co	Hagersville	Oneida Tp.
Hagersville Quarries, Ltd	4 Flora St., St. Thomas	Walpole Tp.
Halliday, Fred	Quarries P.O., Ottawa	Gloucester Tp.
Humberstone Tp. Quarry	Humberstone	Humberstone Tp.
Hydro Electric Power Commission of Ontario	190 University Ave., Toronto	Niagara and Stamford Tps.
Innerkip Stone Quarry	Innerkip	Innerkip.
Keeling, James	1179-16th St. E., Owen Sound	Owen Sound.

The Stone Quarrying Industry—Limestone—Continued

Name	Address	Location
ONTARIO—*Concluded*		
Kingston Penitentiary	Portsmouth	Portsmouth.
Kirby, T. Sidney Co., Ltd	213 Sussex St., Ottawa	Gloucester Tp.
Lally, M., Estate of	Smithville	Smithville.
Law Construction Co., Ltd., The	50 Yonge St., Arcade, Toronto	Windmill Point.
Longford Quarry Co., Ltd	6 Peter St., Orillia	Rama Tp.
Markus, Wm., Ltd	Pembroke	Pembroke Tp.
McDonnell and Dibblee	416 St. James St., Montreal, Que.	Bell's Corners.
McKay, Alex., Company, Ltd	2 Brown's Ave., Toronto	Owen Sound.
Oliver Rogers Stone Co., Ltd	841 Fourth Ave. E., Owen Sound	Owen Sound.
Ontario Reformatory Industries	Parliament Bldgs., Toronto	Guelph Tp.
Ontario Stone Corporation, Ltd	611 Excelsior Life Bldg., Toronto	North Orillia.
Pt. Anne Quarries, Ltd	Ft. of Jarvis St., Toronto	Point Anne.
Public Highways, Dept. of	Toronto	
Queenston Quarries Ltd	St. Davids	St. Davids.
Redden, Henry	Box 328, Campbellford	Campbellford.
Robillard, H. & Son	195 Nicholas St., Ottawa	Gloucester Tp.
Roddy & Monk	293 Division St., Kingston	Kingston.
Standard White Lime Co., Ltd	15 Douglas St., Guelph	Beachville.
Stormont, Dundas and Glengarry, Counties of	Court House, Cornwall	Finch Tp.
Thames Quarry Co., Ltd., The	St. Mary's	St. Mary's.
Walker Bros	Thorold	Stamford Tp.
Wattam, Geo. H	Shelburne	Amaranth Tp.
Wehman, John	251 Divison St., Kingston	Kingston.
Welland County Quarry	Court House, Welland	Humberstone Tp.
Wentworth, County of	Court House, Hamilton	Waterdown.
Woodhouse Crushed Stone Co., Ltd	Port Dover	Woodhouse Tp.
Wentworth Quarries, Ltd	Vinemount	Saltfleet Tp.
MANITOBA—		
Gillis Quarries, Ltd	Spruce and Richard Sts., Winnipeg	Garson.
Tyndall Quarry Co., Ltd	1591 Erin St., Winnipeg	Winnipeg.
Winnipeg, City of	Winnipeg	Stony Mountain.
ALBERTA—		
Smaniotto, L	Seebe	Seebe.
Summit Lime Works	Lethbridge	Lethbridge.
BRITISH COLUMBIA—		
Cons. Mining and Smelting Co. of Canada, Ltd	Trail	Fife.
Powell River Co., Ltd	Powell River	Texada Island.

The Stone Quarrying Industry—Marble

QUEBEC—		
Marbre National Ltée	L'Annonciation	L'Annonciation
Wallace Sandstone Quarry, Ltd	120 St. James St., Montreal	Philipsburg, Missisquoi County.

The Stone Quarrying Industry—Sandstone

NOVA SCOTIA—		
Wallace Sandstone Quarries, Ltd	120 St. James St., Montreal	Wallace.
QUEBEC—		
Blais, Jos., Engr	8 Mont Marie Ave., Levis	Levis Co.
Gagnon, L. Philippe	St. David	Levis Co.
Kennedy Construction Co. Ltd	137 McGill St., Montreal	Melocheville.
Kirby, T. Sydney, Co. Ltd	213 Sussex St., Ottawa	St. Simon, Two Mountain. Co.
Paquet, Adolphe	St. David	Levis Co.
Quebec Harbour Commission	Pointe-à-Carcy, Quebec	Victoria Cove, Quebec.
Rousseau, T. E., and Co. Ltd	48 Second Ave., Quebec	St. Antoine of Tilly.
Sherbrooke, The City of	Sherbrooke	Sherbrooke Co.
Silico Ltd	102 St. Francois-Xavier St., Montreal	St. Canut.
Vezina, Jos. Engr	St. Louis Road, St. Foye	Quebec Co.
ONTARIO—		
Robertson, D. and Co. Ltd	26 Queen St. E., Toronto	Milton.
Rogers, F. & Co	1193 Queen St. W., Toronto	{Glen Williams. {Terra Cotta.
ALBERTA—		
Oliver, Wm	1823-16th St. W., Calgary	Calgary.
BRITISH COLUMBIA—		
McDonald, J. A. & C. H	1571 Main St., Vancouver	{Haddington Island. {Newcastle Island.