

**CANADA**  
**DEPARTMENT OF MINES**  
HON. P. E. BLONDIN, MINISTER; R. G. MCCONNELL, DEPUTY MINISTER.

**MINES BRANCH**  
EUGENE HAANEL, PH.D., DIRECTOR.

---

**THE**  
**PRODUCTION OF CEMENT, LIME, CLAY PRODUCTS,**  
**STONE, AND OTHER STRUCTURAL MATERIALS**

IN

**CANADA**

During the Calendar Year

**1915**

---

**MINES BRANCH LIBRARY**  
John McLeish, B.A.  
*Chief of the Division of Mineral Resources and Statistics.*



---

OTTAWA  
GOVERNMENT PRINTING BUREAU  
1916

No. 423

## CONTENTS.

	Page
Introductory.....	1
Cement.....	4
Clay products.....	14
Clay building brick.....	25
Paving brick.....	31
Fireclay and fireclay products.....	33
Sewerpipe.....	34
Pottery and earthenware.....	36
Kaolin.....	37
Lime.....	39
Sand-lime brick.....	44
Sand and gravel.....	45
Slate.....	48
Stone.....	50
Granite.....	56
Limestone.....	58
Marble.....	59
Sandstone.....	59

**ADVANCE CHAPTER OF THE ANNUAL REPORT ON THE  
MINERAL PRODUCTION OF CANADA DURING THE  
CALENDAR YEAR 1915.**

## STRUCTURAL MATERIALS AND CLAY PRODUCTS.

### INTRODUCTORY.

The subjects included under this heading comprise, in the order treated: cement, clay products of various kinds, such as brick, sewerpipe and tile, pottery, etc., lime, sand-lime brick, sand and gravel, slate, and stone for building and other purposes, including granite, marble, limestone, sandstone, etc. Previous to 1912 no attempt had been made to collect a record of the production of sands and gravels in Canada, and the only statistics available were those of exports and imports. In 1912, however, a beginning was made in the collection of these statistics; but owing to the incompleteness of the available lists of producers and the failure of many to answer correspondence, only a very partial record was obtained. In 1913 the scope of the collection was extended to cover sands and gravels used by railways for ballasting, etc. The statistics of stone production do not include the stone used in making cement or lime, but are as complete as possible for all other established stone quarries; nevertheless there is undoubtedly a large production of stone for foundation work, road-making, and railway construction, of which no record is available.

The total value of the production of these structural products in 1915 was \$17,920,759, as compared with \$26,009,227 in 1914, and \$30,809,752 in 1913, the decrease in 1915 being \$8,088,468 or 31.1 per cent, as compared with the previous year, and \$12,888,993 or 41 per cent as compared with 1913.

The total value of the imports of the same class of products in 1915 was \$3,912,946, as against \$6,528,838 in 1914 and \$9,724,992 in 1913.

The total exports were valued at \$519,676 in 1915, as against \$941,661 in 1914, and \$618,102 in 1913.

The apparent total consumption of these structural products based upon the record of production, imports and exports, was in 1915 valued at \$21,314,029, as compared with \$31,596,404 in 1914; \$39,916,642 in 1913, and \$39,128,509 in 1912.

The approximate consumption in 1911 was slightly less than \$30,000,000 and about \$25,250,000 in 1910, and \$20,350,000 in 1909. The decrease in consumption in 1915 was \$10,282,375, or 32.2 per cent, while compared with 1913—the year of maximum consumption—the falling off was \$18,602,613, or 46.6 per cent.

A summary of the production, imports and exports, and consumption of structural materials and clay products in 1915, and in 1914 and the annual production from 1909 to 1913, are shown in tables herewith:—

### Structural Materials, Calendar Year 1915.

	Production.	Imports.	Exports.	Consumption.
Cement, Portland.....	\$ 6,977,024	\$ 47,836	\$ 5,161	\$ 7,019,699
Clay products.....	3,914,488	2,998,465	45,572	6,867,381
Lime.....	1,015,702	98,040	15,617	1,098,125
Sand-lime brick.....	141,742			141,742
Sand and gravel.....	1,624,767	120,756	380,549	1,364,974
Slate.....	2,039	108,676		110,715
Stone.....	4,244,997	539,173	72,777	4,711,393
	17,920,759	3,912,946	519,676	21,314,029

### Structural Materials, Calendar Year, 1914.

	Production.	Imports.	Exports.	Consumption.
Cement, Portland.....	\$ 9,187,924	\$ 159,691	\$ 2,223	\$ 9,345,392
Clay products.....	6,871,957	4,467,140	48,073	11,291,024
Lime.....	1,360,628	211,123	16,927	1,554,824
Sand-lime brick.....	609,515			609,515
Sand and gravel.....	2,505,310	224,759	802,358	1,927,711
Slate.....	4,837	213,256		218,093
Stone.....	5,469,056	1,252,869	72,080	6,649,845
	26,009,227	6,528,838	941,661	31,596,404

### Production of Structural Materials, 1909-1913.

	1909.	1910.	1911.	1912.	1913.
Cement.....	\$ 5,345,802	\$ 6,412,215	\$ 7,644,537	\$ 9,106,556	\$11,019,418
Clay products.....	6,450,840	7,629,956	8,359,933	10,575,869	9,504,314
Lime.....	1,132,756	1,137,079	1,517,599	1,844,849	1,609,398
Sand-lime brick.....	201,650	371,857	442,427	1,020,386	906,665
Sand and gravel.....	(a) 256,166	(a) 407,974	(a) 408,110	1,512,099	2,258,874
Slate.....	19,000	18,492	8,248	8,939	6,444
Stone.....	3,127,135	3,650,019	4,328,757	4,726,171	5,504,639
Total.....	16,533,349	19,627,592	22,709,611	28,794,869	30,809,752

(a) Exports only.

The statistical situation in respect to the production of cement, clay and stone quarry products is very closely reflected in the annual records of values of building operations.

According to apparently reliable records, the total value of the building permits in twenty-five eastern cities in Canada increased from a little over \$26,000,000 in 1908 to over \$78,000,000 in 1912, and to nearly \$90,000,000 in 1913. The aggregate value of building permits in 15 western cities increased from about \$18,000,000 in 1908 to nearly \$117,000,000 in 1912, but fell off in 1913 to \$72,000,000. The total value of building permits in 40 cities in Canada during 1913, according to the above record, was thus about \$160,000,000. The large and rapidly increasing demand for building materials during the five years immediately preceding 1913 is thus clearly indicated.

However, while structural activity increased more rapidly in western Canada, this section was the first to feel the effects of the set back in 1913. Thus we find that the statistics of production of clay products in 1913 showed an increase in eastern provinces but a very great decrease in all provinces west of the Great Lakes.

Statistics of the value of building permits issued in 1913 and 1914, as published in the Labour Gazette of April 1915, show the total value of permits in 86 localities in 1913 as about \$171,000,000, and as about \$107,000,000 in 1914, or a falling off of over 37 per cent during the latter year. The same record shows building permits in 50 eastern cities in 1914, valued at \$70,000,000, as against \$97,000,000 in 1913, and permits in 36 western localities in 1914, valued at \$36,000,000, as against \$74,000,000 in 1913, a falling off of nearly 30 per cent in eastern Canada, as against over 50 per cent in western Canada.

For the year 1915, according to the Labour Gazette of March 1916, "Information was obtained from 82 localities, for which the total value of building permits issued during 1915 was \$37,064,100. For 80 of these 82 localities the Department had comparative figures for the year 1914, and the comparative totals for these localities were: 1915, \$36,939,734; 1914, \$103,331,972, a decline of \$66,392,238, or 64.2 per cent." The same record (see accompanying table) shows building permits in 52 eastern cities in 1915, valued at \$31,284,295, as against \$69,726,541 in 1914, and permits in 28 western localities in 1915, valued at \$5,655,439, as against \$33,605,431 in 1914, a falling off of 55.1 per cent in eastern Canada, as against over 83 per cent in western Canada.

It will be noted that building permits in eastern Canada have fallen from \$97,000,000 in 1913 to less than \$32,000,000 in 1915, a decrease of about 68 per cent, while in western Canada permits fell from \$117,000,000 in 1912 to less than \$6,000,000 in 1915, a decrease of over 95 per cent.

### Building Permits Issued in Canada, 1915 and 1914.\*

	1915.	1914.	Increase (+) Decrease (-)
Nova Scotia (6).....	\$ 1,593,087	\$ 1,407,693	+\$ 185,394
P. E. Island (1).....	62,000	39,000	+ 23,000
New Brunswick (4).....	986,389	951,105	+ 35,284
Quebec (9).....	12,688,414	25,681,485	- 12,993,071
Ontario (32).....	15,954,405	41,647,258	- 25,692,853
Manitoba (2).....	2,039,560	12,965,602	- 10,926,042
Saskatchewan (8).....	784,387	4,244,853	- 3,460,466
Alberta (8).....	541,383	7,207,323	- 6,665,940
British Columbia (10).....	2,290,109	9,187,653	- 6,897,544
Totals for 80 localities for which comparative returns were received.....	36,939,734	103,331,972	-66,392,238
Grand total, 82 localities, 1915.....	37,064,100		

\* As published in the "Labour Gazette," March, 1916.

## CEMENT.

The total quantity of cement made in 1915, according to returns received from the manufacturers, was 5,153,763 barrels of 350 pounds net each (901,909 tons), as compared with 8,727,269 barrels (1,527,272 tons), made in 1914, a decrease of 3,573,506 barrels (625,364 tons), or nearly 41 per cent.

The total quantity of Canadian Portland cement sold in 1915 was 5,681,032 barrels (994,181 tons) as compared with 7,172,480 barrels (1,255,184 tons) in 1914, a decrease of 1,491,448 barrels (261,003 tons) or 20·8 per cent.

The total consumption of cement in 1915 including Canadian and imported cement was 5,709,222 barrels of 350 pounds each (999,114 tons), as compared with 7,270,502 barrels (1,272,338 tons) in 1914, a decrease of 1,561,280 barrels (273,224 tons) or 21·5 per cent.

The production of cement in Canada during the past few years, though all classed as Portland, has included an output of Puzzolan cement, made from blast furnace slag at Sydney, N.S., and a small production of "natural Portland," made at Babcock, Manitoba, 75 miles southwest of Winnipeg, on the Canadian Northern railway. The slag cement plant at Sydney has, however, been idle during the past two years.

The production of cement in 1915 was derived from 20 plants, three of which though idle, made shipments from stock. Nine other plants were idle throughout the year and made no shipments. The total daily capacity of the 29 completed plants was 51,415 barrels. The year's production was less than one-third the capacity of available plants.

The completed plants were distributed as follows: one in Nova Scotia, using blast furnace slag; three in Quebec, using limestone and clay; sixteen in Ontario, of which ten used marl, and six limestone; two rock plants in Manitoba, one of which makes a "natural Portland"; four in Alberta, including one marl plant and three limestone plants; and three rock plants in British Columbia.

The average number of men employed in Canadian cement plants during 1915 was 1,686, and the total wages paid \$1,184,459. In 1914 the average number of men employed was 2,977 and wages paid \$2,271,006.

Statistics of the total annual sales of natural rock and Portland cement since 1887 are shown in the following table:—

### Annual Production\* of Cement.

Calendar Year	Natural rock cement.			Portland cement.			Total.	
	Barrels.	Value.	Average value.	Barrels.	Value.	Average value.	Barrels.	Value.
1887							69,843	\$ 81,909
1888							50,668	35,593
1889	90,474	\$ 69,790	\$0.77	Nil.	Nil.		90,474	69,790
1890	87,521	74,822	0.85	14,695	\$ 17,583	\$1.20	102,216	92,405
1891	90,846	103,479	1.14	2,633	5,082	1.93	93,479	108,561
1892	88,187	94,912	1.08	29,221	52,751	1.81	117,408	147,663
1893	126,673	130,167	1.03	31,924	63,848	2.00	158,597	194,015
1894	72,965	74,842	1.03	35,177	69,795	1.98	108,142	144,637
1895	66,219	60,795	0.92	62,075	112,880	1.82	128,294	173,675
1896	70,705	60,500	0.86	78,385	141,151	1.80	149,090	201,651
1897	85,450	65,893	0.77	119,763	209,380	1.75	205,213	275,273
1898	87,125	73,412	0.84	163,084	324,168	1.99	250,209	397,580
1899	147,387	119,308	0.81	255,366	513,983	2.01	396,753	633,291
1900	125,428	99,994	0.80	292,124	562,916	1.93	417,552	662,910
1901	133,328	94,415	0.71	317,066	565,615	1.78	450,394	660,030
1902	127,931	98,932	0.77	594,594	1,028,618	1.73	722,525	1,127,550
1903	92,252	74,655	0.81	627,741	1,150,592	1.83	719,993	1,225,247
1904	56,814	50,247	0.88	910,358	1,287,992	1.41	967,172	1,338,239
1905	14,184	10,274	0.72	1,346,548	1,913,740	1.42	1,360,732	1,924,014
1906	8,610	6,052	0.70	2,119,764	3,164,807	1.49	2,128,374	3,170,859
1907	5,775	4,043	0.70	2,436,903	3,777,328	1.55	2,441,868	3,781,371
1908	1,044	815	0.78	2,665,289	3,709,139	1.39	2,666,333	3,709,954
1909	0	0		4,067,709	5,345,802	1.31	4,067,709	5,345,802
1910	0	0		4,753,975	6,412,215	1.35	4,753,975	6,412,215
1911	0	0		5,692,915	7,644,537	1.34	5,692,915	7,644,537
1912	0	0		7,132,732	9,106,556	1.28	7,132,732	9,106,556
1913	0	0		8,658,805	11,019,418	1.27	8,658,805	11,019,418
1914	0	0		7,172,480	9,187,924	1.28	7,172,480	9,187,924
1915	0	0		5,681,032	6,977,024	1.23	5,681,032	6,977,024

\* Quantities sold or used.

A comparison of the principal statistics of 1914 and 1915 showing the increase or decrease, as the case may be, is given in the next table.

In 1914 the output exceeded the sales, but this position was reversed during 1915, and a reduction in stocks at the end of the year amounting to 565,156 barrels is noted. The average price per barrel at the mill for all plants has been steadily falling, being \$1.23 in 1915, as against \$1.28 in 1914; \$1.27 in 1913; \$1.27 $\frac{3}{4}$  in 1912, and \$1.34 in 1911. The average price at the mill in the several provinces was: Quebec \$1.18 in 1915 and \$1.17 in 1914; Ontario \$1.08 in 1915 and \$1.10 in 1914; Manitoba \$1.84 in 1915 and \$1.83 in 1914; Alberta \$1.78 in 1915 and \$1.89 in 1914; British Columbia \$1.70 in 1915 and \$1.67 in 1914.

The imports of cement in 1915 again show a large falling off, over 71 per cent, from the imports in 1914, while the average price of imported cement has fallen from \$1.61 in 1913 to \$1.50 in 1914, and \$1.43 in 1915.



## Comparison of Production, Sales, and Imports of Portland Cement in 1914 and 1915.

	1914.	1915.	Increase.	Per cent.	Decrease.	Per cent.
Cement sold or used.....Bis.	7,172,480	5,681,032	.....	.....	1,491,448	20.8
Cement manufactured....."	8,727,269	5,153,763	.....	.....	3,573,506	40.9
Stock on hand Jan. 1....."	1,073,328	2,620,022	1,546,694	144.1	.....	.....
Stock on hand Dec. 31....."	2,628,117	2,062,961	.....	.....	565,156	21.5
Value of cement sold or used.... \$	9,187,924	6,977,024	.....	.....	2,210,900	24.1
Average price per barrel..... "	1.28	1.23	.....	.....	0.05	3.9
Wages paid....."	2,271,006	1,184,459	.....	.....	1,086,547	47.8
Men employed.....No.	2,977	1,686	.....	.....	1,291	44.4
Imports of Portland cement.... Bis.	98,022	28,190	.....	.....	69,832	71.2
Value of cement..... \$	147,158	40,426	.....	.....	106,732	72.5
Average price per barrel..... "	1.50	1.43	.....	.....	0.07	4.7
Total consumption of cement in Canada.....Bis.	7,270,502	5,709,222	.....	.....	1,561,280	21.5

Of the total cement made in 1915, 429,268 barrels were made from marl and 4,724,495 barrels from limestone, whereas in 1914 the quantity made from marl was 641,869 barrels and 8,085,400 barrels from limestone and slag. In 1913, 1,491,131 barrels were made from marl and 7,395,202 barrels from limestone and slag. In 1912, 1,420,155 barrels were made from marl, and 5,720,849 barrels from limestone and slag; while in 1911, 1,626,857 barrels were made from marl and 4,050,682 barrels were made from limestone and slag. With the exception of the new plant at Marlboro, Alberta, practically all of the newer plants erected during the past few years have been limestone plants. The proportion of cement made from marl in 1908 was about 45 per cent of the total output as compared with 28 per cent in 1911, 20 per cent in 1912, 16.8 per cent in 1913, 7.3 per cent in 1914, and 8.3 per cent in 1915.

Statistics of the annual production of Portland cement since 1897, showing the quantity made, quantity sold, stocks on hand at the end of the year, value of sales, etc., are shown in the next table.

### Annual Production of Portland Cement.

Year.	Number of operating plants.	Quantity made. Barrels.	Quantity sold. Barrels.	On hand Dec. 31. Barrels.	Value of sales.	Average per barrel.	Daily capacity of operating plants. Barrels.
1897.....	.....	.....	119,763	.....	\$ 209,380	\$1.75	.....
1898.....	.....	.....	163,084	.....	324,168	1.99	.....
1899.....	.....	.....	225,366	.....	513,983	2.01	.....
1900.....	.....	.....	292,124	.....	562,916	1.91	.....
1901.....	4	360,160	317,066	58,094	565,615	1.78	.....
1902.....	8	562,335	594,594	33,446	1,028,618	1.73	3,900
1903.....	9	714,136	627,741	128,386	1,150,592	1.83	4,850
1904.....	10	908,990	910,358	112,051	1,287,992	1.41	.....
1905.....	13	1,541,568	1,346,548	306,466	1,913,740	1.42	8,000
1906.....	15	2,152,562	2,119,764	302,356	3,164,807	1.49	10,500
1907.....	17	2,491,513	2,436,093	354,435	3,777,328	1.55	14,400
1908.....	23	3,495,961	2,665,289	1,214,021	3,709,139	1.39	27,500
1909.....	22	4,146,708	4,067,709	1,777,238	5,345,802	1.31	23,050
1910.....	22	4,396,282	4,753,975	832,038	6,412,215	1.35	25,835
1911.....	24	5,677,539	5,692,915	903,589	7,644,537	1.34	28,810
1912.....	24	7,141,004	7,132,732	903,094	9,106,556	1.28	36,515
1913.....	27	8,886,333	8,658,805	1,089,595	11,019,418	1.27	50,540
1914.....	24	8,727,269	7,172,480	2,628,117	9,187,924	1.28	48,815
1915.....	17	5,153,763	5,681,032	2,062,961	6,977,024	1.23	41,850

*Imports and Exports.*—The quantity of cement exported is not recorded but the value in 1915 is reported as \$5,161 as against a value of exports in 1914 of \$2,223, and \$1,739 in 1913.

The imports of cement previous to 1901 were larger than the Canadian production, but gave way steadily to the increasing domestic output until 1909, during which year the imports amounted to 142,194 barrels, or about 3 per cent of the Canadian consumption. From 1910 to 1912 inclusive there was a steady increase in the importation of cement, the imports in 1912 being 1,434,413 barrels. During four and one-half months of 1912 the duty was, on account of the scarcity in western Canada, reduced by one-half, and on May 31, 1913, a permanent reduction was made in the general tariff from 12½ cents to 10 cents per hundred pounds. The imports, however, have fallen to 254,093 barrels in 1913, 98,022 barrels in 1914, and 28,190 barrels in 1915.

The United States has been the principal source of imports during the past few years and supplied over 96 per cent of the imports in 1915, as compared with about 4 per cent from Great Britain. In 1914 about 71 per cent and in 1913, 68 per cent of the imports were from the United States.

The imports of cement during 1914 and 1915 by countries are shown in the next table.

### Imports of Cement, 1914 and 1915.

	1914.				1915.			
	Cwt.	Per cent.	Value.	Average value.	Cwt.	Per cent.	Value.	Average value.
Great Britain.....	93,709	27.3	\$ 35,517	\$0.38	3,726	3.8	\$ 1,480	\$0.40
United States.....	241,910	70.5	108,487	0.45	94,938	96.2	38,946	0.41
Other countries.....	7,457	2.2	3,154	0.43	.....	.....	.....	.....
Totals.....	343,076	100.0	147,158	0.43	98,664	100.0	40,426	0.41
Equivalent in barrels of 350 lbs.....	98,022	.....	.....	.....	28,190	.....	.....	.....

A permanent revision of the cement duties was made in the early part of 1913, and from May 13, 1913, the cement duties have been as follows:

	British Preferential tariff.	Intermediate tariff.	General tariff.
Cement, Portland, and hydraulic or water lime, in barrels, bags, or casks, the weight of the package to be included in the weight for duty per hundred pounds.....	7 cents.....	10 cents.....	10 cents.
Bags in which cement or lime mentioned in the next preceding item is imported.....	15 per cent. ...	20 per cent. ...	20 per cent.

This is equivalent to a duty under the general and intermediate tariffs of 35 cents per barrel on cement, and 8 cents on the bags, or a total of 43 cents per barrel.

Statistics of the exports of cement since 1891 and of imports since 1880 are given in the next two tables.

### Exports of Cement.

Calendar Year.	Value.	Calendar Year.	Value.	Calendar Year.	Value.
1891.....	\$2,881	1899.....	\$2,733	1907.....	\$ 9,618
1892.....	936	1900.....	3,296	1908.....	34,591
1893.....	1,172	1901.....	1,514	1909.....	113,362
1894.....	482	1902.....	2,267	1910.....	12,914
1895.....	937	1903.....	2,851	1911.....	4,067
1896.....	1,328	1904.....	5,494	1912.....	2,436
1897.....	644	1905.....	3,143	1913.....	1,739
1898.....	2,117	1906.....	7,551	1914.....	2,223
				1915.....	5,161

### Imports of Cement.

Fiscal Year.	Cement and Mfrs. of N.E.S.*	Hydraulic cement.†			Portland cement.		
		Barrels.	Value.	Average value.	Barrels.	Value.	Average value.
1880.....	\$ 28	10,034	\$10,306	\$1.03	.....	\$ 55,774	.....
1881.....	298	7,812	7,821	1.00	.....	45,646	.....
1882.....	86	11,945	13,410	1.12	.....	66,579	.....
1883.....	548	11,659	13,755	1.18	.....	102,537	.....
1884.....	1,236	6,606	9,514	1.11	.....	102,857	.....
1885.....	1,315	5,613	5,396	0.96	.....	111,521	.....
1886.....	1,851	6,164	6,028	0.98	.....	120,398	.....
1887.....	1,419	6,160	8,784	1.43	102,750	148,054	\$1.44
1888.....	5,787	5,636	7,522	1.33	122,402	177,188	1.45
1889.....	10,668	5,835	7,467	1.28	122,273	179,406	1.47
1890.....	5,443	5,440	9,048	1.66	192,322	313,572	1.63
1891.....	2,890	3,515	6,152	1.75	183,728	304,648	1.66
1892.....	3,394	2,214	2,782	1.26	187,233	281,553	1.50
1893.....	2,909	4,896	8,060	1.65	229,492	316,179	1.38
1894.....	2,618	1,054	985	0.93	224,150	280,841	1.25
1895.....	2,112	5,333	7,001	1.31	196,281	242,813	1.24
1896.....	3,672	5,688	8,948	1.57	204,407	242,409	1.19
1897.....	4,318	2,494	3,937	1.58	210,871	252,587	1.20
		Cwt.			Cwt.		
1898.....	3,263	16,033	7,097	0.44	1,073,058	355,264	0.33
1899.....	8,929	1,678	694	0.41	1,300,424	467,994	0.36
1900.....	10,452	10,418	4,711	0.45	1,301,361	498,607	0.38
1901.....	4,890	17,784	6,865	0.39	1,612,432	654,595	0.41
1902.....	12,234	29,585	17,755	0.60	1,971,616	833,657	0.42
1903.....	16,281	13,690	6,333	0.46	2,316,853	868,131	0.37
1904.....	14,305	12,088	5,391	0.45	2,476,388	995,017	0.40
1905.....	18,489	16,961	10,690	0.63	4,228,394	1,234,649	0.29
1906.....	27,858	10,794	4,034	0.37	2,848,582	963,839	0.34
Calendar Year.							
1907.....	13,748	16,788	6,339	0.38	2,354,204	837,520	0.36
1908.....	5,843	2,752	921	0.33	1,641,672	531,045	0.32
1909.....	6,374	682	614	0.90	497,678	166,669	0.33
1910.....	7,718	365	349	0.96	1,222,586	468,046	0.38
1911.....	7,430	26,655	6,107	0.23	2,316,707	834,879	0.36
1912.....	9,698	+	.....	.....	5,020,446	1,969,529	0.39
1913.....	17,729	+	.....	.....	889,324	409,303	0.46
1914.....	12,533	+	.....	.....	343,076	147,158	0.43
1915.....	7,410	+	.....	.....	98,664	40,426	0.41

\* Cement not elsewhere specified and manufactures of cement.

† From 1912 included in Portland cement.

*Consumption of Cement.*—The consumption of cement is represented practically by the domestic production, together with the imports, the exports being so comparatively small as to be negligible. The total con-

sumption of cement in Canada in 1915 was 5,709,222 barrels (999,114 tons), made up of 5,681,032 barrels (994,181 tons) of Canadian cement and 28,190 barrels (4,933 tons) of imported cement, the Canadian cement representing 99.5 per cent and the imported cement 0.5 per cent of the total.

In 1914 the total consumption of cement was 7,270,502 barrels (1,272,338 tons), made up of 7,172,480 barrels (1,255,184 tons) of Canadian cement, and 98,022 barrels (17,154 tons) of imported cement, the Canadian cement representing 98.7 per cent, and the imported cement 1.3 per cent of the total.

In 1913 the total consumption of cement was 8,912,898 barrels (1,559,757 tons) made up of 8,658,805 barrels (1,515,291 tons) of Canadian cement, and 254,093 barrels (44,466 tons) of imported cement, the Canadian cement representing 97.1 per cent and the imported cement 2.9 per cent of the total.

### Annual Consumption of Portland Cement.

Calendar Year.	Canadian.		Imported.		Total.
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.
1901.....	317,066	36	555,900	64	872,966
1902.....	594,594	52	544,954	48	1,139,548
1903.....	627,741	45	773,678	55	1,401,419
1904.....	910,358	54	784,630	46	1,694,988
1905.....	1,346,548	59	918,701	41	2,265,249
1906.....	2,119,764	76	665,845	24	2,785,609
1907.....	2,436,093	78	672,630	22	3,108,723
1908.....	2,665,289	85	469,049	15	3,134,338
1909.....	4,067,709	97	142,194	3	4,209,903
1910.....	4,753,975	93	349,310	7	5,103,285
1911.....	5,692,915	90	661,916	10	6,354,831
1912.....	7,132,732	83.3	1,434,413	16.7	8,567,145
1913.....	8,658,805	97.1	254,093	2.9	8,912,898
1914.....	7,172,480	98.7	98,022	1.3	7,270,502
1915.....	5,681,032	99.5	28,190	0.5	5,709,222

*Nova Scotia.*—There is but one cement plant in Nova Scotia, located at Sydney and operated by the Sydney Cement Company, Limited. Puzzolan cement is made from blast furnace slag and lime. This plant was idle throughout 1915.

*Quebec.*—This Province has three completed cement mills all operated by the Canada Cement Company, Limited; two situated near Montreal, at Longue Pointe, and Montreal East, and the third in Hull. The Montreal mills have now a combined capacity of 13,800 barrels per day, and the Hull mill 2,800 barrels per day. The total quantity of cement sold or used by producers during 1915 in this Province was 2,390,724 barrels, valued at \$2,812,797, as compared with 2,846,061 barrels, valued at \$3,331,601 in 1914.

*Ontario.*—Ontario continues as the most important cement-producing province in Canada having sixteen completed plants with a total daily capacity of 19,700 barrels at the end of 1915 of which eight were operated during the year, one of these for a month only. Of the eight plants operated, five used limestone and three marl. The eight idle mills included one limestone and seven marl plants. The names of the operating companies and location of plants are shown in an accompanying list of producers.

The total sales of cement in Ontario during 1915 were 2,407,670 barrels, valued at \$2,597,807, as compared with 2,775,142 barrels, valued at \$3,062,129 in 1914. There was thus a decrease in sales of 367,472 barrels, or over 13 per cent.

The detailed statistics of production during 1914 and 1915 are shown in the next table.

### Cement Production in Ontario, 1914 and 1915.

	1914.	1915.	Increase.	Per cent.	Decrease.	Per cent.
Cement sold or used.....Bls.	2,775,142	2,407,670	.....	.....	367,472	13.2
Cement manufactured....."	3,183,053	2,325,912	.....	.....	857,141	26.9
Stock on hand Jan. 1....."	439,113	842,957	403,844	92.0	.....	.....
Stock on hand Dec. 31....."	847,024	761,199	.....	.....	85,825	10.1
Value of cement sold.....\$	3,062,129	2,597,807	.....	.....	464,322	15.2
Wages paid....."	721,287	482,606	.....	.....	238,681	33.1
Men employed.....No.	1,088	801	.....	.....	287	26.4
Total daily capacity of operating plants.....Bls.	16,700	12,550	.....	.....	4,150	24.8

*Manitoba.*—The Commercial Cement Company of Winnipeg is operating a natural Portland cement plant at Babcock, 75 miles southwest of Winnipeg, on the Canadian Northern railway. The capacity of the plant is reported as about 200 barrels per day. The new mill of the Canada Cement Company near Winnipeg completed in 1914 has a daily capacity of 3,500 barrels. Limestone is obtained from a property in township 28, range 10, west of the first meridian, and about 130 miles north of Winnipeg, on the Oak Point branch of the Canadian Northern railway.

*Alberta.*—This Province possesses four completed cement plants with a total daily capacity of about 7,000 barrels, located respectively at Exshaw, Calgary, Blairmore, and Marlboro, the first three being limestone plants and the last mentioned using marl.

In addition to the completed plants, two other rock plants are in course of construction, one at Blairmore, by the Keystone Portland Cement Company, and one at Dauntless, near Medicine Hat, by the Canada Cement Company; the latter plant is being planned for a capacity of 1,000,000 barrels per annum.

The total quantity of cement marketed by producers in 1915 was 233,648 barrels, valued at \$415,009, as against 641,395 barrels, valued at \$1,212,342 in 1914.

The greater part of the sales during 1915 were from stock, only one plant, that at Blairmore, being in actual operation during the year, and for a period of less than three months.

*British Columbia.*—The two plants at Tod Inlet were in operation for about five months during 1915. The Vancouver Portland Cement Company's mill has a capacity of from 2,500 to 3,000 barrels per day. The mill of the Associated Cement Company (Canada), Ltd., successors to the Portland Cement Construction Company, Ltd., at Bamberton, has a daily capacity of about 2,000 barrels. In both cases the limestone, clay and shale are obtained in the vicinity of the works.

The plant at Princeton constructed by the British Columbia Portland Cement Co., Ltd., capacity 500 to 700 barrels per day, remained idle throughout 1914 and 1915.

The total sales of cement from British Columbia mills in 1915 were 309,436 barrels, valued at \$526,042, as compared with 499,151 barrels, valued at \$833,606 in 1914.

The production of cement in Ontario has already been shown separately and the aggregate production in all other provinces during 1914 and 1915 is given in the next table.

### Cement Production in Other Provinces, 1914 and 1915.

	1914.	1915.	Increase.	Per cent.	Decrease.	Per cent.
Cement sold or used.....Bls.	4,397,338	3,273,362	.....	.....	1,123,976	25.6
Cement manufactured....."	5,544,216	2,827,851	.....	.....	2,716,365	48.9
Stock on hand Jan. 1....."	634,215	1,777,065	1,142,850	180.2	.....	.....
Stock on hand Dec. 31....."	1,781,093	1,301,762	.....	.....	479,331	26.9
Value of cement sold.....\$	6,125,795	4,379,217	.....	.....	1,746,578	28.5
Wages paid....."	1,549,719	701,853	.....	.....	847,866	54.7
Men employed.....No.	1,889	885	.....	.....	1,004	53.2
Total daily capacity of operating plants.....Bls.	32,115	29,300	.....	.....	2,815	8.8

## List of Manufacturers of Cement.

OPERATOR AND ADDRESS.	LOCATION OF PLANT.	RAW MATERIALS USED.	KILNS.		TOTAL DAILY CAPACITY.	WORKS SUPERINTENDENT, OR REPRESENTATIVE.
			NO.	LENGTH.		
<i>Nova Scotia.</i>						
Sydney Cement Co., Ltd., Sydney, N.S., Box 509.....	Sydney.....	Blast furnace slag		FEET	BARRELS	H. C. Burchell.
<i>Quebec.</i>						
Canada Cement Co., Ltd., Montreal, Que., Herald Bldg:—						{F. P. Jones, Gen. Mgr.
Montreal Mill No. 1.....	Montreal East.....	Limestone.....	4-4-9	125-110-150	12,000	H. L. Doble, Supt.
Montreal Mill No. 2.....	Longue Pointe.....	".....	4	125	1,800	F. B. Kilbourn, Supt.
International Mill.....	Hull.....	".....	10	60	2,800	J. S. Downs, Supt.
La Société des Industries de Chambord.....	Chambord.....					Wm. O'Neil, Supt.
						T. L. Bergeron, Sec
<i>Ontario.</i>						
Canada Cement Co., Ltd., Montreal, Que.—						
Belleville Mill (No. 4).....	Belleville (Point Anne).....	Limestone.....	8	60	1,800	A. A. Huck, Supt.
Belleville Mill (No. 5).....	" (Thurlow Tp).....	".....	6	125	2,700	H. L. Shock, Supt.
Lakefield Mill.....	Lakefield.....	Marl.....	3-6	60-100	1,200	E. W. Bailey, Supt.
Marlbank Mill.....	Marlbank (Hungerford Tp).....	".....	4-5	95-60	1,200	C. J. Matt, Act. Supt.
Port Colborne Mill.....	Port Colborne.....	Limestone.....	4	150	3,000	S. R. Preston, Supt.
Owen Sound Mill.....	Shallow Lake.....	Marl.....	5	100	1,200	Alf. Harrington, Act. Supt.
The Maple Leaf Portland Cement Co., Ltd., Listowel, Ont.....	Atwood.....	".....	2	100	350	Robt. Oliver.
The Ontario Portland Cement Co., Ltd., Brantford, 51 George.....	Blue Lake.....	".....	4	70	500	J. A. Colter.
The National Portland Cement Co., Ltd., Durham, Ont.....	Durham.....	".....	8	70	1,400	W. Calder.
The Hanover Portland Cement Co., Ltd., Hanover, Ont.....	Hanover.....	".....	3	100	750	D. Knechtel.
Superior Portland Cement Co., Ltd., Orangeville, Ont.....	Orangeville.....	".....	4	80	800	G. McIntyre.
(In liquidation).						
The Union Cement Co., Ltd., Owen Sound, Ont.....	Owen Sound.....	Limestone.....	4-1	60-70	800	T. L. Dates.
The Imperial Portland Cement Co., Ltd., Owen Sound, Ont.....	".....	Marl.....	3	100	650	D. J. Kennedy, V.P.
Ben Allen, Portland Cement Co., Ltd., Owen Sound, R. R. No. 7.....						J. D. McMillan, Pres.
Kirkfield Portland Cement Co., Ltd., Toronto, 34 Victoria.....	Raven Lake.....	Marl.....	1-3	125-60	500	
St. Marys Cement Limited, Toronto, 49 Wellington E.....	St. Marys.....	Limestone.....	2	160	1,700	J. G. Lind.
The Crown Portland Cement Co., Ltd., Toronto, c-o 85 Bay, Liquidators	Warton.....		4	100	1,200	
<i>Manitoba.</i>						
The Commercial Cement Co., Ltd., Winnipeg, Man., 307 Quebec Bank	Babcock.....	Natural, P. C.....	4	40 (Vertical)	200	A. W. Gordon.
Canada Cement Co., Ltd., Montreal, Que.....	Winnipeg (Tuxedo).....	Limestone.....	4	150	3,500	P. H. Wills, Supt.

<i>Alberta.</i>							
Canada Cement Co., Ltd., Montreal, Que.—							
Alberta Mill.....	Calgary.....	†	Limestone.....	3	100	1,500	E. French, Supt.
Dauntless Mill.....	Dauntless.....	††	".....				
Exshaw Mill.....	Exshaw.....		".....	3-3	80-150	3,000	A. G. Beck, Supt.
The Rocky Mountains Cement Co., Ltd., Calgary, Alberta, Box 1694.	Blairmore.....		".....	2	99	1,000	G. G. Harris.
The Keystone Portland Cement Co., Ltd., Calgary, Box 1236.....	".....		".....				
The Edmonton Portland Cement Co., Ltd., Edmonton, 707 Tegler Bldg. (In liquidation).	Marlboro.....	†	Marl.....	3	140	1,500	J. B. Griffith, Liquidator.
<i>British Columbia.</i>							
The Associated Cement Co. (Canada), Ltd., Victoria, B.C., Box 1591..	Bamberton.....		Limestone.....	2	185	2,000	H. Anderson.
British Columbia Portland Cement Co., Ltd., Vancouver.....	Princeton.....	†	".....	1	125	600	Jno. D. Kearns, Liquidator.
(In liquidation)							
Vancouver Portland Cement Co., Ltd., Victoria. Box 681.....	Tod Inlet.....		".....	1-2-1-117	0-155-125-70	3,000	R. P. Butchart, Man. Dir.

† Idle 1915.    †† Under construction.    ‡ New plant, not yet operated.



## CLAYS AND CLAY PRODUCTS.<sup>1</sup>

For a number of years a small quantity of fireclay has been produced and sold as such, and during the past four years there has been a small but increasing production of kaolin or china-clay from a deposit in the Province of Quebec. With these exceptions, practically all of the clay production in Canada is manufactured by the producer, and this report, therefore, treats almost altogether of the manufactured product.

The clay products made in Canada comprise brick of various kinds, including common and pressed, ornamental and fancy building brick, paving brick, firebrick, porous fireproofing brick and blocks, sewerpipe and drain tile, pottery and sanitary ware, the last two products chiefly from imported clays.

The total value of the clay products sold or marketed in 1915 was \$3,914,488, as compared with \$6,871,957 in 1914, \$9,504,313 in 1913, and \$10,575,869 in 1912.

The production in 1915 was the lowest in ten years and, compared with 1914, shows a decrease of \$2,957,469 or 43 per cent. It was but little over one-third the maximum production reached in 1912.

During the five years preceding 1913 the annual production of clay products increased very rapidly, having more than doubled in that period. In 1913, however, the financial stringency affected building operations to such an extent as to greatly reduce the demand for building brick. There was actually a considerable increase in the quantity of common and pressed building brick manufactured during that year, but a large falling off in sales, so that large stocks of brick must have remained in manufacturers' hands at the close of the year. In 1914 there was a large falling off both in quantities of brick made and in quantities sold, and the stocks of common and pressed brick on hand at the end of the year were reported as 242,106,000, or about 44 per cent of the number sold during the year. In 1915 there

<sup>1</sup> Special investigations of the clay resources of Canada have been undertaken by the Department of Mines for a number of years and several special reports have been published thereon. The first work was undertaken by J. Walter Wells in 1905, under the direction of Dr. Haanel. In 1909, Dr. Heinrich Ries, Professor of Economic Geology in Cornell University, was engaged by the Geological Survey to carry on a general investigation of Canadian clays. Mr. Joseph Keele of the Geological Survey was associated with Dr. Ries in the work which has been continued during the past five years.

The following reports have been published dealing with clays.

Mines Branch, Department of Mines:—

"Clays and Shales of Manitoba: Their Industrial Value," Report on. By J. Walter Wells, 1905. (Out of print).

Geological Survey Branch, Department of Mines:—

"The Clay and Shale Deposits of Nova Scotia and Portions of New Brunswick." By H. Ries and J. Keele, 1911.

"Preliminary Report on the Clay and Shale Deposits of the Western Provinces." By H. Ries and J. Keele, 1912.

"The Clay and Shale Deposits of the Western Provinces, Part II." By H. Ries and J. Keele, 1913.

"Clay and Shale Deposits of New Brunswick." By J. Keele, 1914.

"Clay and Shale Deposits of the Western Provinces, Part III." By Heinrich Ries, 1914.

"Preliminary Report on the Clay and Shale Deposits of the Province of Quebec." By J. Keele, 1915, Memoir No. 64.

"Clay and Shale Deposits of the Western Provinces, Part IV." By H. Ries, 1915, Memoir No. 65.

"Clay and Shale Deposits of the Western Provinces, Part V." By J. Keele, 1915, Memoir No. 66.

has been again a large decrease both in quantity of brick made and in quantities sold. Sales, however, have considerably exceeded actual output, stocks having been depleted to a considerable extent to supply demand. Stocks of common and pressed brick on hand at the end of the year were reported as 147,817,000 or about 61 per cent of the stocks reported at the end of 1914. All classes of clay products showed a falling off in production with the exception of firebrick, pottery and kaolin. The average number of men employed in 1915 was 4,405 as compared with 8,339 in 1914 and 11,193 in 1913. The total wages paid in 1914 were \$1,452,828, as against \$3,201,380 in 1914, and \$4,682,801 in 1913.

Of the total value of the sales in 1915, building and paving brick, including fireproofing, contributed \$2,571,153 or about 65.6 per cent, as against \$5,258,179, or about 76.5 per cent of the total in 1914. Sewer-pipe and tile production in 1915 were valued at \$1,154,742, or 29.5 per cent of the total as against \$1,470,839, or 21 per cent of the total in 1914. The total value of the production of pottery in 1915 was reported as \$317,080 of which \$64,900 only is estimated as attributable to Canadian clays and the balance to imported clays. Compared with the previous year the production of building, paving, and fireproofing brick shows a decrease of 51 per cent, and the production of sewerpipe and tiles a decrease of 21 per cent.

The value of the production of fireclays and firebrick from domestic clays was \$110,693 as against \$107,568 in 1914. The production of kaolin in 1915 was 1,300 tons, valued at \$13,000, as against 1,000 tons, valued at \$10,000 in 1914.

The average price of common building brick for the whole of Canada in 1915 was \$7.48 per M, as compared with \$7.99 in 1914; \$8.85 in 1913; \$9.11 in 1912; \$8.37 in 1911; and \$8.13 in 1910. The average prices of pressed or front brick for the same years were respectively \$9.89, \$11.91, \$12.49, \$12.86, \$12.53, and \$11.89, thus showing a general increase in the cost of building brick until 1912, falling off again in 1913, 1914, and 1915.

Ontario is by far the largest producer of clay products, having contributed in 1915 nearly 58 per cent of the total values marketed during 1915 and 1914, as against 55 per cent in 1913.

Quebec contributed 23.5 per cent in 1915, as against 18.5 per cent the preceding year; Alberta 2.9 per cent in 1915, as compared with 6.7 per cent in 1914, and 9.4 per cent in 1913; Manitoba 2.4 per cent in 1915, as against 4.6 per cent in 1914, and British Columbia 5.8 per cent in 1915, as compared with 6 per cent in the previous year.

There was a falling off in the total sales of clay products in every province. As in the two previous years the falling off was most pronounced in the western provinces. The total decrease in the eastern provinces,

including Ontario, amounted to 36.7 per cent, while in the western provinces, including Manitoba, it was 64 per cent.

The following tables of production and of imports of clay products furnish comparisons of particular interest. In the first place an estimate of the value of consumption of clay products is furnished.

The total value of the imports in 1915 was \$2,998,465 (not including certain items probably in part covering clay products), and after deducting a small export, a total approximate consumption of clay products valued at \$6,867,381, is shown, of which 57 per cent was of domestic production.

In 1914 the approximate consumption was valued at \$11,291,024, of which about 61 per cent was of domestic production.

In 1913 the consumption was valued at \$16,212,733, of which 58.6 per cent was of domestic production.

In 1912 the consumption was valued at \$17,149,659, in 1911, \$13,516,477, in 1910, \$11,958,591, and in 1909, \$9,696,324. In 1909 about 70 per cent. of the consumption was of domestic production.

In the case of building brick the imports are small, compared with the home production, amounting to not much more than 5 per cent of the latter. The imports of paving brick in 1915 were more than three times, and those of firebrick over seven times the Canadian production. The imports of drain tile and sewerpipe were about 5 per cent of the Canadian production.

Statistics of production in 1915 and 1914 of the several classes of clay products by provinces are shown in the following tables:—

## Production of Clay Products by Provinces, 1915.

Province.	No. of active firms reporting.	No. of men employed.	Wages.	Common brick.				Pressed brick.			
				No. manufactured.	No. sold.	Value of sales.	Per M.	No. manufactured.	No. sold.	Value of sales.	Per M.
Nova Scotia.....	11	204	\$ 75,219	4,340,000	6,462,000	\$ 48,684	\$ 7-53	100,000	100,000	\$ 1,500	\$15.00
New Brunswick.....	5	90	27,225	3,150,000	3,675,000	34,150	9.29	50,000	40,000	880	22.00
Quebec.....	33	980	308,956	74,834,971	79,744,548	566,085	7.10	3,219,000	3,990,517	62,766	15.73
Ontario.....	245	2,613	886,856	104,858,929	123,977,112	910,459	7.34	37,778,496	43,504,736	398,308	9.16
Manitoba.....	12	199	16,835	5,076,000	8,630,411	87,194	10.10	.....	.....	.....	.....
Saskatchewan.....	13	43	7,332	1,300,000	4,184,185	36,482	8.72	.....	422,860	7,119	16.82
Alberta.....	13	137	50,330	2,523,887	3,753,746	32,399	8.63	55,000	1,340,555	13,250	9.88
British Columbia.....	17	139	80,075	735,280	4,305,880	39,734	9.23	249,652	418,492	8,951	21.41
Total.....	349	4,405	1,452,828	196,819,067	234,732,882	1,755,187	7.48	41,452,148	49,817,160	492,774	9.89

  

Province.	Paving brick.		Ornamental.		Firebrick and fireclay shapes. Value.	Fireproofing. Value.	Pottery. Value.	Sewerpipe. Value.	Tiles. drain. Value.	Kaolin. Value.	Total clay products. Value.
	No. sold.	Value.	No. sold.	Value.							
Nova Scotia.....	.....	.....	.....	.....	\$ 22,741	\$ 3,720	\$ 200	\$144,836	\$ 200	.....	\$ 221,881
New Brunswick.....	.....	.....	.....	.....	.....	.....	.....	.....	750	.....	35,780
Quebec.....	.....	.....	253,439	\$12,140	15,156	41,040	18,638	180,000	9,600	\$13,000	918,425
Ontario.....	863,770	13,345	755,128	36,957	.....	146,915	46,062	361,350	341,467	.....	2,254,863
Manitoba.....	.....	.....	.....	.....	.....	6,480	.....	.....	.....	.....	93,674
Saskatchewan.....	.....	.....	.....	.....	805	.....	.....	.....	.....	.....	44,406
Alberta.....	.....	.....	.....	.....	.....	30,263	.....	39,460	324	.....	115,696
British Columbia.....	363,877	7,349	.....	.....	71,991	24,983	.....	73,800	2,955	.....	229,763
Total.....	1,227,647	20,694	1,008,567	49,097	(b) 110,693	253,401	(a) 64,900	799,446	355,296	13,000	3,914,488

(a) There was also a production of \$252,180 from imported clays.

(b) There was also a production of \$28,807 from imported clays.

## Production of Clay Products by Provinces, 1914.

Province.	No. of active firms reporting.	No. of men employed.	Wages.	Common brick.				Pressed brick.			
				No. manufactured.	No. sold.	Value of sales.	Per M.	No. manufactured.	No. sold.	Value of sales.	Per M.
Nova Scotia.....	11	337	\$ 109,174	14,579,936	12,574,546	\$ 97,510	\$ 7.75	148,280	98,200	\$ 1,502	\$15.32
New Brunswick.....	8	107	26,977	5,584,000	6,033,828	64,042	10.61	200,000	100,000	2,250	22.50
Quebec.....	45	1,371	524,189	132,711,357	118,278,889	874,961	7.40	10,568,446	8,540,060	135,900	15.91
Ontario.....	282	4,727	1,946,581	300,721,629	249,896,642	1,963,921	7.86	90,003,675	72,153,067	777,199	10.77
Manitoba.....	13	464	119,838	21,072,050	26,777,950	289,060	10.79	1,603,000	2,258,000	28,428	12.59
Saskatchewan.....	14	370	72,152	11,485,600	6,865,000	61,669	8.98	2,235,000	1,850,000	32,030	17.31
Alberta.....	26	507	211,592	20,298,000	23,190,257	183,696	7.92	6,918,100	6,979,500	94,358	13.52
British Columbia.....	20	456	190,877	19,385,000	13,896,950	119,002	8.56	1,539,000	1,655,951	43,889	26.50
<b>Total.....</b>	<b>419</b>	<b>8,339</b>	<b>3,201,380</b>	<b>525,837,572</b>	<b>457,513,762</b>	<b>3,653,861</b>	<b>7.99</b>	<b>113,215,501</b>	<b>93,634,858</b>	<b>1,115,556</b>	<b>11.91</b>

  

Province.	Paving brick.		Ornamental.		Firebrick and fireclay shapes. Value.	Fireproofing and terra-cotta, etc. Value.	Pottery. Value.	Sewerpipe. Value.	Tiles, drain. Value.	Kaolin. Value.	Total clay products. Value.
	No. sold.	Value.	No. sold.	Value.							
Nova Scotia.....					\$ 13,204	\$ 484		\$ 149,420	\$ 4,084		\$ 266,204
New Brunswick.....								210			66,502
Quebec.....			160,960	\$ 4,824	15,978	45,753	\$ 2,395	176,629	1,260	\$10,000	1,267,700
Ontario.....	2,566,000	\$47,534	1,121,236	15,504		205,204	32,976	593,606	343,662		3,979,606
Manitoba.....					4,650						317,488
Saskatchewan.....											98,349
Alberta.....	7,000	245	272,300	3,264		96,025		83,036	1,575		462,199
British Columbia.....	134,000	1,848			73,736	58,077		101,808	15,549		413,909
<b>Total.....</b>	<b>2,707,000</b>	<b>49,627</b>	<b>1,554,496</b>	<b>23,592</b>	<b>(b) 107,568</b>	<b>405,543</b>	<b>(a) 35,371</b>	<b>1,104,499</b>	<b>366,340</b>	<b>10,000</b>	<b>6,871,957</b>

(a) There was also a production of \$277,475 from imported clays.

(b) There was also a production of \$30,264 from imported clays.

## Sales of Clay Products, 1912 and 1913.

	1912.			1913.		
	Quantity.	Value.	Per M.	Quantity.	Value.	Per M.
Bricks—						
Common.....No.	769,191,532	\$ 7,010,375	\$ 9.11	668,426,675	\$5,917,373	\$ 8.85
Pressed.....	125,180,422	1,609,854	12.86	116,802,053	1,458,733	12.49
Paving....."	4,579,500	85,989	18.78	4,208,295	75,669	17.98
Ornamental....."	371,356	8,595	23.15	875,355	15,423	17.63
Firebrick and fireclay shapes, etc.....		125,585			142,738	
Fireproofing and architectural terra-cotta, etc.....		448,853			461,387	
Kaolin.....Tons.	20	160	8.00	500	5,000	10.00
Pottery.....		43,955			53,533	
Sewerpipe.....		884,641			1,035,906	
Tiles, drain.....		357,862			338,552	
Totals.....		10,575,869			9,504,314	

## Sales of Clay Products by Provinces, 1910-1915.

Province.	1910.	1911.	1912.	1913.	1914.	1915.
Nova Scotia.....	\$ 204,782	\$ 274,249	\$ 272,053	\$ 332,272	\$ 266,204	\$ 221,881
New Brunswick.....	56,475	38,000	54,910	62,269	66,502	35,780
Quebec.....	1,442,842	1,341,467	1,680,460	1,606,816	1,267,700	918,425
Ontario.....	3,667,810	3,916,575	4,864,700	5,220,467	3,979,606	2,254,863
Manitoba.....	781,605	834,428	1,018,051	514,358	317,488	93,674
Saskatchewan.....	160,850	226,958	332,943	189,820	93,349	44,406
Alberta.....	753,232	1,052,751	1,356,184	893,408	462,199	115,696
British Columbia.....	562,360	675,505	996,568	684,904	413,909	229,763
	7,629,956	8,359,933	10,575,869	9,504,314	6,871,957	3,914,488

## Annual Value of Production of Clay Products, 1899-1915.

Calendar Year.	Value.	Calendar Year.	Value.	Calendar Year.	Value.
1899.....	\$2,988,099	1904.....	\$3,841,560	1910.....	\$ 7,629,956
1900.....	3,195,105	1905.....	4,709,842	1911.....	8,359,933
1901.....	3,382,706	1906.....	5,072,635	1912.....	10,575,869
1902.....	3,625,489	1907.....	5,772,117	1913.....	9,504,314
1903.....	4,034,289	1908.....	4,500,702	1914.....	6,871,957
		1909.....	6,450,840	1915.....	3,914,488

*Exports and Imports.*—The total value of the exports of clay products in 1915 was \$45,572, and included 1,115,000 building brick, valued at \$9,089; manufactures of clay valued at \$25,202, and earthenware valued at \$11,281.

In 1914 the total value of the exports of clay products was \$48,073, which included 1,486,000 building brick valued at \$11,871, manufactures of clay valued at \$26,866, and earthenware valued at \$9,336.

### Exports of Clay Products.

Calendar Year.	Building brick.		Manu- factures.	Earthen- ware.	Total.
	M.	Value.			
1910.....	390	\$ 2,762	\$ 9,061	\$ 9,240	\$21,063
1911.....	394	3,977	2,071	6,101	12,149
1912.....	694	8,493	256	10,001	18,750
1913.....	977	8,579	27,201	16,553	52,333
1914.....	1,486	11,871	26,866	9,336	48,073
1915.....	1,155	9,089	25,202	11,281	45,572

The imports of clays and clay products reached a total value during the calendar year 1915 of \$2,998,465, equivalent to about 76 per cent. of the domestic production. The total imports in 1914 were valued at \$4,467,140 or about 66 per cent of the domestic production.

Clay imports are classified by the Department of Customs under three main subdivisions, including: brick and tile, earthenware and chinaware, and clays. The imports of clays in 1915 were valued at \$237,096, and included chiefly china-clay and fireclay, with a small quantity of pipe-clay and other clays not classified. The value of china-clay imported was \$124,658, and of fireclay \$87,267, in both cases a decrease from the imports of the previous year. In 1914 the total value of the imports of clays was \$288,128, and included china-clay valued at \$150,881, and fireclay at \$90,233. The imports of these clays have varied considerably from year to year, the imports of china-clay in 1914 being the highest recorded, while the imports of fireclay in 1915 were the lowest since 1909.

The imports classified under brick and tile were valued in 1915 at \$1,301,359, as compared with a value of \$1,986,790 in 1914. A large portion of these imports is made up of firebrick, over 62 per cent in 1915. There is also a considerable import of building and paving brick, of sewerpipe and drain tile, and of building blocks, and manufactures of clay not specified.

The imports of earthenware and chinaware, of which the most important class is tableware, were valued in 1915 at \$1,460,010, as against \$2,192,222 in 1914. These imports are chiefly of a class of goods not manufactured in Canada and for which the raw materials are not as yet obtainable from Canadian sources.

The detailed record of imports during the calendar years 1909 to 1915 is shown in the next table.

## Imports of Clay Products, Calendar Years, 1910 to 1915.

Imports.	1910.	1911.	1912.	1913.	1914.	1915.
Brick and tile:—						
Bath brick.....	\$ 2,290	\$ 2,623	\$ 1,927	\$ 2,690	\$ 1,894	\$ 630
Building brick.....	274,482	475,865	763,470	575,269	353,353	114,958
Building blocks.....	(b)	(b)	(b)	(a) 356,366	276,817	181,145
Paving brick.....	124,994	164,292	160,663	176,497	145,063	76,759
Firebrick, of a class or kind not made in Canada.....	811,927	814,414	953,621	976,097	535,712	577,458
Fire brick, n.o.p.....	(b)	(b)	(b)	(a) 216,760	154,421	235,613
Drain tile, not glazed.....	4,485	5,640	4,018	12,156	2,941	346
Drain pipe, sewerpipe, and earthenware fittings therefor, chimney linings or vents, chimney tops and inverted blocks, glazed or unglazed.....	175,599	382,929	507,024	465,997	338,533	41,801
Manufactures of clay, n.o.p.....	361,996	523,998	818,467	339,760	178,056	72,649
Total.....	1,755,773	2,369,761	3,209,190	3,121,592	1,986,790	1,301,359
Earthenware and chinaware:—						
Brown or coloured earthenware and stoneware, and Rockingham ware.....	53,413	52,100	62,161	70,632	71,083	74,864
C. C. or cream coloured ware, decorated, printed or sponged, and all earthenware, n.o.p.....	202,475	184,291	291,804	264,090	163,431	135,425
Demijohns, churns, or crocks.....	6,607	4,933	18,404	32,599	25,935	14,752
Tableware of china, porcelain, white granite or iron-stoneware.....	1,545,538	1,718,582	2,068,362	2,185,601	1,437,175	1,016,900
China and porcelain ware, n.o.p.....	95,509	62,025	71,751	43,696	30,006	18,312
Tiles or blocks of earthenware or stone prepared for mosaic flooring.....	90,524	123,203	160,082	173,445	104,285	40,286
Earthenware tiles, n.o.p.....	125,772	154,351	239,391	296,791	186,161	92,700
Manufactures of earthenware, n.o.p.....	163,278	217,051	183,001	248,016	174,146	66,771
Total.....	2,283,116	2,516,536	3,094,956	3,314,870	2,192,222	1,460,010
Clays:—						
China-clay ground, or unground.....	142,125	125,768	127,402	149,337	150,881	124,658
Fireclay, ground or unground.....	124,293	125,199	140,500	143,399	90,233	87,267
Pipeclay, ground or unground.....	114	1,786	234	385	829	614
Clays all other, n.o.p.....	25,976	17,494	20,258	31,169	46,185	24,557
Totals.....	292,508	270,247	288,394	324,290	288,128	237,096
Grand total.....	4,331,397	5,156,544	6,592,540	6,760,752	4,467,140	2,998,465
Baths, bath-tubs, basins, closets, lavatories, urinals, sinks and laundry tubs of any material....	262,667	285,847	382,920	477,133	359,288	182,757
Chalk, china or cornwall stoue, cliff stone and feldspar, fluorspar, magnesite, ground or unground	121,959	147,640	167,990	164,879	113,211	100,012

(a) Nine months. (b) Included in manufactures of clay, n.o.p.



In addition to the imports of clay products there is also shown in the preceding table a considerable annual importation of "chalk, china or corn-wall stone, cliff stone and feldspar, fluorspar, magnesite ground or un-ground," much of which is no doubt used in connexion with the manufacture of clay products. The value of these imports during the calendar year 1915 was \$100,012, of which \$65,715 was from the United States, and \$34,297 from Great Britain. The value of the imports under this item during the calendar year 1914 was \$113,211. There is also shown an annual importation of "baths, bath-tubs, basins, closets, lavatories, urinals, sinks, and laundry tubs of any material," the value of such imports during 1915 being \$182,757, as compared with \$359,288 during the year 1914.

Imported clay products are derived chiefly from Great Britain and the United States, although considerable quantities of earthenware, china and porcelain ware, white granite or iron-stoneware, etc., are brought from Germany, France, Austria-Hungary, and Japan. The imports during the fiscal year, showing the country of origin, are shown in the next table. Of the brick and tile imported, 88·7 per cent was from the United States and 11 per cent from Great Britain; and only \$4,476 worth from all other countries. Of the earthenware and chinaware, 58·4 per cent was imported from Great Britain, 20·4 per cent from the United States, 7 per cent from Germany, 7·7 per cent from France, 4 per cent from Japan, and considerable values also from Austria-Hungary, and other countries. The crude clays were imported principally from Great Britain and the United States.

A record of the total annual value of the imports of clay products since 1900 is shown in the following table:—

## Imports of Clay Products During the Twelve Months Ending March 1915, Showing Countries of Origin.

Imports.	Great Britain.	United States.	Germany.	France.	Austria-Hungary.	Japan.	Other countries.	Total.
<b>Brick and tile:—</b>								
Bath brick.....	\$ 1,571	\$ 65						\$ 1,636
Building brick.....	20,434	287,224						307,658
Building blocks.....	18,426	244,845						263,271
Paving brick.....	40,966	105,681						146,647
Firebrick of a class or kind not made in Canada.....	48,375	431,990	\$ 19				\$ 2,379	482,763
Firebrick, n.o.p.....	27,629	120,246	1,647					149,522
Drain tile, not glazed.....	964	1,868						2,832
Drain pipe, sewerpipe, and earthenware fittings therefor, chimney linings or vents, chimney tops and inverted blocks, glazed or unglazed.....	30,755	268,109		\$ 121				298,985
Manufactures of clay, n.o.p.....	11,627	154,058	170	122		\$ 18		165,995
<b>Total.....</b>	<b>200,747</b>	<b>1,614,086</b>	<b>1,836</b>	<b>243</b>		<b>18</b>	<b>2,379</b>	<b>1,819,309</b>
<b>Earthenware and chinaware:—</b>								
Brown or coloured earthenware and stoneware, and Rockingham ware.....	18,467	44,037	76	36		619	78	63,313
C. C. or cream coloured ware, decorated, printed or sponged, and all earthenware, n.o.p.....	96,648	34,995	6,684	2,439	\$ 1,040	7,921	1,480	151,207
Demijohns, churns, or crocks.....	1,302	23,622	19				2	25,145
Tableware of china, porcelain, white granite or iron-stoneware.....	870,880	28,444	121,970	143,604	25,368	63,256	11,408	1,264,930
Chinaware, to be silver mounted, imported by manufacturers of silverware.....	37	116		597				750
China and porcelain ware, n.o.p.....	8,377	10,544	3,563	302	181	2,827	355	26,149
Tiles or blocks of earthenware or stone prepared for mosaic flooring.....	9,973	73,117	18	757			608	84,473
Earthenware tiles, n.o.p.....	61,463	98,414	293	2				160,172
Manufactures of earthenware, n.o.p.....	65,985	83,556	10,474	1,325	601	1,341	1,344	164,626
<b>Total.....</b>	<b>1,133,332</b>	<b>396,845</b>	<b>143,097</b>	<b>149,062</b>	<b>27,190</b>	<b>75,964</b>	<b>15,275</b>	<b>1,940,765</b>
<b>Clays:—</b>								
China-clay, ground or unground.....	51,718	79,127						130,845
Fireclay, ground or unground.....	12,939	77,784						90,723
Pipeclay, ground or unground.....	50	537				24		587
Clays, all other, n.o.p.....	1,935	43,321	453					45,733
<b>Total.....</b>	<b>66,642</b>	<b>200,769</b>	<b>453</b>			<b>24</b>		<b>267,888</b>
<b>Grand total.....</b>	<b>1,400,721</b>	<b>2,211,700</b>	<b>145,386</b>	<b>149,305</b>	<b>27,190</b>	<b>76,006</b>	<b>17,654</b>	<b>4,027,962</b>
<b>Per cent of total.....</b>	<b>34.77</b>	<b>54.91</b>	<b>3.61</b>	<b>3.71</b>	<b>0.67</b>	<b>1.89</b>	<b>0.44</b>	<b>100.00</b>
Baths, bath-tubs, basins, closets, lavatories, urinals, sinks, and laundry tubs of any material.....	117,242	198,705	5	428			35	316,415
Chalk, china or cornwall stone, cliff stone, and feldspar, fluorspar, magnesite, ground or unground.....	16,324	87,541	1,187	137			2,049	107,238

## Imports of Clay Products (Total Value) 1900-15.

Fiscal Year.	Brick and tile.**	Earthenware and chinaware.	Clays.	Totals.
1900.....	\$ 145,914	\$ 959,526	\$122,965	\$1,228,405
1901.....	133,343	1,114,677	141,251	1,389,271
1902.....	172,281	1,275,093	140,521	1,587,895
1903.....	157,783	1,406,610	176,416	1,740,809
1904.....	259,421	1,611,356	144,706	2,015,483
1905.....	761,756	1,636,214	176,805	2,574,775
1906.....	1,000,372	1,692,359	220,504	2,913,235
1907*.....	770,686	1,422,880	178,240	2,371,806
1908.....	1,079,556	2,190,784	267,720	3,538,060
Calendar Year.				
1909.....	1,249,450	1,781,759	216,330	3,247,539
1910.....	1,755,773	2,283,116	292,508	4,331,397
1911.....	2,369,761	2,516,536	270,247	5,156,544
1912.....	3,209,190	3,094,956	288,394	6,592,540
1913.....	3,121,592	3,314,870	324,290	6,760,752
1914.....	1,986,790	2,192,222	288,128	4,467,140
1915.....	1,301,359	1,460,010	237,096	2,998,465

\* 9 months ending March, 1907.

\*\* Includes fireclay classified as "for use in process of manufactures."

The Canadian Customs duties affecting clays and clay products, in force during 1914, are shown as follows:—

## Canadian Customs Duties on Clay Products.

(From the Customs Tariff, 1907, revised 1910).

	British Preferential tariff.	Intermediate tariff.	General tariff.
281 Firebrick of a class or kind not made in Canada.....	Free.	Free.	Free.
282 Building brick, paving brick, and mfgs. of clay or cement (n.o.p.)..	12½ %	20 %	22½ %
283 Drain tiles not glazed.....	15 %	17½ %	20 %
284 Drain pipes, sewerpipes, and earthenware fittings therefor, chimney linings or vents, chimney tops and inverted blocks glazed or unglazed, earthenware tiles (n.o.p.).....	25 "	32½ "	35 "
285 Tiles or blocks of earthenware or of stone prepared for mosaic flooring.....	20 "	27½ "	30 "
286 Earthenware and stoneware, viz., dcmjohns, churns, or crocks....	20 "	27½ "	30 %
287 Tableware of china, porcelain, white granite or ironstone.....	15 "	27½ "	27½ "
288 Earthenware and stoneware, brown or coloured and Rockingham ware "C.C." or cream coloured ware, decorated, printed or sponged, and all earthenware (n.o.p.).....	20 "	27½ "	30 "
289 Closets, urinals, basins, lavatories, baths, bath-tubs, sinks, and laundry tubs of earthenware, stone, cement or clay or of other material.....	20 "	30 "	35 "
295 Clays, including china-clays, fireclay and pipe-clay, not further manufactured than ground; gaultier and sand; gravels; earths, crude only.....	Free.	Free.	Free.

## CLAY BUILDING BRICK.

The total sales from Canadian plants of clay building brick including common and pressed brick, but excluding ornamental, paving, firebrick, and fireproofing brick, are shown by provinces, for the past four years, in the following tables:—

In 1915 the total sales were 284,550,042, valued at \$2,247,961, made up of 234,732,882 common, valued at \$1,755,187, or an average value per thousand of \$7.48, and 49,817,160 pressed brick, valued at \$492,774, or an average value per thousand of \$9.89. In addition to the common and pressed brick there was a production of ornamental brick of 1,008,567, valued at \$49,097, and a production of fireproofing brick, valued at \$253,401.

In 1914 the total sales were 551,148,620, valued at \$4,769,417, made up of 457,513,762 common, valued at \$3,653,861, or an average value per thousand of \$7.99, and 93,634,858 pressed brick, valued at \$1,115,556, or an average value per thousand of \$11.91. In addition to the common and pressed brick there was a production of ornamental brick of 1,554,496, valued at \$23,592, and a production of fireproofing brick and architectural terra-cotta, valued at \$405,543.

In 1913 the total sales were 785,228,728 brick, valued at \$7,376,106, made up of 668,426,675 common, valued at \$5,917,373, or an average value per thousand of \$8.85; and 116,802,053 pressed brick, valued at \$1,458,733, or an average value per thousand of \$12.49. In addition to the common and pressed brick there were sales of ornamental brick of 875,355, valued at \$15,423, and of fireproofing brick and architectural terra-cotta, valued at \$461,387.

## Sales of Clay Building Brick (Common and Pressed) 1914 and 1915.

Province.	1914.				1915.			
	No. of active firms reporting.	No. sold.	Value.	Per cent of total value.	No. of active firms reporting.	No. sold.	Value.	Per cent of total value.
Nova Scotia.....	11	12,672,826	\$ 99,012	2.1	11	6,562,000	\$ 50,184	2.23
New Brunswick..	8	6,133,528	66,292	1.4	5	3,715,000	35,030	1.56
Quebec.....	45	126,818,949	1,010,861	21.2	33	83,735,065	628,851	27.97
Ontario.....	282	322,049,709	2,741,120	57.5	245	167,481,848	1,308,767	58.22
Manitoba.....	13	29,035,950	317,488	6.7	12	8,630,411	87,194	3.88
Saskatchewan....	14	8,715,000	93,699	1.9	13	4,607,045	43,601	1.94
Alberta.....	26	30,169,757	278,054	5.8	13	5,094,301	45,649	2.03
British Columbia..	20	15,552,901	162,891	3.4	17	4,724,372	48,685	2.17
Total.....	419	551,148,620	4,769,417	100.0	349	284,550,042	2,247,961	100.00

### Sales of Clay Building Brick (Common and Pressed) 1912 and 1913.

Province.	1912.			1913.		
	No. sold.	Value.	Per cent of total value.	No. sold.	Value.	Per cent of total value.
Nova Scotia.....	18,822,960	\$ 130,108	1.5	22,085,765	\$ 174,024	2.3
New Brunswick.....	5,780,000	53,350	0.6	6,189,152	61,969	0.8
Quebec.....	173,336,557	1,446,880	16.8	153,696,242	1,250,765	17.0
Ontario.....	423,670,184	3,807,195	44.2	430,029,531	4,026,029	54.6
Manitoba.....	87,178,937	1,012,801	11.7	43,660,320	514,358	7.0
Saskatchewan.....	30,538,771	332,943	3.9	18,175,000	189,820	2.6
Alberta.....	93,759,980	1,105,912	12.8	71,996,343	732,408	9.9
British Columbia.....	61,284,565	731,040	8.5	39,396,375	426,733	5.8
Total.....	894,371,954	8,620,229	100.0	785,228,728	7,376,106	100.0

Very large stocks of brick were reported as being in manufacturers' hands at the close of 1914, the total number being 242,106,000 brick or equivalent to about 44 per cent of the year's sales. Stocks at the end of 1915 had been reduced to 147,817,000, but were still equivalent to 52 per cent of the year's sales.

The record of stocks on hand by provinces is shown in the following table:—

### Common and Pressed Brick held in Stock by Manufacturers, December 31, 1914 and 1915.

Province.	1914.			1915.		
	Common brick. M.	Pressed brick. M.	Total M.	Common brick. M.	Pressed brick. M.	Total M.
Nova Scotia.....	4,690	50	4,740	500	.....	500
New Brunswick.....	2,830	100	2,930	700	42	742
Quebec.....	42,494	2,851	45,345	26,826	2,589	29,415
Ontario.....	107,325	23,369	130,694	65,202	13,044	78,246
Manitoba.....	20,140	760	20,900	14,800	190	14,990
Saskatchewan.....	7,503	1,140	8,643	5,088	540	5,628
Alberta.....	10,483	8,549	19,032	8,375	3,750	12,125
British Columbia.....	8,264	1,558	9,822	6,020	151	6,171
Total.....	203,729	38,377	242,106	127,511	20,306	147,817

The exports of building brick since 1891, and the imports since 1880, are shown in the following tables. The exports have never been large, averaging for a number of years about \$6,000 per annum. The exports fell off somewhat from 1909 to 1911, but increased again to a value of \$11,871 in 1914, and \$9,089 in 1915.

The annual imports for a number of years previous to 1903 averaged only about \$20,000 in value; during the past ten years, however, the imports have rapidly increased from \$100,000 to over \$760,000 in 1912. During

the calendar year 1915, the imports were 10,168,000 brick, valued at \$114,958, of which 375,000, valued at \$4,592, or an average of \$12.24 per thousand, were imported from Great Britain, and 9,793,000, valued at \$110,366, or an average of \$11.27 per thousand from the United States. The imports during the calendar year 1914 were 30,022,000 brick, valued at \$353,353, of which 1,794,000, valued at \$20,505, or an average of \$11.43 per thousand, were imported from Great Britain, and 28,228,000, valued at \$332,848, or an average of \$11.79 per thousand, from the United States.

### Exports of Building Brick.

Calendar Year.	M.	Value.	Calendar Year.	M.	Value.	Calendar Year.	M.	Value.
1891.....	246	\$ 1,163	1899.....	172	\$ 1,351	1907.....	802	\$ 6,193
1892.....	1,963	12,192	1900.....	546	4,528	1908.....	2,344	9,047
1893.....	6,073	44,110	1901.....	646	5,189	1909.....	365	2,255
1894.....	1,095	7,405	1902.....	2,110	12,786	1910.....	390	2,762
1895.....	1,655	8,665	1903.....	891	5,699	1911.....	394	3,977
1896.....	983	5,678	1904.....	696	5,357	1912.....	694	8,493
1897.....	573	2,679	1905.....	754	5,888	1913.....	977	8,579
1898.....	65	442	1906.....	697	6,541	1914.....	1,486	11,871
						1915.....	1,155	9,089

### Imports of Building Brick.

Fiscal Year.	M.	Value.	Fiscal Year.	M.	Value.	Fiscal Year.	M.	Value.
1880.....	340	\$ 2,067	1892.....	621	\$ 5,075	1904.....	13,455	\$117,468
1881.....	415	4,281	1893.....	1,489	14,108	1905.....	25,515	168,122
1882.....	3,500	24,572	1894.....	2,220	18,320	1906.....	21,934	194,897
1883.....	1,448	14,234	1895.....	575	4,705	Calendar Year.		
1884.....	3,263	20,258	1896.....	1,057	23,189	1907.....	12,961	129,235
1885.....	3,108	14,632	1897.....	2,094	10,336	1908.....	14,931	110,981
1886.....	983	5,929	1898.....	639	6,652	1909.....	27,972	195,360
1887.....	276	2,440	1899.....	2,611	21,306	1910.....	29,049	274,482
1888.....	2,483	20,720	1900.....	1,792	19,305	1911.....	51,102	475,865
1889.....	2,590	24,585	1901.....	2,800	20,677	1912.....	81,425	763,470
1890.....	1,933	12,500	1902.....	4,087	33,802	1913.....	56,846	575,269
1891.....	589	9,744	1903.....	2,881	28,493	1914.....	30,022	353,353
						1915.....	10,168	114,958

*Prices.*—The price of brick varies greatly with the quality, locality, market or demand. The values as given in the table of production are those at the yard or kiln and do not include costs of delivery. They do not, therefore, represent the price to the consumer. The average price of common brick at the kiln in 1915 according to these returns was \$7.48, as compared with \$7.99 in 1914, \$8.85 in 1913, and \$9.11 in 1912; and of pressed brick \$9.89 in 1915, as compared with \$11.91 in 1914, \$12.49 in 1913, and \$12.86 in 1912.

In the Maritime Provinces during 1915 the price of common brick varied from \$7.00 to \$11.00, averaging for Nova Scotia \$7.53, and for New Brunswick \$9.29.

In Quebec the price of common brick varied between \$5 and \$8, averaging \$7.10, while the price of pressed brick averaged \$15.73. The average price of common brick in Ontario was \$7.34, the limits of variation being \$6, and \$10, while for pressed brick the average was \$9.16, and the variation from \$7 to \$12.

In all the western provinces common brick ranged from about \$8 to \$11.50, averaging \$10.10 in Manitoba, \$8.72 in Saskatchewan, \$8.63 in Alberta, and \$9.23 in British Columbia. Pressed brick ranged from \$10.50 to \$22.50 in individual yards, averaging \$16.82 in Saskatchewan, \$9.88 in Alberta, and \$21.41 in British Columbia.

The following table shows the average values at the kilns, of common and pressed brick, during 1913, 1914, and 1915, as furnished by the producers.

### Average Prices per Thousand of Common and Pressed Brick.

	Common brick.			Pressed brick.		
	1913.	1914.	1915.	1913.	1914.	1915.
Nova Scotia.....	\$ 7.82	\$ 7.75	\$ 7.53	\$16.06	\$15.32	\$15.00
New Brunswick.....	10.00	10.61	9.29	12.00	22.50	22.00
Quebec.....	7.89	7.40	7.10	12.73	15.91	15.73
Ontario.....	8.88	7.86	7.34	11.48	10.77	9.16
Manitoba.....	11.21	10.79	10.10	17.28	12.59	.....
Saskatchewan.....	9.86	8.98	8.72	16.15	17.31	16.82
Alberta.....	9.13	7.92	8.63	12.97	13.52	9.88
British Columbia.....	9.49	8.56	9.23	25.65	26.50	21.41
Canada.....	8.85	7.99	7.48	12.49	11.91	9.89

### PRODUCTION OF BRICK BY PROVINCES.

*Nova Scotia and New Brunswick.*—The total sales in Nova Scotia were 6,562,000 brick, valued at \$50,184, as compared with sales of 12,672,826 brick, valued at \$99,012 in 1914. The chief sources of production are: Annapolis Royal, Pugwash, Elmsdale, Amherst, Orangedale, and New Glasgow.

The total sales in New Brunswick were 3,715,000 brick, valued at \$35,030, as compared with 6,133,528 brick, valued at \$66,292 in 1914; and the principal sources of production are Fredericton, St. John, Chatham, and Lewisville.

*Quebec.*—The total sales of brick in Quebec in 1915 were 83,735,065, valued at \$628,851, comprising 70,744,548 common brick, valued at \$566,085, or \$7.10 per thousand, and 3,990,517 pressed brick, valued at \$62,766, or \$15.73 per thousand.

The sales in 1914 were 126,818,949, valued at \$1,101,861, comprising 118,278,889 common brick, valued at \$874,961, or \$7.40 per thousand, and 8,540,060 pressed brick, valued at \$135,900, or \$15.91 per thousand.

While brick-making is carried on at many places in the Province, the principal plants are located at Montreal, Laprairie, Sherbrooke, Quebec, and Deschailions.

*Ontario.*—This Province is credited in 1915 with over 58 per cent of the brick production of Canada, the total sales as reported by 245 firms being 167,481,848 brick, valued at \$1,308,767, and including 123,977,112 common brick, valued at \$910,459, or an average of \$7.34 per thousand, and 43,504,736 pressed brick valued at \$398,308, or an average of \$9.16 per thousand.

The total sales in 1914 were 322,049,709 brick, valued at \$2,741,120, and included 249,896,642 common brick, valued at \$1,963,921, or an average of \$7.86 per thousand, and 72,153,067 pressed brick, valued at \$777,199, or an average of \$10.77 per thousand.

The city of Toronto and vicinity, including the counties of York, Peel, and Halton, is the principal brick-making section, and in 1915 produced about 56 per cent of the Ontario production, or about 33 per cent of the total Canadian production of brick. The county of Wentworth, comprising the city of Hamilton and vicinity, produced over 11 per cent of the Ontario production. The Ottawa district, including the counties of Russell and Carleton, produced over 6 per cent.

The greater part of the pressed brick reported as such was made in the Toronto and Hamilton districts.

The production by principal counties in 1915 and 1914 is shown in the accompanying tables:—

### Sale of Common and Pressed Brick in Ontario by Principal Counties, 1915.

County.	Common.			Pressed.			Total value.	Per cent.
	No.	Value.	Per M.	No.	Value.	Per M.		
York.....	48,656,434	\$336,701	\$6.92	2,708,600	\$ 37,379	\$13.80	\$ 374,080	28.56
Halton.....	.....	.....	.....	25,176,560	214,251	8.51	214,251	16.37
Wentworth.....	15,439,140	92,856	6.01	5,679,873	52,356	9.22	145,212	11.10
Peel.....	11,296,120	98,393	8.71	5,426,438	48,095	8.86	146,488	11.19
Carleton.....	6,028,000	47,667	7.91	.....	.....	.....	47,667	3.64
Russell.....	3,200,000	23,400	7.31	1,000,000	12,000	12.00	35,400	2.70
Kent.....	3,864,300	27,973	7.24	.....	.....	.....	27,973	2.14
Grey.....	1,614,000	11,197	6.94	120,000	1,080	9.00	12,277	0.94
Middlesex.....	4,935,500	38,434	7.79	800,000	8,000	10.00	46,434	3.55
Renfrew.....	2,516,000	20,853	8.29	.....	.....	.....	20,853	1.59
Essex.....	2,593,000	19,705	7.32	.....	.....	.....	19,705	1.51
Thunder Bay Dist.....	1,010,500	11,925	11.80	.....	.....	.....	11,925	0.91
Total, 12 counties.....	101,252,994	729,104	7.20	40,911,471	373,161	9.12	1,102,265	84.22
Total, other counties....	22,724,118	181,355	7.98	2,593,265	25,147	9.70	206,502	15.78
Total, Ontario.....	123,977,112	910,459	7.34	43,504,736	398,308	9.16	1,308,767	100.00



## Sale of Common and Pressed Brick in Ontario by Principal Counties, 1914.

County.	Common.			Pressed.			Total value.	Per cent.
	No.	Value.	Per M.	No.	Value.	Per M.		
York.....	100,565,314	\$ 807,673	\$ 8.03	4,979,600	\$ 72,192	\$14.50	\$ 879,865	32.10
Peel.....	39,981,156	278,242	6.96	14,566,450	152,435	10.47	430,677	15.71
Halton.....	.....	.....	.....	40,404,037	424,627	10.51	424,627	15.49
Wentworth.....	18,846,955	117,896	6.26	4,329,240	39,059	9.02	156,955	5.73
Carleton.....	10,027,000	95,908	9.56	.....	.....	.....	95,908	3.50
Russell.....	11,574,000	79,295	6.85	1,355,079	15,702	11.59	94,997	3.47
Thunder Bay District.....	5,049,176	46,696	9.25	2,395,873	31,056	12.96	77,752	2.84
Middlesex.....	6,678,511	56,743	8.50	1,750,000	19,800	11.31	76,543	2.79
Kent.....	6,498,600	51,074	7.86	.....	.....	.....	51,074	1.86
Waterloo.....	5,340,321	37,719	7.06	.....	.....	.....	37,719	1.38
Lincoln.....	2,522,325	22,956	9.10	734,788	8,450	11.50	31,406	1.14
Peterboro.....	3,000,000	30,000	10.00	.....	.....	.....	30,000	1.09
Simcoe.....	3,150,000	26,313	8.35	.....	.....	.....	26,313	0.96
Renfrew.....	2,503,775	22,595	9.02	.....	.....	.....	22,595	0.82
Essex.....	2,688,000	18,863	7.02	.....	.....	.....	18,863	0.69
Nipissing.....	2,050,000	18,850	9.20	.....	.....	.....	18,850	0.69
Grey.....	2,094,283	16,748	8.00	.....	.....	.....	16,748	0.61
Total, 17 counties.....	222,569,416	1,727,571	7.76	70,515,067	763,321	10.82	2,490,892	90.87
Total, other counties....	27,327,226	236,350	8.65	1,638,000	13,878	8.47	250,228	9.13
Total, Ontario.....	249,896,642	1,963,921	7.86	72,153,067	777,199	10.77	2,741,120	100.00

The annual production of common and pressed brick as ascertained by the Ontario Bureau of Mines, is shown in the following table. The figures differ only slightly from those reported directly to the Mines Branch.

### Building Brick Made in Ontario Since 1898.

(As ascertained by the Ontario Bureau of Mines.)

	Common brick.			Pressed brick.		
	M.	Value.	Average per M.	M.	Value.	Average per M.
1898.....	170,000	\$ 914,000	\$5.376	8,970	\$100,344	\$11.187
1899.....	233,898	1,313,750	5.617	10,808	105,000	9.715
1900.....	240,430	1,379,590	5.738	11,562	114,419	9.896
1901.....	259,265	1,530,460	5.903	12,846	104,594	8.127
1902.....	220,500	1,411,000	6.399	19,755	144,171	7.298
1903.....	230,000	1,561,700	6.790	23,703	218,550	9.220
1904.....	200,000	1,430,000	7.150	26,857	226,750	8.443
1905.....	250,000	1,937,500	7.750	26,000	234,000	9.000
1906.....	300,000	2,157,000	7.190	39,860	337,795	8.475
1907.....	273,882	2,109,978	7.704	69,763	648,683	9.298
1908.....	222,361	1,575,875	7.087	56,167	485,819	8.649
1909.....	246,308	1,916,147	7.779	53,167	490,571	9.227
1910.....	304,988	2,374,287	7.785	44,204	458,596	10.375
1911.....	354,546	2,801,971	7.903	52,764	564,630	10.701
1912.....	385,000	3,178,250	8.255	65,598	634,169	9.667
1913.....	408,808	3,432,352	8.445	81,238	919,741	11.321
1914.....	294,400	2,336,207	7.935	61,934	656,944	10.607
1915*.....	96,517	768,517	7.959	24,836	217,350	8.751

\* Preliminary.

In addition to the ordinary clay-building brick, there were produced in this Province in 1915, ornamental brick valued at \$12,140, and fire-proofing valued at \$41,040. In 1914 the production of ornamental brick was valued at \$15,504, and of fireproofing and terra-cotta \$205,204.

*Manitoba.*—Throughout all of the western provinces there was again a large falling off in the demand for brick. In Manitoba the total sales were 8,630,411, valued at \$87,194, as compared with sales in 1914 of 29,035,950, valued at \$317,488. Stocks on hand at the end of December exceeded its year's sales.

The principal brick-making plants are at Winnipeg, St. Boniface, Lac du Bonnet, Portage la Prairie, Sidney, Gilbert Plains, Balmoral, and Neepawa.

*Saskatchewan.*—The total sales of clay-building brick in Saskatchewan in 1915 were 4,607,045, valued at \$43,601, as against sales in 1914 of 8,715,000, valued at \$93,699. Stocks on hand at the end of 1915 were 5,628,000, also in excess of the year's sales.

The principal clay plants are located at Estevan, Prince Albert, Bruno, Weyburn, Saskatoon, Rosthern, Verigin, and Broadview.

*Alberta.*—The total sales of clay-building brick in 1915 were 5,094,301, valued at \$45,649, as compared with sales in 1914 of 30,169,757, valued at \$278,054, and stocks on hand at the end of 1915 amounted to 12,125,000 brick, or over double the year's sales.

The principal centres of production are: Edmonton, Cochrane, Calgary, Medicine Hat, Redcliff, Lethbridge, Red Deer, Sandstone, Brickburn, and Innisfail.

In addition to ordinary building-brick there was a production of fire-proofing brick, valued at \$30,263.

*British Columbia.*—The total sales of brick in this Province in 1915 were reported as 4,724,372, valued at \$48,685, as against sales in 1914 of 15,552,901, valued at \$162,891, while stocks on hand at the end of the year were 6,171,000 brick.

In addition to the building-brick there was also a production of fire-proofing brick valued at \$24,983, as against a value of \$58,077 in 1914.

The principal centres of brick manufacture are: Vancouver, New Westminster, Clayburn, Kilgard, Port Haney and vicinity, Gabriola Island, Victoria, Sydney, and Kelowna.

#### CLAY-PAVING BRICK.

The total production of paving brick and paving blocks in Canada in 1915 was reported as 1,227,647, valued at \$20,694, or an average value per thousand of \$16.85, as compared with 2,707,000, valued at \$49,627, or an average value per thousand in 1914 of \$18.33.

This paving brick is made chiefly at West Toronto, Ontario, from shale obtained from the banks of the Humber river, although during the past

two years there has also been a small production reported from Clayburn, British Columbia.

The annual production has for a number of years varied from 3,000,000 to over 5,000,000 per season; and the Ontario output finds a market chiefly in Toronto.

Statistics of production since 1887 are shown in the next table.

The imports of paving brick during the past five years have considerably exceeded the domestic production. During the calendar year 1915 the imports were: 5,865,000, valued at \$76,759, or an average value per thousand of \$13.09, and included 4,747,000, valued at \$61,468, or an average of \$12.95, from the United States, and 1,118,000, valued at \$15,291, or an average of \$13.68 from Great Britain.

The total imports during the calendar year 1914 were 9,069,000, valued at \$145,063, or an average value per thousand of \$16.00, and included 6,395,000, valued at \$103,900, or an average of \$16.25 from the United States, and 2,674,000, valued at \$41,163, or an average of \$15.21 from Great Britain.

### Annual Production of Paving Brick.\*

Year.	M.	Value.	Average per M.	Year.	M.	Value.	Average per M.
1897.....	4,568	\$45,670	\$10.00	1906.....	3,000	\$45,000	\$15.00
1898.....				1907.....	3,618	72,354	20.00
1899.....	5,300	42,550	8.03	1908.....	3,720	59,456	15.98
1900.....	2,710	26,950	9.94	1909.....	3,760	67,408	17.93
1901.....	3,689	37,000	10.03	1910.....	4,215	78,980	18.74
1902.....	4,211	42,000	9.97	1911.....	5,220	79,444	15.22
1903.....	3,789	45,288	11.95	1912.....	4,580	85,989	18.78
1904.....	4,436	55,450	12.50	1913.....	4,208	75,669	17.98
1905.....	4,500	54,000	12.00	1914.....	2,707	49,627	18.33
				1915.....	1,228	20,694	16.85

\* Figures previous to 1907 compiled from Ontario Bureau of Mines.

### Imports of Paving Brick.

Year.	M.	Value.	Average per M.	Year.	M.	Value.	Average per M.
Fiscal Year.				Calendar Year.			
1895.....	275	\$ 5,006	\$18.20	1907.....	5,438	\$ 62,570	\$11.51
1896.....	918	10,132	11.04	1908.....		100,013	
1897.....	52	719	13.83	1909.....		139,366	
1898.....	367	2,337	6.37	1910.....	10,503	124,994	11.90
1899.....	1,583	23,648	14.94	1911.....	11,450	164,292	14.34
1900.....	2,175	35,644	16.39	1912.....	11,793	160,663	13.62
1901.....	900	10,414	11.57	1913.....	13,035	176,497	13.54
1902.....	1,030	16,788	16.30	1914.....	9,069	145,063	16.00
1903.....	1,337	18,811	14.07	1915.....	5,865	76,759	13.09
1904.....	1,986	29,753	14.98				
1905.....	3,350	32,578	13.86				
1906.....	4,104	46,008	11.21				

## FIRECLAY AND FIRECLAY PRODUCTS.

There are a number of clays from different parts of Canada that have been used in the manufacture of refractory brick or firebrick, and for furnace linings, etc., which have been usually termed "fireclays." These include clays found with the coal measures at Westville, N. S., and at Comox, V. I., also clays found south of Moosejaw, Sask., at Clayburn, near the city of Vancouver, B.C., and at Kilgard, B.C. Stove linings and other refractory clay products are made at several places in Ontario and Quebec from imported clays.

The total value of the sales of fireclays, firebrick, and fireclay products in 1915 was \$110,693, as compared with a valuation of \$107,568 in 1914 and \$142,738 in 1913. There was, in addition, in 1915, a production of fireclay products valued at \$28,807, reported as being made from imported clays.

The production in 1915 included fireclay or refractory clay sold as such, 2,328 tons, valued at \$12,065; firebrick 2,895,640, valued at \$68,700, or an average of \$23.73 per thousand; and other fireclay products valued at \$29,928.

The production in 1914 included fireclay or refractory clay, sold as such, 2,171 tons, valued at \$12,875; firebrick 2,815,690, valued at \$72,299 or an average of \$25.67 per thousand; and other fireclay products valued at \$22,394.

The imports of firebrick during the calendar year 1915 were valued at \$813,071, of which \$718,299 was from the United States, \$93,926 from Great Britain, and \$846 from other countries.

The imports of firebrick during the calendar year 1914 were valued at \$690,133, of which \$592,650 was from the United States, \$93,837 from Great Britain, and \$3,646 from other countries.

Fireclay was imported during the calendar year 1915, to the value of \$87,267, as compared with a value of \$90,233 in 1914, and \$143,399 in 1913.

Statistics of the annual production since 1907 of firebrick, refractory clay or fireclay, sold as such, and of fireclay products; and statistics of the imports of firebrick and fireclay are shown in the following tables:—

## Production of Firebrick and Fireclay Products.

Year.	Firebrick.			Fireclay.			Other fireclay products.	Total value.
	No. sold.	Value.	Per M.	Tons.	Value.	Per Ton.		
1907.....	4,323,179	\$113,322	\$26.21				\$18,000	\$131,322
1908.....	2,415,871	70,429	29.16	1,984	\$ 8,121	\$4.09	31,752	110,302
1909.....	1,059,270	32,742	30.92	4,405	12,390	2.81	33,000	78,132
1910.....	1,375,400	21,352	21.34	1,425	5,863	4.11	15,000	50,215
1911.....	2,367,937	44,122	18.63	7,532	24,128	3.20	20,880	89,130
1912.....	3,429,594	67,192	19.59	6,307	24,343	3.86	34,050	125,585
1913.....	3,667,276	86,164	23.50	3,345	14,018	4.19	42,556	142,738
1914.....	2,815,690	72,299	25.67	2,171	12,875	5.93	22,394	107,568
1915.....	2,895,640	68,700	23.73	2,328	12,065	5.18	29,928	110,693

## Imports of Firebrick and Fireclay.

Fiscal Year.	Fireclay.	Firebrick.	Calendar Year.		
			Fireclay.	Firebrick.	
1900.....	\$ 59,291	\$ 39,535	1908.....	\$ 86,879	\$ 380,905
1901.....	79,530	32,831	1909.....	86,161	485,994
1902.....	64,541	45,608	1910.....	124,293	814,927
1903.....	94,509	34,522	1911.....	125,199	814,414
1904.....	52,716	38,535	1912.....	140,500	953,621
1905.....	73,837	44,746	1913.....	143,399	1,192,857
1906.....	131,130	51,892	1914.....	90,233	690,133
1907 Calendar Year.....	152,485	641,811	1915.....	87,267	813,071

## SEWERPIPE AND DRAIN TILE.

The total value of the sales of sewerpipe in 1915 was \$799,446, as compared with a value of \$1,104,499 in 1914, \$1,035,906 in 1913, and \$884,641 in 1912. About 45 per cent of the production in 1915 was made in Ontario.

Following is a list of firms reporting production of sewerpipe in 1915:—

Standard Clay Products, Limited, St. Johns, Que., and New Glasgow, N.S.  
 Ontario Sewerpipe Company, Mimico, Ont.  
 Dominion Sewerpipe Company, Swansea, Ont.  
 Hamilton & Toronto Sewerpipe Company, Hamilton, Ont.  
 Alberta Clay Products Company, Medicine Hat, Alberta.  
 Kilgard Fireclay Company, Kilgard, B.C.  
 The Clayburn Company, Limited, Clayburn, B.C.  
 British Columbia Pottery Company, Victoria, B.C.

The imports of drainpipe and sewerpipe during 1915 were valued at \$41,801, of which \$28,496 were imported from the United States, and \$13,305 from Great Britain.

The total imports during 1914 were valued at \$338,533, of which \$305,546 were imported from the United States; \$32,866 from Great Britain; and \$121 from other countries.

The total sales of drain tile in Canada in 1915 as reported to this Branch were valued at \$355,296, as compared with sales of \$366,340 in 1914, and \$338,552 in 1913. The greater part of this production is in the Province of Ontario; the sales in this Province in 1915 as reported to this

Branch were 18,812,712, valued at \$341,467, as against 18,592,254, valued at \$343,662 in 1914.

The Ontario Bureau of Mines reports the total number of drain tile made in that Province during 1915 as 15,488,000, valued at \$274,773, or an average of \$17.74 per thousand, as compared with 14,710,000, valued at \$277,530, or an average of \$18.87 per thousand in 1914.

The imports of unglazed tile are comparatively small, the value during the calendar year 1915 being \$346, as compared with \$2,941 in 1914, and \$12,156 in 1913.

Statistics of the annual production of sewerpipe and of the imports of drain tile and sewerpipe, are shown in the next three tables:—

### Production of Sewerpipe.

Calendar Year.	Value.	Calendar Year.	Value.	Calendar Year.	Value.
1888.....	\$266,320	1897.....	\$164,250	1906.....	\$ 350,045
1889.....	Not available	1898.....	181,717	1907.....	667,100
1890.....	348,000	1899.....	161,546	1908.....	514,362
1891.....	227,300	1900.....	231,525	1909.....	645,722
1892.....	367,660	1901.....	248,115	1910.....	774,110
1893.....	350,000	1902.....	301,965	1911.....	812,716
1894.....	250,325	1903.....	317,970	1912.....	884,641
1895.....	257,045	1904.....	440,894	1913.....	1,035,906
1896.....	153,875	1905.....	382,000	1914.....	1,104,499
				1915.....	799,446

### Production of Drain Tile in Ontario.

(As ascertained by the Ontario Bureau of Mines.)

Year.	No.	Value.	Year.	No.	Value.	Year.	No.	Value.
1891.....	7,500,000	\$ 90,000	1899..	21,027,400	\$240,246	1907..	15,578,000	\$250,122
1892.....	10,000,000	100,000	1900..	19,544,000	209,738	1908..	24,800,000	338,658
1893.....	17,300,000	190,000	1901..	21,592,000	231,374	1909..	27,418,000	363,550
1894.....	25,000,000	280,000	1902..	17,510,000	199,000	1910..	21,028,000	318,456
1895.....	14,330,000	157,000	1903..	18,200,000	227,000	1911..	21,630,000	349,545
1896.....	13,200,000	144,000	1904..	16,000,000	210,000	1912..	16,463,000	279,579
1897.....	*	*	1905..	15,000,000	220,000	1913..	16,935,000	292,767
1898.....	22,668,000	225,000	1906..	17,700,000	252,500	1914..	14,710,000	277,530
						1915..	15,488,000	274,773

\* Not stated.

## Imports of Drain Tile and Sewerpipe.

Fiscal Year.	Drain tile. (a)	Sewerpipe. (b)	Fiscal Year.	Drain tile. (a)	Sewerpipe. (b)
1880.....		\$33,796	1898.....	\$ 157	\$ 29,454
1881.....		37,368	1899.....	1,817	32,071
1882.....		70,061	1900.....	1,383	37,766
1883.....		70,699	1901.....	1,264	54,819
1884.....		66,170	1902.....	269	55,261
1885.....	\$5,585	66,678	1903.....	252	57,100
1886.....	1,905	56,048	1904.....	1,637	53,958
1887.....	2,183	69,020	1905.....	1,229	101,166
1888.....	4,290	96,967	1906.....	4,727	131,353
1889.....	2,346	80,869	Calendar Year.		
1890.....	3,780	73,654	1907.....	2,011	130,698
1891.....	673	86,522	1908.....	2,056	108,189
1892.....	473	59,064	1909.....	2,785	170,280
1893.....	110	38,891	1910.....	4,485	175,599
1894.....	53	24,572	1911.....	5,640	382,929
1895.....	695	20,358	1912.....	4,018	507,024
1896.....	339	18,957	1913.....	12,156	465,997
1897.....	416	33,870	1914.....	2,941	338,533
			1915.....	346	41,801

(a) Drain tile, not glazed.

(b) Drain pipes, sewerpipe, and earthenware fittings therefor, chimney linings, or vents, chimney tops and inverted blocks, glazed or unglazed.

## POTTERY AND EARTHENWARE.

The pottery made from Canadian clays has been, hitherto, chiefly of the common grades, such as flowerpots, jardinières, crocks, jars, churns, etc. A number of potters made a higher grade product of stoneware, but the majority of these use imported clays. Sanitary ware is made at St. Johns, Que., and other points; but the raw material, including clays and feldspar, is nearly all imported.

The total value of the production of pottery and clay sanitary ware in 1915, according to returns received, was \$317,080, of which it is estimated that a value of \$252,180 is attributable to imported clays. The total value of the production in 1914 was \$312,846, of which a value of \$277,475 was credited to imported clays.

Annual statistics of production are shown herewith:—

## Annual Production of Pottery.

Calendar Year.	Value.	Calendar Year.	Value.	Calendar Year.	Value.
1888.....	\$ 27,750	1897.....	\$129,629	1906.....	\$150,000
1889.....	Not available	1898.....	214,675	1907.....	253,809
1890.....	195,242	1899.....	185,000	1908.....	200,541
1891.....	258,844	1900.....	200,000	1909.....	285,285
1892.....	265,811	1901.....	200,000	1910.....	250,924
1893.....	213,186	1902.....	200,000	1911.....	102,493
1894.....	162,144	1903.....	200,000	1912.....	43,955
1895.....	151,588	1904.....	140,000	1913.....	53,533
1896.....	163,427	1905.....	120,000	1914.....	35,371
				1915.....	64,900

Details of the imports of earthenware and chinaware, showing the values imported and the countries of origin, have already been shown in the general table of imports.

The imports in 1915 were valued at \$1,460,010, as compared with a value of \$2,192,222 in 1914, and \$3,314,870 in 1913. These imports are subdivided into eight classes and in 1915 included: Brown or coloured earthenware, etc., \$74,864; C.C. or cream-coloured ware, decorated, printed, sponged, etc., \$135,425; demijohns, churns or crocks, \$14,752; tableware of china, porcelain, white granite, etc., \$1,016,900; china and porcelain ware, n.o.p., \$18,312; tiles or blocks of earthenware or stone prepared for mosaic flooring, \$40,286; earthenware tiles, n.o.p. \$92,700; manufactures of earthenware, n.o.p. \$66,771.

The imports in 1914 included: Brown or coloured earthenware, etc., \$71,083; C.C. or cream-coloured ware, decorated, printed, sponged, etc., \$163,431; demijohns, churns or crocks \$25,935; tableware of china, porcelain, white granite, etc., \$1,437,175; china and porcelain ware, n.o.p., \$30,006; tiles or blocks of earthenware or stone prepared for mosaic flooring, \$104,285, earthenware tiles, n.o.p., \$186,161; manufactures of earthenware, n.o.p., \$174,146.

It will be observed that there has been a large decrease in almost all classes of earthenware and chinaware imported in 1915. Great Britain is the principal source of the imports of this class of products, but quite large supplies are also obtained from the United States, Germany, France, Austria-Hungary, Japan, Belgium, and other countries.

### Imports of Earthenware and Chinaware.

Fiscal Year.	Value.	Fiscal Year.	Value.	Fiscal Year.	Value.
1880.....	\$322,333	1892.....	\$ 748,810	1904.....	\$1,611,356
1881.....	439,029	1893.....	709,737	1905.....	1,636,214
1882.....	646,734	1894.....	695,514	1906.....	1,692,359
1883.....	657,886	1895.....	547,935	1907 (9 mos.).....	1,422,880
1884.....	544,586	1896.....	575,493	1908.....	2,190,784
1885.....	511,853	1897.....	595,822	Calendar Year.	
1886.....	599,269	1898.....	675,874	1909.....	1,781,759
1887.....	750,691	1899.....	916,727	1910.....	2,283,116
1888.....	697,082	1900.....	959,526	1911.....	2,516,536
1889.....	697,949	1901.....	1,114,677	1912.....	3,094,956
1890.....	695,206	1902.....	1,275,093	1913.....	3,314,870
1891.....	634,907	1903.....	1,406,610	1914.....	2,192,222
				1915.....	1,460,010

### KAOLIN.

The shipments of kaolin in 1915 were 1,300 tons, valued at \$13,000, as compared with 1,000 tons valued at \$10,000 in 1914; 500 tons valued at \$5,000 in 1913, and 20 tons valued at \$160 in 1912.

The production was obtained from the deposits in the township of Amherst, Ottawa county, Quebec, which have been opened up by the Canadian China Clay Company of Montreal.



The plant for refining the clay is situated 2 miles from St. Remi d'Amherst, and 7 miles from Huberdeau, the terminus of the Montefort Branch of the Canadian Northern Quebec railway—46 miles northwest of Montreal.

The imports of china-clay ground and unground, into Canada during the twelve months ending December, 1915, were 21,940 tons, valued at \$124,658, or \$5.68 per ton, as against imports of 20,437 tons, valued at \$150,881, or \$7.38 per ton in 1914.

The imports of earthenware and chinaware, as already noted, were valued at \$1,460,010 in 1915, \$2,192,222 in 1914, and \$3,314,870 in 1913, and consist chiefly of tableware of china, porcelain, etc.

Kaolin, or china-clay is also in considerable demand in the United States, the imports into that country in 1915 being 186,414 gross tons, valued at \$1,151,551, as compared with 288,858 gross tons, valued at \$1,908,407, imported in 1914.

### Annual Imports of China-Clay.

Calendar Year.	Tons.	Value.	Value per ton.
1907.....	13,242	\$102,209	\$7.72
1908.....	10,781	87,984	8.16
1909.....	12,791	100,066	7.82
1910.....	18,216	142,125	7.80
1911.....	18,819	125,768	6.68
1912.....	18,332	127,402	6.95
1913.....	21,164	149,337	7.06
1914.....	20,437	150,881	7.38
1915.....	21,940	124,658	5.68

## LIME.

The production of lime which in 1915 amounted to 5,047,244 bushels (equivalent to about 176,654 tons), valued at \$1,015,702, or an average of 20 cents per bushel or \$5.75 per ton, is the lowest since 1908, and was exceeded even in 1906. Compared with 1914 when the production was 7,028,582 bushels (equivalent to 246,000 tons), valued at \$1,360,628, an average of 19 cents per bushel, or \$5.53 per ton, a decrease is shown of 1,981,338 bushels or 28 per cent.

The production in 1913 was reported as 7,558,484 bushels, (264,547 tons), valued at \$1,609,398, or an average of 21 cents per bushel, or \$6.08 per ton.

Returns were received from 78 firms in 1915, as compared with 85 firms in 1914. The average number of men employed in 1915 was 633, and wages paid \$293,735, as against 1,015 men employed and \$518,331 paid in wages in 1914. Statistics in respect to labour and wages in lime production, however, should be used with some discrimination, as many firms producing lime are also engaged in the quarrying of stone for purposes other than lime-burning, and are unable to make separate reports as to labour employed. This is particularly evident in the record from Nova Scotia and New Brunswick, since, for the first mentioned, the record includes only the labour employed at the kilns, while, for the latter, quarry costs are also included.

The average price per bushel of lime sold in 1915 varied from a minimum  $17\frac{1}{3}$  cents in Ontario to a maximum of  $32\frac{3}{4}$  cents in British Columbia.

Nearly 88 per cent of the total production in 1915 was derived from Ontario, Quebec and the Maritime Provinces, as against 85 per cent of the total from these provinces in 1914, and 72 per cent in 1912, showing that the rate of decrease in production has been greater in the west than in the east.

Production of hydrated lime amounting to a total of 7,972 tons was reported by six firms, viz.: The Standard Lime Co., Ltd., Joliette, Que., Wright & Co., Incorporated, Hull, Que., The Standard White Lime Co., of Guelph, Ont., The Elora White Lime Co., Ltd., Elora, Ont., The Contractors Supply Co., Ltd., Orangeville, Ont., and the Ontario Reformatory at Guelph, at which plant there was also a production of 550 tons of "Alca."

"Alca" lime is a product made by the incorporation with selected hydrated lime of about 15 per cent of a patented calcium aluminate compound which is derived as a slag from a blast furnace and which has a composition of about 25 to 35 per cent alumina, 20 per cent silica, and 35 to 40 per cent lime and magnesia.

## Lime Production by Provinces, 1915.

Province.	No. of active firms reporting.	Men employed.	Wages paid.	SALES.			
				Bushels.	Value.	Average per bushel.	Per cent of total value.
Nova Scotia.....	1	10	\$ 4,802	915,086	\$ 183,017	\$0.200	18.02
New Brunswick.....	5	77	39,572	369,117	93,797	0.254	9.23
Quebec.....	20	209	100,449	1,351,306	274,831	0.203	27.06
Ontario.....	40	240	97,298	1,903,914	328,515	0.173	32.34
Manitoba.....	5	55	27,948	281,432	71,372	0.254	7.03
Alberta.....	4	22	8,288	74,152	14,445	0.195	1.42
British Columbia....	3	20	15,378	152,237	49,725	0.327	4.90
Total.....	78	633	293,735	5,047,244	1,015,702	0.201	100.00

## Lime Production by Provinces, 1914.

Province	No. of active firms reporting.	Men employed.	Wages paid.	SALES.			
				Bushels.	Value.	Average per bushel.	Per cent of total value.
P. E. Island.....	1	2	\$ 61	1,693	\$ 542	\$0.32	0.04
Nova Scotia.....	1	15	6,900	516,029	103,206	0.20	7.59
New Brunswick.....	5	89	47,224	391,739	102,980	0.26	7.57
Quebec.....	18	258	137,640	1,767,935	389,064	0.22	28.59
Ontario.....	43	429	224,937	3,393,078	556,850	0.16	40.92
Manitoba.....	7	123	47,331	526,167	92,898	0.18	6.83
Alberta.....	6	58	25,963	280,252	58,321	0.21	4.29
British Columbia....	4	41	28,275	151,689	56,767	0.37	4.17
Total.....	85	1,015	518,331	7,028,582	1,360,628	0.19	100.00

## Lime Production by Provinces, 1913.

Province.	No. of active firms reporting.	Men employed.	Wages paid.	SALES.			
				Bushels.	Value.	Average per bushel.	Per cent of total value.
P. E. Island.....	1	2	\$ 130	3,762	\$ 1,129	\$0.30	10.65
Nova Scotia.....	1	10	5,199	851,050	170,210	0.20	
New Brunswick.....	5	93	50,180	392,985	98,841	0.25	6.14
Quebec.....	17	321	162,422	1,616,446	418,008	0.26	25.97
Ontario.....	39	410	239,143	3,254,482	573,209	0.18	35.62
Manitoba.....	5	42	21,640	576,938	107,281	0.19	6.66
Saskatchewan.....	1	8	3,000	35,000	10,000	0.29	0.62
Alberta.....	6	70	50,127	465,250	115,355	0.25	7.17
British Columbia....	2	120	46,000	362,571	115,365	0.32	7.17
Total.....	77	1,076	577,841	7,558,484	1,609,398	0.21	100.00

## Annual Production of Lime by Provinces.

Year.	NOVA SCOTIA.			P. E. ISLAND.			NEW BRUNSWICK.			QUEBEC.			ONTARIO.		
	Bushels.	Value.	Average.	Bushels.	Value.	Average.	Bushels.	Value.	Average.	Bushels.	Value.	Average.	Bushels.	Value.	Average.
1906.....	50,000	\$ 13,600	0.27	.....	.....	.....	405,450	\$ 94,290	0.23	923,563	\$201,816	0.22	2,885,000	\$496,785	0.17
1907.....	30,000	11,100	0.37	15,000	4,900	0.33	554,330	124,786	0.23	1,053,856	262,990	0.25	2,333,879	393,474	0.17
1908.....	37,500	12,000	0.32	13,568	4,102	0.30	155,748	34,262	0.22	857,700	201,357	0.23	2,087,731	358,507	0.17
1909.....	37,500	11,250	0.30	20,230	5,479	0.27	697,466	154,151	0.22	1,281,827	315,633	0.25	2,619,553	434,147	0.17
1910.....	40,000	8,800	0.22	15,750	4,690	0.30	470,050	105,593	0.22	1,227,555	299,126	0.23	2,988,020	476,137	0.16
1911.....	618,950	123,790	0.20	20,250	6,765	0.33	613,728	132,897	0.22	1,428,392	356,453	0.25	3,360,265	538,902	0.16
1912.....	684,625	136,930	0.20	24,974	8,191	0.33	616,835	133,742	0.22	1,727,614	474,595	0.27	3,376,193	573,269	0.17
1913.....	851,050	170,210	0.20	3,762	1,129	0.30	392,985	98,841	0.25	1,616,446	418,008	0.26	3,254,482	573,209	0.18
1914.....	516,029	103,206	0.20	1,693	542	0.32	391,739	102,980	0.26	1,767,935	389,064	0.22	3,393,078	556,850	0.16
1915.....	915,086	183,017	0.20	.....	.....	.....	369,117	93,797	0.25	1,351,306	274,831	0.20	1,903,914	328,515	0.17
	MANITOBA.			SASKATCHEWAN.			ALBERTA.			B. COLUMBIA.			CANADA.		
1906.....	620,201	119,792	0.19	.....	.....	.....	240,000	56,200	0.23	106,192	26,694	0.25	5,230,406	1,009,177	0.19
1907.....	431,548	84,793	0.20	3,700	1,480	0.40	173,040	41,225	0.24	159,963	49,847	0.31	4,755,316	974,595	0.20
1908.....	138,786	24,192	0.17	.....	.....	.....	135,000	34,500	0.26	176,435	44,027	0.25	3,601,468	712,947	0.20
1909.....	423,954	69,670	0.16	.....	.....	.....	281,125	67,350	0.24	231,269	75,076	0.32	5,592,924	1,132,756	0.20
1910.....	606,679	100,808	0.17	.....	.....	.....	303,214	69,268	0.23	196,878	72,657	0.37	5,848,146	1,137,079	0.19
1911.....	706,888	140,629	0.20	.....	.....	.....	434,038	100,407	0.23	351,014	117,756	0.34	7,533,525	1,517,599	0.20
1912.....	818,237	168,257	0.21	4,000	1,440	0.36	704,035	166,520	0.24	517,329	181,905	0.35	8,475,839	1,844,849	0.22
1913.....	576,938	107,281	0.19	35,000	10,000	0.29	465,250	115,355	0.25	362,571	115,365	0.32	7,558,484	1,609,398	0.21
1914.....	526,167	92,898	0.18	.....	.....	.....	280,252	58,321	0.21	151,689	56,767	0.37	7,028,582	1,360,628	0.19
1915.....	281,432	71,372	0.25	.....	.....	.....	74,152	14,445	0.20	152,237	49,725	0.33	5,047,244	1,015,702	0.20

*Exports and Imports.*—The value of the lime exported during the calendar year 1915 was \$15,617, the destination being mainly the United States. In 1914 the exports were valued at \$16,927. The imports of lime during the calendar year 1915 were 189,774 barrels (18,977 tons), valued at \$98,040, or an average of 52 cents per barrel, or \$5.17 per ton, and were derived chiefly from the United States. The imports during 1914 were 340,828 barrels (34,083 tons), valued at \$211,123, or an average of 62 cents per barrel, or \$6.16 per ton.

Annual statistics of exports and imports are given in the next two tables.

### Exports of Lime.

Calendar Year.	Value.	Calendar Year.	Value.	Calendar Year.	Value.
1891.....	\$119,853	1899.....	\$ 73,565	1907.....	\$55,903
1892.....	121,535	1900.....	80,852	1908.....	43,316
1893.....	86,623	1901.....	99,194	1909.....	48,821
1894.....	83,670	1902.....	116,009	1910.....	44,762
1895.....	71,697	1903.....	131,412	1911.....	39,536
1896.....	70,820	1904.....	73,838	1912.....	35,097
1897.....	53,177	1905.....	85,723	1913.....	29,234
1898.....	49,594	1906.....	57,072	1914.....	16,927
				1915.....	15,617

### Imports of Lime.

Year.	Barrels.	Value.	Average value.	Year.	Barrels.	Value.	Average value.
<b>Fiscal Year.</b>				<b>Fiscal Year.</b>			
1880.....	6,100	\$6,013	\$0.99	1898.....	12,850	\$ 9,002	\$0.70
1881.....	5,796	4,177	0.72	1899.....	15,720	11,124	0.71
1882.....	5,064	5,365	1.06	1900.....	12,865	11,211	0.87
1883.....	7,623	9,224	1.21	1901.....	19,657	14,534	0.74
1884.....	10,804	11,200	1.04	1902.....	24,602	17,584	0.71
1885.....	12,072	11,503	0.95	1903.....	31,108	22,470	0.72
1886.....	11,021	9,347	0.85	1904.....	54,359	39,639	0.73
1887.....	10,835	8,524	0.79	1905.....	98,676	71,588	0.73
1888.....	10,142	7,537	0.74	1906.....	134,334	93,630	0.70
1889.....	13,079	9,363	0.72	<b>Calendar Year.</b>			
1890.....	8,149	5,360	0.66	1907.....	126,285	99,179	0.79
1891.....	6,259	4,273	0.68	1908.....	143,270	99,196	0.69
1892.....	6,132	4,241	0.69	1909.....	168,357	118,239	0.70
1893.....	6,879	4,917	0.71	1910.....	212,502	138,847	0.65
1894.....	6,766	4,907	0.73	1911.....	228,538	161,985	0.71
1895.....	12,008	5,743	0.48	1912.....	329,925	207,481	0.63
1896.....	10,239	7,331	0.72	1913.....	386,693	238,271	0.62
1897.....	16,108	10,529	0.65	1914.....	340,828	211,123	0.62
				1915*.....	189,774	98,040	0.52

\* Duty 20 per cent.

The Province of Ontario is the principal lime producing province having in recent years contributed from 30 to 42 per cent of the total output.

Statistics of the annual production of lime in Ontario, as published by the Ontario Bureau of Mines since 1896, are shown in the next table. For the years previous to 1910 these returns are slightly higher than those obtained by the Mines Branch.

## Annual Production of Lime in Ontario.

(As ascertained by the Ontario Bureau of Mines.)

Calendar Year.	Bushels.	Value.	Average per bushel.	Calendar Year.	Bushels.	Value.	Average per bushel.
1896.....	1,800,000	\$222,000	\$0.12	1906.....	2,885,000	\$496,785	\$0.17
1897.....				1907.....	2,650,000	418,700	0.17
1898.....	2,620,000	308,000	0.12	1908.....	2,442,331	448,596	0.18
1899.....	4,342,500	535,000	0.12	1909.....	2,633,500	470,858	0.18
1900.....	3,893,000	544,000	0.14	1910.....	2,889,235	474,531	0.16
1901.....	4,100,000	550,000	0.13	1911.....	2,469,773	402,340	0.16
1902.....	4,300,000	617,000	0.14	1912.....	2,297,525	381,672	0.17
1903.....	3,400,000	520,000	0.15	1913.....	2,300,991	390,600	0.17
1904.....	2,600,000	406,800	0.16	1914.....	2,075,228	333,407	0.16
1905.....	3,100,000	424,700	0.14	1915.....	1,340,394	244,953	0.18

\* Preliminary.

### SAND-LIME BRICK.

The first record of the production of sand-lime brick in Canada was obtained for the year 1907 when there was a production by ten firms amounting to 16,492,971 brick, valued at \$167,795.

In 1915 the sales were reported as 17,960,802 brick, valued at \$141,742, or an average of \$7.89 per thousand, as against sales in 1914 of 70,650,030 brick, valued at \$609,515, or an average of \$8.63 per thousand. In common with the clay brick industry a very large decrease in sales is shown. Sales were made very largely from stock since the total number of brick made during the year was reported as only 7,677,800, while stocks at the end of the year amounted to 9,347,000 brick.

#### Annual Production of Sand-Lime Brick.

Calendar Year.	No. of firms reporting.	Number sold.	Value.	Per M.
1907.....	10	16,492,971	\$ 167,795	\$10.17
1908.....	9	17,288,260	152,856	8.84
1909.....	9	27,052,864	201,650	7.45
1910.....	13	44,593,541	371,857	8.34
1911.....	16	51,535,243	442,427	8.58
1912.....	20	96,448,402	1,020,386	10.58
1913.....	22	92,586,676	906,665	9.79
1914.....	21	70,650,030	609,515	8.63
1915.....	18	17,960,802	141,742	7.89

## SAND AND GRAVEL.

The production of sand and gravel in Canada during 1915, according to returns received by this office, amounted to 6,445,717 tons, valued at \$1,624,767, which shows a falling off in value of \$880,543, or 35 per cent as compared with the production reported for 1914.

The 1915 production included: building sand and sand for concrete and road building, etc., 1,169,756 tons, valued at \$440,619; gravel and crushed gravel, 186,825 tons, valued at \$100,972, sand and gravel, 1,151,584 tons, valued at \$490,163, railway ballast, 3,773,297 tons, valued at \$527,257; other sands, chiefly moulding sand, 164,255 tons, valued at \$65,756.

Previous to 1912, no attempt had been made by this department to obtain statistics of the production of building sand or of gravel in Canada. In 1912, however, a beginning was made, the returns received showing a production of sand and gravel valued at \$1,512,099.

For the year 1913 the collection was extended to include a record of the production of sand and gravel for railroad ballasting, but, at the time of closing the statistics, several important returns had not been received. However, the total value of the production as reported was \$2,258,874.

The total value of the production in 1914 as reported was \$2,505,310, but it is probable that the record was more complete than for the previous years which doubtless accounts in large measure for the increase in production shown.



### Production of Sand and Gravel, 1915.

Province.	SAND.		SAND AND GRAVEL.		BALLAST.		ALL OTHER.		TOTAL.	
	Short Tons.	Value.	Short Tons.	Value.	Short Tons.	Value.	Short Tons.	Value.	Short Tons.	Value.
Nova Scotia.....	21,897	\$ 17,441.	102,582	\$ 38,196	236,500	\$ 11,825.	7,070	\$ 4,359	368,049	\$ 71,821
New Brunswick.....	2,450	1,445	4,220	1,631	316,522	15,938			323,192	19,014
Quebec.....	399,253	204,745	16,245	4,777	450,575	51,461			866,073	260,983
Ontario.....	675,208	189,538	522,466	195,303	1,684,902	282,015	150,807	60,570	3,033,383	727,426
Manitoba.....	29,135	10,537	239,987	140,114	214,772	52,745	350	270	484,244	203,666
Saskatchewan.....	11,944	10,568	24,450	17,893	75,525	9,745			111,919	38,206
Aberta.....	2,565	459	32,670	25,916	355,024	20,755	358	67	390,617	47,197
British Columbia.....	27,304	5,886	395,789	167,305	439,477	82,773	5,670	490	868,240	256,454
Total.....	1,169,756	440,619	1,338,409	591,135	3,773,297	527,257	164,255	65,756	6,445,717	1,624,767

## Annual Production of Sand and Gravel, 1912-1914.

Province.	1912.	1913.	1914.
P. E. Island.....	\$ 13,549	\$ 101,201	\$ 100,016
Nova Scotia.....			
New Brunswick.....			
Quebec.....			
Ontario.....			
Manitoba.....	243,126	638,778	370,713
Saskatchewan.....	363,668	638,771	833,635
Alberta.....	101,653	197,719	314,081
British Columbia.....	255,453	236,377	222,019
	148,704	265,165	273,115
	385,946	180,863	391,731
<b>Total.....</b>	<b>1,512,099</b>	<b>2,258,874</b>	<b>2,505,310</b>

Statistics of the exports and imports of sand and gravel, are published in the annual reports of the Department of Customs, and the following tables are compiled from this record since 1893. During 1915 there were exported from Canada 808,022 tons of sand and gravel, valued at \$380,549; while, during the same year there were imported 199,597 tons, valued at \$120,756.

### Annual Exports of Sand and Gravel.

Calendar Year.	Short Tons.	Value.	Average per ton.	Calendar Year.	Short Tons.	Value.	Average per ton.
1893.....	329,116	\$121,795	\$0.37	1904.....	399,809	\$129,803	\$0.32
1894.....	324,656	86,940	0.27	1905.....	306,935	152,805	0.50
1895.....	277,162	118,359	0.43	1906.....	336,550	139,712	0.41
1896.....	224,769	80,110	0.36	1907.....	298,095	119,853	0.40
1897.....	152,963	76,729	0.50	1908.....	298,954	161,387	0.54
1898.....	165,954	90,498	0.55	1909.....	481,584	256,166	0.53
1899.....	242,450	101,640	0.42	1910.....	624,824	407,974	0.65
1900.....	197,558	101,666	0.51	1911.....	573,494	408,110	0.71
1901.....	197,302	117,465	0.60	1912.....	660,090	459,952	0.70
1902.....	159,793	119,120	0.75	1913.....	644,633	440,956	0.68
1903.....	355,792	124,006	0.35	1914.....	952,370	802,358	0.84
				1915.....	808,022	380,549	0.47

### Annual Imports of Sand and Gravel.

Fiscal Year.	Tons.	Value.	Average value.	Fiscal Year.	Tons.	Value.	Average value.
1893.....	26,065	\$ 31,739	\$1.22	1905.....	85,339	\$ 92,722	\$ 1.09
1894.....	41,573	33,506	0.81	1906.....	116,500	173,727	1.49
1895.....	19,609	24,779	1.26	Calendar Year.			
1896.....	18,953	24,604	1.30	1907.....	265,912	223,968	0.84
1897.....	21,308	25,222	1.18	1908.....	133,665	135,348	1.01
1898.....	32,148	43,287	1.35	1909.....	151,323	153,778	1.02
1899.....	30,288	42,209	1.39	1910.....	195,796	196,766	1.00
1900.....	35,713	41,280	1.16	1911.....	241,375	246,613	1.02
1901.....	35,749	42,891	1.20	1912.....	532,721	445,781	0.84
1902.....	47,381	58,668	1.24	1913.....	439,673	440,343	1.00
1903.....	91,518	95,647	1.05	1914.....	273,812	224,759	0.82
1904.....	110,634	107,547	0.97	1915.....	199,597	120,756	0.60

## SLATE.

There is a small annual production of slate in Canada obtained from the New Rockland quarries, Melbourne township, Richmond county, and from quarries at Botsford in Temiscouata county, both operated by Messrs. Frazer and Davies.

The production in 1915 was 397 squares, valued at \$2,039, as compared with a production in 1914 of 1,075 squares, valued at \$4,837.

## Annual Production of Slate.

Calendar Year.	Short Tons.	Value.	Calendar Year.	Squares.	Value.
1886.....	5,345	\$64,675	1900.....		\$12,100
1887.....	7,357	89,000	1901.....		9,980
1888.....	5,314	90,689	1902.....		19,200
1889.....	6,935	119,160	1903.....	5,510	22,040
1890.....	6,368	100,250	1904.....	5,277	23,247
1891.....	5,000	65,000	1905.....		21,568
1892.....	5,180	69,070	1906.....		24,446
1893.....	7,112	90,825	1907.....	4,335	20,056
1894.....		75,550	1908.....	2,950	13,496
1895.....		58,900	1909.....	4,000	19,000
1896.....		53,370	1910.....	3,959	18,492
1897.....		42,800	1911.....	1,833	8,248
1898.....		40,791	1912.....	1,894	8,939
1899.....		33,406	1913.....	1,432	6,444
			1914.....	1,075	4,837
			1915.....	397	2,039

No exports of slate have been reported since 1896 with the exception of the years 1908 and 1909.

The imports of slate during the past eight years ranged from \$100,000 to over \$200,000 per annum.

The total value of the imports during the calendar year 1915 was \$108,-676, and included: roofing slate squares, valued at \$34,528, school writing slate \$38,874, slate pencils \$4,954, and other slates and manufactures of, \$30,320. The total value of the imports during the calendar year 1914, was \$213,256, and included: roofing slate squares valued at \$91,977; school writing slate \$54,723; slate pencils \$6,514; mantels \$598; and other slates and manufactures of \$59,444.

The imports of roofing slate, school writing slate, and manufactures of slate n.o.p., are chiefly from the United States. Some roofing slate is also imported from Great Britain, while slate pencils come chiefly from Germany and the United States.

## Imports of Slate During the Years 1912, 1913, 1914, and 1915.

Slate and manufactures of.	1912.	1913.	1914.	1915.
Roofing slate.....	\$ 88,911	\$ 97,730	\$ 91,977	\$ 34,528
School writing slate.....	39,858	51,953	54,723	38,874
Slate pencils.....	6,978	9,166	6,514	4,954
Slate of all kinds and manufactures of.....	65,896	76,625	59,444	30,320
Mantels.....			598	
	200,643	235,474	213,256	108,676

## Exports of Slate.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
1884.....	539	\$6,845	1893.....	178	\$3,168
1885.....	346	5,274	1894.....	187	3,610
1886.....	34	495	1895.....	36	574
1887.....	27	373	1896.....	301	8,913
1888.....	22	475	1897 to 1907.....	Nil.	Nil.
1889.....	26	3,303	1908.....		2,539
1890.....	12	153	1909.....	134	612
1891.....	15	195	1910 to 1915.....	Nil.	Nil.
1892.....	87	2,038			

## Imports of Slate.

Fiscal Year.	Value.	Fiscal Year.	Value.	Year.	Value.
1880.....	\$21,431	1892.....	\$50,441	1904 Fiscal Year...	\$ 86,057
1881.....	22,184	1893.....	51,179	1905 " " .....	93,228
1882.....	24,543	1894.....	29,267	1906 " " .....	112,941
1883.....	24,968	1895.....	19,471	Calendar Year.	
1884.....	28,816	1896.....	24,176	1907.....	134,063
1885.....	28,169	1897.....	21,615	1908.....	120,282
1886.....	27,852	1898.....	24,907	1909.....	135,221
1887.....	27,845	1899.....	33,100	1910.....	142,285
1888.....	23,151	1900.....	53,707	1911.....	169,685
1889.....	41,370	1901.....	72,187	1912.....	200,643
1890.....	22,871	1902.....	72,601	1913.....	235,474
1891.....	46,104	1903.....	84,437	1914.....	213,256
				1915.....	108,676

STONE.<sup>1</sup>

Statistics of stone production given herewith include the sales of all classes of stone used for building, monumental, and ornamental purposes, stone for paving purposes, curbstone, and flagstone, rubble, rip-rap, and crushed stone, limestone for furnace flux, sugar factories, etc., but stone used for burning lime or the manufacture of cement is not included.

The kinds of stone quarried have been classed as granite (including trap rock, syenite, and other igneous rocks), limestone, sandstone, and marble.

The records are practically confined to quarry operations and the production of sawn or polished stone when these operations are carried on by quarry operators. In addition to this production of stone by regular operators, there is no doubt a large stone production by individuals, such as farmers, and others, for house or barn foundations, concrete work, etc., of which it would be impracticable to obtain any satisfactory record. Much stone is also used in railway construction work and in road building, of which the record is probably very incomplete.

The total value of the production of stone in 1915 according to returns received was \$4,244,997, as compared with a value of \$5,469,056 in 1914, showing a falling off of \$1,224,059, or over 22 per cent.

The number of active firms reporting in 1915 was 236, the total number of men employed 5,144, and the total wages paid \$2,188,302. In 1914 the number of active firms reporting was 219, the number of men employed 5,929, and the total wages paid \$2,871,817.

Of the total value of the 1915 production, limestone contributed \$2,312,081, or 54.5 per cent, granite \$1,525,553, or 35.9 per cent, sandstone \$249,336, or 5.9 per cent, and marble \$158,027, or 3.7 per cent.

Stone was used for building purposes to the value of \$1,082,323, or 25.5 per cent of the total; monumental and ornamental to the value of \$150,030 or 3.5 per cent; curb, paving, and flagstone \$138,104, or 3.3 per cent; rubble 916,884 tons, valued at \$657,124, or 15.5 per cent; crushed stone 2,415,230 tons, valued at \$1,783,594, or 42.0 per cent, and furnace flux 814,854 tons, valued at \$433,822, or 10.2 per cent.

By provinces, Quebec again shows the largest output, having a value of \$1,966,194, or 46.3 per cent of the total; being made up of limestone to the value of \$1,189,633, granite valued at \$594,744, marble \$145,400 and sandstone \$36,417. Ontario takes second place with a production of

<sup>1</sup> A special investigation has been undertaken by the Mines Branch on the building and ornamental stones of Canada, by Prof. W. A. Parks, of Toronto University, and three reports of this series have been completed, as follows:—

No. 100. "The Building Stones of Canada, Vol. I." "Building and Ornamental Stones of Ontario."  
 No. 203. "Building Stones of Canada, Vol. II." "Building and Ornamental Stones of the Maritime Provinces."  
 No. 279. "Building Stones of Canada, Vol. III." "Building and Ornamental Stones of the Province of Quebec."

\$806,137, or 19 per cent of the total, of which limestone is credited with \$634,728, granite \$140,894, sandstone \$19,588, and marble \$10,927. British Columbia ranks third in order of importance with a total of \$796,876, including granite \$701,593, sandstone \$14,000, limestone \$79,583, and marble \$1,700. The Nova Scotia production was valued at \$367,924, comprising limestone \$255,024, granite \$79,636, and sandstone \$33,264. The production in Manitoba was valued at \$153,464, made up of limestone \$153,113, and granite \$351. New Brunswick is credited with \$153,512, made up chiefly of sandstone and granite.

### Production of Stone by Provinces, 1915.

Province.	Granite.	Lime-stone.	Marble.	Sand-stone.	Total.	%	Labour.	
							No. men em- ployed.	Wages.
Nova Scotia.....	\$ 79,636	\$ 255,024	.....	\$ 33,264	\$ 367,924	8.7	659	\$ 233,396
New Brunswick....	8,335	.....	.....	145,177	153,512	3.6	192	74,845
Quebec.....	594,744	1,189,633	\$145,400	36,417	1,966,194	46.3	2,638	1,045,280
Ontario.....	140,894	634,728	10,927	19,588	806,137	19.0	1,009	371,218
Manitoba.....	351	153,113	.....	.....	153,464	3.6	148	94,785
Alberta.....	.....	.....	.....	890	890	.....	8	700
British Columbia...	701,593	79,583	1,700	14,000	796,876	18.8	490	368,078
Total.....	1,525,553	2,312,081	158,027	249,336	4,244,997	.....	5,144	2,188,302
Per cent.....	35.9	54.5	3.7	5.9	.....	100.0	.....	.....

### Production of Stone by Provinces, 1914.

Province.	Granite.	Lime-stone.	Marble.	Sand-stone.	Total.	%	Labour.	
							No. men em- ployed.	Wages.
Nova Scotia.....	\$ 65,727	\$ 94,239	.....	\$ 61,124	\$ 221,090	4.1	441	\$ 120,944
New Brunswick....	24,525	.....	.....	236,647	261,172	4.8	277	156,619
Quebec.....	842,845	1,326,943	\$ 98,890	17,400	2,286,078	41.8	2,400	1,145,873
Ontario.....	309,720	853,906	30,300	59,923	1,253,849	22.9	1,575	645,728
Manitoba.....	15,654	346,258	.....	.....	361,912	6.6	373	190,241
Alberta.....	.....	.....	.....	60,272	60,272	1.1	78	46,943
British Columbia...	918,131	51,435	3,343	51,774	1,024,683	18.7	785	565,469
Total.....	2,176,602	2,672,781	132,533	487,140	5,469,056	.....	5,929	2,871,817
Per cent.....	39.8	48.9	2.4	8.9	.....	100.0	.....	.....

## Production of Stone by Kinds and by Provinces Showing Purposes Used, 1915.

By kinds.	Building.	Ornamental and monumental	Paving and curbstone.	RUBBLE.		CRUSHED.		FURNACE FLUX.		Total Value.
				Short Tons.	Value.	Short Tons.	Value.	Short Tons.	Value.	
Granite.....	\$ 487,599	\$ 80,377	\$ 88,474	569,410	\$407,842	541,811	\$ 461,261	.....	.....	\$1,525,553
Limestone.....	400,017	68,973	27,539	155,961	102,250	1,828,365	1,279,480	814,854	433,822	2,312,081
Marble.....	143,321	.....	.....	.....	.....	25,039	14,706	.....	.....	158,027
Sandstone.....	51,386	680	22,091	191,513	147,032	20,015	28,147	.....	.....	249,336
By Provinces.										
Nova Scotia.....	16,464	18,700	4,531	43,064	23,846	77,941	52,633	481,346	251,750	367,924
New Brunswick.....	24,475	8,080	935	144,343	120,022	.....	.....	.....	.....	153,512
Quebec.....	566,693	116,599	102,635	98,044	75,427	1,272,934	1,104,730	110	110	1,966,194
Ontario.....	84,580	5,151	29,503	65,782	34,842	937,072	546,193	176,021	105,868	806,137
Manitoba.....	118,028	.....	.....	19,871	14,592	31,545	20,844	.....	.....	153,464
Alberta.....	390	.....	500	.....	.....	.....	.....	.....	.....	890
British Columbia.....	271,693	1,500	.....	545,780	388,395	95,738	59,194	157,377	76,094	796,876
Total.....	1,082,323	150,030	138,104	916,884	657,124	2,415,230	1,783,594	814,854	433,822	4,244,997
Per cent.....	25.5	3.5	3.3	.....	15.5	.....	42.0	.....	10.2	100.0

## Value of Stone for Various Purposes in 1914.

Kind.	Building.	Orna- mental and monu- mental.	Paving and curb- stone.	Rubble.	Crushed.	Furnace flux.	Total.
Granite.....	\$ 496,261	\$ 93,948	\$138,443	\$ 793,736	\$ 654,214	.....	\$2,176,602
Limestone.....	876,544	13,504	55,420	241,698	1,255,742	\$229,873	2,672,781
Marble.....	33,643	93,386	.....	2,614	2,890	.....	132,533
Sandstone.....	226,315	510	23,715	198,109	38,491	.....	487,140
Total.....	1,632,763	201,348	217,578	1,236,157	1,951,337	229,873	5,469,056

## Production of Stone by Provinces and for Purposes Used, 1914.

Province.	Building.	Orna- mental and monu- mental.	Paving and curb- stone.	Rubble.	Crushed.	Furnace flux.	Total.
Nova Scotia.....	\$ 78,504	\$ 20,964	\$ 2,649	\$ 22,083	\$ 2,651	\$ 94,239	\$ 221,090
New Brunswick.....	52,287	13,983	10,702	184,200	.....	.....	261,172
Quebec.....	916,978	154,012	97,895	112,655	994,637	9,901	2,286,078
Ontario.....	153,871	12,089	100,332	180,272	859,085	74,298	1,253,849
Manitoba.....	230,160	.....	.....	.....	16,654	.....	361,912
Alberta.....	59,572	.....	.....	700	.....	.....	60,272
British Columbia.....	151,391	300	6,000	736,247	79,310	51,435	1,024,683
Total.....	1,632,763	201,348	217,578	1,236,157	1,951,337	229,873	5,469,056
Per cent.....	29.8	3.7	4.0	22.6	35.7	4.2	100.0

*Exports and Imports.*—The exports of stone from Canada in 1915 were valued at \$72,777, as against \$72,080 in 1914, and \$93,840 in 1913. The principal item in the export of stone during the past few years has been building stone, unwrought, of which the exports in 1915 were 35,804 tons, valued at \$28,910. There was also an export of ornamental granite, marble, etc., unwrought, of 29,976 tons, valued at \$12,764; crushed stone 42,716 tons, valued at \$24,453, and dressed stone, including both ornamental and building, valued at \$6,650.

The exports of the several classes of stone during the past three years as shown by the Customs record, were as follows:—

## Exports of Stone During the Calendar Years 1913, 1914, 1915.

	1913.		1914.		1915.	
	Short Tons.	Value.	Short Tons.	Value.	Short Tons.	Value.
Stone—						
Crushed.....	4,814	\$ 3,126	25,130	\$18,153	42,716	\$24,453
Ornamental, granite, marble, etc., unwrought.....	1,942	687	231	5,607	29,976	12,764
Building, freestone, limestone, etc., unwrought.....	191,981	82,646	63,009	46,198	35,804	28,910
Ornamental, granite, marble, etc., dressed.....	.....	7,381	.....	1,752	.....	5,990
Building, freestone, limestone, etc., dressed.....	.....	0	.....	370	.....	660
		93,840		72,080		72,777



## Exports of Stone and Marble, Wrought and Unwrought.

Calendar Year.	Wrought.	Unwrought.	Calendar Year.	Wrought.	Unwrought.
1890.....	\$21,725	\$ 43,611	1903.....	\$ 7,684	\$46,295
1891.....	13,398	46,162	1904.....	4,760	17,802
1892.....	7,698	47,424	1905.....	3,545	13,089
1893.....	9,102	12,532	1906.....	23,097	4,675
1894.....	22,576	34,130	1907.....	4,233	3,087
1895.....	8,587	51,616	1908.....	15,194	36,820
1896.....	4,934	32,897	1909.....	33,598	24,087
1897.....	9,415	42,034	1910.....	5,352	22,219
1898.....	2,526	65,370	1911.....	1,436	26,899
1899.....	5,092	101,931	1912.....	2,621	30,621
1900.....	5,933	115,711	1913.....	7,381	86,459
1901.....	5,917	157,739	1914.....	2,122	69,958
1902.....	8,632	124,829	1915.....	6,650	66,127

The imports of stone are classified as: building stone of all kinds, except marble; manufactures of granite and other stone; and marble and its manufactures. The total value of the imports during the calendar year 1915 was \$539,173, as compared with a value of \$1,252,869 in 1914, showing a decrease of \$713,696, or 57 per cent. The imports during 1915 comprised: building stone (rough) valued at \$54,249; building stone (dressed) \$57,761; granite and manufactures of granite \$179,604; paving blocks \$584; marble and manufactures of \$152,454; and refuse stone 269,912 tons, valued at \$94,521.

The total value of the imports from the United States in 1915 was \$401,612; Great Britain \$136,153; Italy \$483; and from other countries \$925.

The imports during 1914 comprised: building stone (rough), valued at \$72,147, building stone (dressed) \$252,563; granite and manufactures of granite \$235,587; paving blocks \$4,428; marble and manufactures of \$465,563; and refuse stone 416,816 tons, valued at \$222,581.

The total value of the imports from United States in 1914 was \$909,618; Great Britain \$202,055; Italy \$37,610; and from other countries \$103,586.

During both years the imports were derived chiefly from the United States and Great Britain, the United States supplying building stone, paving blocks, marble, and refuse stone, principally; and Great Britain mainly manufactures of granite. Marble was obtained also in small quantities from Italy and other countries.

### Total Imports of Stone During the Calendar Years 1914 and 1915.

Imports.	1914.		1915.	
	Short Tons.	Value.	Short Tons.	Value.
Building stone, rough <sup>1</sup> .....		\$ 72,147		\$ 54,249
Building stone dressed <sup>2</sup> .....		252,563		57,761
Refuse stone <sup>3</sup> .....	416,816	222,581	269,912	94,521
Granite, sawn only.....		5,346		2,350
Granite, manufactures of.....		196,622		141,831
Paving blocks.....		4,428		584
Manufactures of stone, n.o.p.....		33,619		35,423
Marble and manufactures of—				
Marble, sawn or sand rubbed, not polished.....		204,863		86,640
Marble, rough, not hammered or chiselled.....		115,339		24,801
Marble, manufactures of, n.o.p.....		145,361		41,013
		1,252,869		539,173

<sup>1</sup> Flagstone, granite, rough sandstone, and all building stone not hammered, sawn, or chiselled.

<sup>2</sup> Flagstone and all other building stone, sawn, or dressed, or partially dressed.

<sup>3</sup> Stone refuse not sawn, hammered, or chiselled, not fit for flagstone, building stone, or paving.

### Imports of Stone, Showing Country of Origin, Calendar Year 1915.

Imports.	Great Britain.		United States.		Italy.	Other countries.
	Short Tons.	Value.	Short Tons.	Value.	Value.	Value.
Building stone, rough <sup>1</sup> .....		\$ 43		\$ 54,206		
Building stone, dressed <sup>2</sup> .....		126		57,635		
Refuse stone.....			269,872	94,490		\$ 31
Granite, sawn only.....		151		2,199		
Granite, manufactures of.....		129,971		11,860		
Paving blocks.....				584		
Manufactures of stone, n.o.p.....		2,717		32,488		218
Marble and manufactures of—						
Marble, sawn or sand rubbed, not polished.....		2		86,638		
Marble rough, not hammered or chiselled.....				24,274	149	378
Marble, manufactures of n.o.p.....		3,143		37,238	334	298
Total.....		136,153		401,612	483	925

<sup>1</sup> Flagstone, granite, rough sandstone, and all building stone not hammered, sawn, or chiselled.

<sup>2</sup> Flagstone; all other building stone, sawn, or dressed.

## Annual Imports of Stone.

Fiscal Year.	BUILDING STONE.		Manufactures of granite, etc., Paving blocks.	Marble.	Flagstone.*	Total value.
	Rough.	Dressed.				
1880.....	\$ 32,824	\$ 3,146	\$ 29,408	\$ 63,015	.....	\$ 128,393
1881.....	7,823	50,326	36,877	85,977	\$ 241	181,244
1882.....	32,848	775	37,267	109,505	848	181,243
1883.....	33,429	1,632	45,636	128,520	99	209,316
1884.....	46,232	4,856	45,290	108,771	1,158	206,307
1885.....	28,433	2,058	39,867	102,835	1,756	174,949
1886.....	36,776	4,899	41,984	117,752	9,443	210,854
1887.....	47,819	6,549	41,829	104,250	10,966	211,413
1888.....	84,263	2,110	47,487	94,681	21,077	249,618
1889.....	89,723	10,591	61,341	118,421	15,451	295,527
1890.....	126,456	5,699	84,396	99,353	48,995	364,899
1891.....	151,119	19,771	61,051	107,661	36,348	372,950
1892.....	85,169	10,381	39,479	106,268	15,048	256,345
1893.....	47,609	8,901	49,323	96,177	8,500	210,510
1894.....	48,097	4,811	49,510	94,657	2,429	199,504
1895.....	37,732	6,550	51,050	83,422	84	178,838
1896.....	42,737	11,393	51,499	90,065	Nil.	195,694
1897.....	27,442	11,272	34,026	77,150	227	150,117
1898.....	25,322	3,173	41,240	95,894	1,540	167,129
1899.....	43,494	4,546	60,148	104,879	Nil.	210,067
1900.....	63,376	1,157	57,039	94,017	63	215,652
1901.....	45,039	1,039	66,639	96,159	116	208,992
1902.....	69,972	29,102	72,397	130,424	1,231	303,126
1903.....	71,202	16,664	78,629	153,481	.....	319,976
1904.....	59,864	33,914	141,165	181,511	.....	416,454
1905.....	49,004	53,813	150,160	145,466	.....	398,443
1906.....	66,994	65,134	178,435	189,589	Refuse Stone.†	500,152
Calendar Year.						
1907.....	73,140	85,683	161,250	254,897	79,371	654,341
1908.....	64,607	72,575	196,717	245,448	34,746	614,093
1909.....	102,470	178,087	221,097	182,147	54,428	738,229
1910.....	125,531	186,064	266,313	267,215	.....	845,123
1911.....	85,084	307,784	272,512	384,252	91,214	1,140,846
1912.....	117,037	451,635	309,386	475,926	113,159	1,467,143
1913.....	105,576	464,540	302,398	577,028	191,307	1,640,849
1914.....	72,147	252,563	240,015	465,563	222,581	1,252,869
1915.....	54,249	57,761	180,188	152,454	94,521	539,173

\* Included in building stone since 1903.

† Not shown separately previous to Nov. 29, 1906.

## GRANITE.

The production of granite, including trap-rock, syenite, etc., in 1915, according to returns received from 69 active firms reporting, was valued at \$1,525,553, as compared with a production in 1914 by 69 firms, valued at \$2,176,602, showing a decreased production in 1915 of 651,049, or 30 per cent.

The largest production is reported from British Columbia in 1915, the value being \$701,593, as against \$918,131 in 1914. The value of the production in Quebec was \$594,744, as against \$842,845, in 1914. Ontario produced granite to the value of \$140,894 in 1915, as compared with \$309,720 in 1914. Much of the rough stone quarried in New Brunswick, as well as stone imported from Redbeach, Maine, and Mt. Johnson, Que., is worked up into finished ornamental and monumental stone in mills at St. George, N.B. The value of the finished stone produced at St. George in 1915 was \$95,993, as against a value of \$90,840 produced in 1914.

## Value of Granite Production by Provinces, 1915.

Province.	Building.	Monu- mental or orna- mental.	Curb, or paving.	Rubble and Riprap.		Crushed.		Total.
				Short Tons.	Value.	Short Tons.	Value.	
Nova Scotia.	\$ 6,300	\$18,700	\$ 4,531	1,064	\$ 746	73,121	\$ 49,359	\$ 79,636
New Brun- swick.....		(?) 7,400	935					8,335
Quebec.....	223,418	51,599	58,942	17,675	15,586	252,954	245,199	594,744
Ontario.....	1,888	1,178	24,066	4,891	3,115	126,780	110,647	140,894
Manitoba.....						195	351	351
British Columbia...	255,993	1,500		545,780	388,395	88,761	55,705	701,593
Total...	487,599	80,377	88,474	569,410	407,842	541,811	461,261	1,525,553

(?) Finished stone was produced at St. George to the value of \$95,993.

## Value of Granite Production by Provinces, 1914.

Province.	Building.	Monu- mental or orna- mental.	Curb or paving.	Rubble.	Crushed.	Total.
Nova Scotia.....	\$ 26,324	\$20,614	\$ 2,649	\$ 13,940	\$ 2,200	\$ 65,727
New Brunswick.....		*13,823	10,702			24,525
Quebec.....	370,403	57,626	45,052	12,809	356,955	842,845
Ontario.....	3,260	1,585	74,040	30,740	200,095	309,720
Manitoba.....					15,654	15,654
British Columbia.....	96,274	300	6,000	736,247	79,310	918,131
Total.....	496,261	93,948	138,443	793,736	654,214	2,176,602

\* Finished stone in 1914 was valued at \$90,840.

## Annual Production of Granite.

Calendar Year.	Short Tons.	Value.	Calendar Year.	Value.
1886.....	6,062	\$ 63,309	1901.....	\$ 155,000
1887.....	21,217	142,506	1902.....	210,000
1888.....	21,352	147,305	1903.....	200,000
1889.....	10,197	79,624	1904.....	150,000
1890.....	13,307	65,985	1905.....	226,305
1891.....	13,637	70,056	1906.....	278,419
1892.....	24,302	89,326	1907.....	194,712
1893.....	22,521	94,393	1908.....	282,320
1894.....	16,392	109,936	1909.....	454,824
1895.....	19,238	84,838	1910.....	739,516
1896.....	18,717	106,709	1911.....	1,119,865
1897.....	19,345	61,934	1912.....	1,373,119
1898.....	23,897	81,073	1913.....	1,653,791
1899.....	13,418	90,542	1914.....	2,176,602
1900.....	.....	80,000	1915.....	1,525,553

## LIMESTONE.

The statistics given herewith do not include the value of the stone burned into lime by the quarry operators, nor that of the stone used in the manufacture of cement, a record of lime and cement production being separately given. With this exception, the total value of limestone produced in Canada in 1915 was \$2,312,081, as compared with the value of \$2,672,781 in 1914, showing a slight decrease.

The production during 1915 of limestone for building purposes was valued at \$468,990, as against \$890,048 in 1914. The production of curbstone and paving stone was valued at \$27,539, as against \$55,420 in 1914. The production of rubble and riprap was 155,961 tons, valued at \$102,250, as against a value of \$241,698 in 1914. The production of crushed stone was 1,828,365 tons, valued at \$1,279,480, as against a value of \$1,255,742 in 1914. The production of furnace flux was 814,854 tons, valued at \$433,822, as against 427,966 tons, valued at \$229,873 in 1914.

## Limestone Production by Provinces, 1915.

Province.	Building and ornamental.	Curbstone and paving stone.	Rubble and riprap.		Crushed.		Furnace flux.		Total.
			Short tons.	Value.	Short tons.	Value.	Short tons.	Value.	
Nova Scotia.....					4,820	\$ 3,274	481,346	\$251,750	\$ 255,024
Quebec.....	\$277,581	\$25,693	80,369	\$ 59,841	981,535	826,408	110	110	1,189,633
Ontario.....	73,381	1,846	55,721	27,817	803,683	425,816	176,021	105,868	634,728
Manitoba.....	118,028		19,871	14,592	31,350	20,493			153,113
British Columbia.....					6,977	3,489	157,377	76,094	79,583
Total.....	468,990	27,539	155,961	102,250	1,828,365	1,279,480	814,854	433,822	2,312,081

## Value of Limestone Production by Provinces, 1914.

Province.	Building and ornamental.	Crushed.	Curbstone and paving.	Rubble.	Furnace flux.		Total.
					Short tons.	Value.	
Nova Scotia.....					176,817	\$ 94,239	\$ 94,239
Quebec.....	\$549,575	\$ 617,392	\$52,843	\$ 97,232	13,467	9,901	1,326,943
Ontario.....	120,313	563,363	2,577	93,355	116,468	74,298	853,906
Manitoba.....	220,160	74,987		51,111			346,258
British Columbia.....					121,214	51,435	51,435
Total.....	890,048	1,255,742	55,420	241,698	427,966	229,873	2,672,781

### Production of Limestone by Provinces, 1909-1913.

Province.	1909.	1910.	1911.	1912.	1913.
Nova Scotia.....	\$ 161,922	\$ 192,919	\$ 245,216	\$ 275,944	\$ 258,719
New Brunswick.....	30	315	110		
Quebec.....	972,253	962,429	1,296,577	1,187,751	1,307,428
Ontario.....	639,674	722,763	680,461	862,052	1,196,130
Manitoba.....	328,554	328,029	315,782	381,572	382,984
Alberta.....					20,000
British Columbia.....	37,258	43,121	56,780	55,617	38,830
Total.....	2,139,681	2,249,576	2,594,926	2,762,936	3,204,091

### MARBLE.

From 1886 to 1896 there was a small production of marble, aggregating, however, only \$45,837 in value for the eleven years. During the next eleven years—1897 to 1907—there is no record of any production. But the opening up of the quarries at Philipsburg and South Stukely, Que., together with the development of quarries in Ontario and British Columbia, has resulted in a considerable production of marble during the past seven years. The total value of the production in 1915 was returned as \$158,027, as compared with \$132,533 in 1914, \$249,975 in 1913, and \$260,764 in 1912.

Marble quarries were operated during 1915 at Philipsburg, Que., Dungannon, Faraday and Ross townships, Ontario.

### Annual Production of Marble.

Calendar Year.	Short Tons.	Value.	Calendar Year.	Short Tons.	Value.
1886.....	501	\$ 9,900	1896.....	224	\$ 2,405
1887.....	242	6,224	1897 to 1907 inclusive.	Nil.	Nil.
1888.....	191	3,100	1908.....		125,000
1889.....	83	980	1909.....		158,441
1890.....	780	10,776	1910.....		158,779
1891.....	240	1,752	1911.....		162,783
1892.....	240	3,600	1912.....		260,764
1893.....	590	5,100	1913.....		249,975
1894.....	Nil.	Nil.	1914.....		132,533
1895.....	200	2,000	1915.....		158,027

The imports of marble during the calendar year 1915 were valued at \$152,454, as compared with \$465,563 in 1914, \$577,028 in 1913, and \$475,926 in 1912.

The annual imports of marbles since 1880 are shown in the general table of imports, page 56.

### SANDSTONE.

The value of the production of sandstone in 1915 is reported as \$249,336, as compared with a value of \$487,140, reported for 1914. The greater part of the sandstone is quarried for building purposes, though large quantities were used for rubble and paving purposes.

Of the production in 1915, building and ornamental stone were sold to the value of \$52,066, this amount, including rough stone valued at \$40,401, and dressed stone valued at \$11,665. The production of rubble and riprap in 1915 was 191,531 tons, valued at \$147,032, and of crushed stone 20,015 tons, valued at \$28,147.

Of the production in 1914, building and ornamental stone was sold to the value of \$226,825, or 47 per cent of the total value of production. There was included in this amount, rough stone valued at \$108,606, and dressed stone valued at \$118,219.

### Value of Sandstone Production by Provinces, 1915.

Province.	Building and ornamental	Paving	Rubble and Riprap.		Crushed.		Total.
			Short Tons.	Value.	Short Tons.	Value.	
Nova Scotia.....	\$10,164		42,000	\$ 23,100			\$33,264
New Brunswick.....	25,155		144,343	120,022			145,177
Quebec.....		\$18,000			13,406	\$18,417	36,417
Ontario.....	2,357	3,591	5,170	3,910	6,609	9,730	19,588
Alberta.....	390	500					890
British Columbia.....	14,000						14,000
Total.....	52,066	22,091	191,513	147,032	20,015	28,147	249,336

### Value of Sandstone Production by Provinces, 1914.

Province.	Building and ornamental.	Crushed.	Paving.	Rubble.	Total.
Nova Scotia.....	\$ 52,530	\$ 451		\$ 8,143	\$ 61,124
New Brunswick.....	52,447			184,200	236,647
Quebec.....		17,400			17,400
Ontario.....	10,502	20,640	\$23,715	5,066	59,923
Alberta.....	59,572			700	60,272
British Columbia.....	51,774				51,774
Total.....	226,825	38,491	23,715	198,109	487,140

### Value of Sandstone Production by Provinces 1909-1913.

Province.	1909.	1910.	1911.	1912.	1913.
Nova Scotia.....	\$ 21,850	\$ 16,425	\$ 23,440	\$ 20,645	\$ 62,490
New Brunswick.....	30,609	51,793	35,337	68,260	70,787
Quebec.....			450		
Ontario.....	62,824	62,247	54,032	59,240	54,738
Alberta.....	90,383	240,858	158,344	81,391	136,984
British Columbia.....	168,513	130,825	179,580	99,816	71,783
Total.....	374,179	502,148	451,183	329,352	396,782