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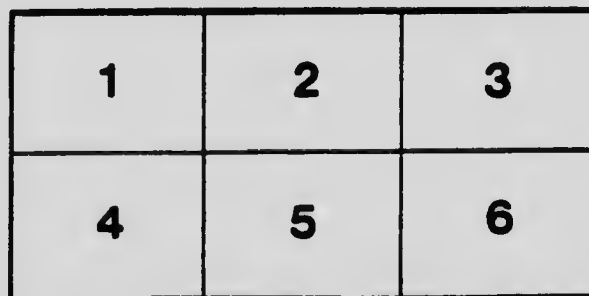
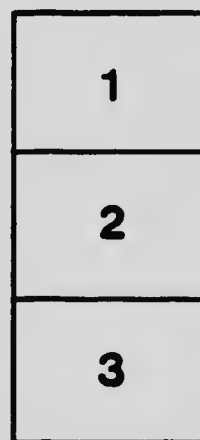
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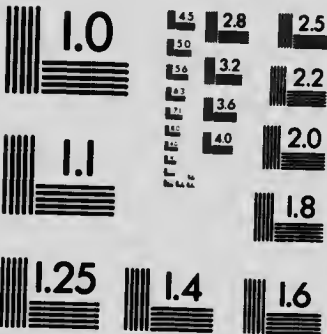
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DEPARTMENT OF MINES
Hon. Louis CORMIER, MINISTER; R. G. McCONNELL, B.A., ACTING DEPUTY MINISTER.

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

1913

JOHN McLEISH, B.A.
Chief of the Division of Mineral Resources and Statistics.



OTTAWA
GOVERNMENT PRINTING BUREAU
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**ADVANCE CHAPTER OF THE ANNUAL REPORT ON THE
MINERAL PRODUCTION OF CANADA DURING THE
CALENDAR YEAR, 1913.**

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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; sands and gravels; 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., but at the time of closing the statistics several important and comprehensive returns had not been received. 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 1913, according to the record obtained, was \$30,809,752, as compared with a value of \$28,794,869 in 1912, an increase of \$2,014,883, or nearly 7 per cent. The total production in 1911 was valued at \$22,709,611, compared with which the 1912 production showed an increase of \$6,085,258, or 26.8 per cent. The total production in 1910 was valued at \$19,275,992, and in 1909 \$16,533,349.

For several years previous to 1913 the aggregate imports of structural material had been increasing at a more rapid rate than the domestic production. In 1913 however the exports were larger than the imports, and the imports showed a falling off of over 50 per cent. The apparent total consumption of products of this class based upon the statistics of production in conjunction with the records of exports and imports was in 1913 valued at \$39,916,642, as compared with a value of \$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 increase in consumption in 1913 was a little less than 2 per cent, as against 30 per cent in 1912, 18 per cent in 1911, and 24 per cent in 1910.

A summary of the production, imports, exports, and consumption of structural materials and clay products in 1913, and in 1912, and the annual production from 1907 to 1911, are shown in tables herewith.

Structural Materials, Calendar Year, 1913.

| | Production. | Imports. | Exports. | Con- sumption. |
|------------------------|-------------|-----------|----------|-------------------|
| | \$ | \$ | \$ | \$ |
| Cement, Portland | 11,019,418 | 409,303 | 1,739 | 11,426,982 |
| Clay products..... | 9,504,314 | 6,760,752 | 52,333 | 16,212,733 |
| Lime..... | 1,609,398 | 238,271 | 29,234 | 1,818,435 |
| Sand-lime brick..... | 906,665 | | | 906,665 |
| Sand and gravels..... | 2,258,874 | 440,343 | 440,956 | 2,258,261 |
| Slate..... | 6,444 | 235,474 | | 241,918 |
| Stone..... | 5,504,639 | 1,640,849 | 93,840 | 7,051,648 |
| | 30,809,752 | 9,724,992 | 618,102 | 39,916,642 |

Structural Materials, Calendar Year, 1912.

| | Production. | Imports. | Exports. | Con- sumption. |
|-----------------------|-------------|------------|----------|-------------------|
| | \$ | \$ | \$ | \$ |
| Cement, Portland..... | 9,106,556 | 1,969,529 | 2,436 | 11,073,649 |
| Clay products..... | 10,575,869 | 6,592,540 | 18,750 | 17,149,659 |
| Lime..... | 1,844,849 | 207,481 | 35,097 | 2,017,233 |
| Sand-lime brick..... | 1,020,386 | | | 1,020,386 |
| Sand and gravels..... | 1,512,099 | 445,781 | 459,952 | 1,497,928 |
| Slate..... | 8,939 | 200,643 | | 209,582 |
| Stone..... | 4,726,171 | 1,467,143 | 33,242 | 6,160,072 |
| | 28,794,860 | 10,883,117 | 549,477 | 39,128,500 |

Production of Structural Materials, 1907-1911.

| | 1907. | 1908. | 1909. | 1910. | 1911. |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | \$ | \$ | \$ | \$ | \$ |
| Cement..... | 3,781,371 | 3,709,954 | 5,345,802 | 6,412,215 | 7,644,537 |
| Clay products..... | 5,772,117 | 4,500,702 | 6,450,840 | 7,629,956 | 8,359,933 |
| Lime..... | 974,595 | 712,947 | 1,132,756 | 1,137,079 | 1,517,599 |
| Sand-lime brick..... | 167,795 | 152,856 | 201,650 | 371,857 | 442,427 |
| Sand and gravels (exports)..... | 119,853 | 161,387 | 256,166 | 407,974 | 408,110 |
| Slate..... | 20,056 | 13,496 | 19,000 | 18,492 | 8,248 |
| Stone..... | 2,027,262 | 2,088,613 | 3,771,135 | 3,650,019 | 4,328,757 |
| Total..... | 12,863,049 | 11,339,955 | 16,533,349 | 19,627,592 | 22,709,611 |

It will be noted that while there was an increased production of cement, sands and gravels, and stone, there was a falling off in the production of clay products, lime, sand-lime brick and slate. In the case of sands and gravels the increase shown in 1913 is probably chiefly due to the greater completeness of the record covering the past year. The financial stringency experienced during 1913 placed a check upon the development of Canada's structural material resources which has been a feature of the country's growth during the past ten years.

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 nearly \$90,000,000 in 1913. The aggregate value of building permits in fifteen 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. Thus, while structural activity increased more rapidly in western Canada, this section was the first to feel the effects of the set back. This would appear to be confirmed by the statistics of production of clay products which show an increase in eastern provinces but a very great decrease in all provinces west of the Great Lakes.

CEMENT.

The total quantity of cement made in 1913, according to returns received from the manufacturers, was 8,886,333 barrels of 350 pounds net each (1,555,108 tons) as compared with 7,141,004 barrels (1,249,676 tons) made in 1912, an increase of 1,745,329 barrels (305,432 tons), or 24.4 per cent.

The total quantity of Canadian Portland cement sold in 1913 was 8,658,805 barrels (1,515,291 tons), as compared with 7,132,732 barrels (1,248,228 tons) in 1912, an increase of 1,526,073 barrels (267,063 tons), or 21.4 per cent.

The total consumption of cement in 1913 including Canadian and imported cement was 8,912,898 barrels of 350 pounds net each (1,559,757 tons), as compared with 8,567,145 barrels (1,499,250 tons) in 1912, an increase of 345,753 barrels (60,507 tons) or over 4 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.

Notwithstanding the restriction of building operations during 1913 the consumption of cement shows a small increase of 4 per cent. A very substantial increase in the output of Canadian mills however is shown amounting to over 24 per cent and this increase served to displace imported material, so that in 1913 Canadian cement plants supplied over 97 per cent of the consumption as against 83 per cent of the consumption in 1912.

The industry has been marked during the year by the extension of old, and the completion of new plants, the latter west of the Great Lakes where a cement shortage was experienced during the summer of 1912. The total capacity of completed plants at the end of the year was over 59,000 barrels, as compared with 36,515 barrels at the end of 1912.

The market prices of cement according to quotations published in trade journals, showed practically no variation during the year and little change from the prices during 1912. Prices at Halifax are reported as \$2 per barrel; at Montreal for large lots \$1.35 to \$1.40, bags 40 cents extra; at Toronto in large quantities \$1.50, car lots \$1.55, small city dealers \$1.80 to \$1.85, bags 40 cents extra; at Winnipeg \$2.40 to \$2.50 per barrel in bags.

The average price at cement mills as returned by producers was: for Quebec \$1.16; Ontario \$1.08; Alberta \$2.04, and British Columbia \$1.71 per barrel.

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. | | | Totals. | |
|----------------|----------------------|---------|----------------|------------------|------------|----------------|-----------|------------|
| | Barrels. | Value. | Average value. | Barrels. | Value. | Average value. | Barrels. | Value. |
| | | \$ | \$ cts. | | \$ | \$ cts. | | \$ |
| 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 | 17,553 | 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 | 2,119,704 | 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 | 2,441,668 | 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 |

*Quantities sold or used.

The production of cement in 1913 was derived from twenty-seven operating plants, in addition to which sales were made from stock at one plant not producing during the year. The total daily capacity of the operating plants was 50,540 barrels, while three other plants in Ontario, not operated during the year, are equipped for a daily capacity of 2,350 barrels.

The producing plants were distributed as follows: one in Nova Scotia, using blast furnace slag; three in Quebec, using limestone and clay; fourteen in Ontario, of which nine used marl and five 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 1913 was 4,276, and the total wages paid \$3,466,451. In 1912 the average number of men employed was 3,461 and wages paid \$2,623,902.

A comparison of the principal statistics of 1912 and 1913 showing the increase or decrease, as the case may be, is given in the next table:

Comparison of Production, Sales, and Imports of Portland Cement in 1912 and 1913.

| | | 1912. | 1913. | Increase. | Per cent | Decrease. | Per cent |
|--|------|-----------|------------|-----------|----------|-----------|----------|
| Cement sold or used..... | Bls. | 7,132,732 | 8,658,805 | 1,526,073 | 21.40 | | |
| Cement manufactured..... | " | 7,141,004 | 8,886,333 | 1,745,329 | 24.44 | | |
| Stock on hand Jan. 1..... | " | 894,822 | 862,067 | | | 32,755 | 3.66 |
| Stock on hand Dec. 31..... | " | 903,094 | 1,089,595 | 186,501 | 20.65 | | |
| Value of cement sold or used..... | \$ | 9,106,556 | 11,019,418 | 1,912,862 | 21.01 | | |
| Average price per barrel..... | " | 1.28 | 1.27 | | | 0.01 | 0.78 |
| Wages paid..... | " | 2,623,902 | 3,466,451 | 842,549 | 32.11 | | |
| Men employed..... | No. | 3,461 | 4,276 | 815 | 23.55 | | |
| Imports of Portland cement..... | Bls. | 1,434,413 | 254,093 | | | 1,180,320 | 82.8 |
| Value of cement..... | \$ | 1,969,529 | 409,303 | | | 1,560,226 | 79.1 |
| Average price per barrel..... | " | 1.37 | 1.61 | 0.24 | 17.5 | | |
| Total consumption of cement in Canada..... | Bls. | 8,567,145 | 8,912,898 | 345,753 | 4.04 | | |
| No. of completed plants operated..... | | 24 | 27 | 3 | 12.5 | | |
| Total daily capacity of operating plants on Dec. 31..... | Bls. | 36,515 | 50,540 | 14,025 | 38.4 | | |

The output exceeded the sales by about 227,000 barrels and consequently stocks were increased during the year by about this amount. The average price per barrel at the mill for all plants was \$1.27 in 1913, as compared with \$1.27½ in 1912, and \$1.34 in 1911. The increased production in 1913 was accompanied by an increase of 23.5 per cent in the number of men employed, and an increase of 32 per cent in amount of wages paid.

The imports of cement in 1913 show a falling off of nearly 83 per cent from those of 1912, while the average price of imported cement increased from \$1.37 in 1912 to \$1.61 in 1913.

Of the total cement made in 1913, 1,467,058 barrels were made from marl, and 7,419,275 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 4,950,682 barrels were made from limestone and slag. With the exception of the new plant at Marlboro, Alberta, practically all of the newer plants erected dur-

ing 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, and 16.5 per cent in 1913.

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. | Quantity sold. | On hand Dec. 31. | Value of sales. | Average per barrel. | Daily capacity. |
|-----------|-----------------------------|----------------|----------------|------------------|-----------------|---------------------|-----------------|
| | | Barrels. | Barrels. | Barrels | \$ | \$ cts. | Barrels. |
| 1897..... | | | 119,763 | | 209,380 | 1 75 | |
| 1898..... | | | 163,081 | | 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 | 594,591 | 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 | 1,511,568 | 1,316,548 | 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 | 23,650 |
| 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 | 7,614,537 | 1 34 | 28,810 |
| 1912..... | | 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 |

Imports and Exports:—The quantity of cement exported is not recorded but the value in 1913 is reported as only \$1,739 as against a value of exports in 1912 of \$2,436, and \$4,067 in 1911.

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 this year the duty was, on account of the scarcity in western Canada, reduced by one-half from June 12 to October 31, 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 in 1913 however have fallen to 254,093 barrels.

The United States has been the principal source of imports during the past few years and supplied about 68 per cent of the imports in 1913, as compared with 30 per cent from Great Britain. In 1912 about 89 per

cent of the imports were from the United States, and 9 per cent from Great Britain. The imports of cement during 1912 and 1913 by countries, are shown in the next table.

Imports of Cement, 1912 and 1913.

| | 1912. | | | | 1913. | | | |
|---|-----------|-----------|-----------|----------------|---------|-----------|---------|----------------|
| | Cwt. | Per cent. | Value. | Average value. | Cwt. | Per cent. | Value. | Average value. |
| | | | \$ | Cts. | | | \$ | Cts. |
| Great Britain.. | 457,031 | 9.1 | 147,831 | 32 | 270,747 | 30.4 | 94,844 | 35 |
| United States.. | 4,483,353 | 89.3 | 1,789,621 | 40 | 603,044 | 67.8 | 305,165 | 51 |
| Belgium..... | 21,375 | 0.4 | 7,175 | 34 | | | | |
| Other countries | 3,187 | 0.1 | 1,423 | 45 | 3,483 | 0.4 | 3,307 | 95 |
| Hong Kong.... | 55,500 | 1.1 | 23,479 | 42 | 12,050 | 1.4 | 5,987 | 49 |
| Totals..... | 5,020,446 | 100.0 | 1,969,529 | 39 | 889,324 | 100.0 | 409,303 | 46 |
| Equivalent in barrels of 350 lbs..... | 1,434,413 | | | | 254,093 | | | |

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 | 1906..... | 7,551 |
| 1892..... | 938 | 1900..... | 3,296 | 1907..... | 9,618 |
| 1893..... | 1,172 | 1901..... | 1,514 | 1908..... | 34,591 |
| 1894..... | 482 | 1902..... | 2,267 | 1909..... | 113,362 |
| 1895..... | 937 | 1903..... | 2,851 | 1910..... | 12,914 |
| 1896..... | 1,328 | 1904..... | 5,494 | 1911..... | 4,067 |
| 1897..... | 644 | 1905..... | 3,143 | 1912..... | 2,436 |
| 1898..... | 2,117 | | | 1913..... | 1,739 |

Imports of Cement.

| Fiscal Year. | Cement and Mfrs. of N.E.S.* | Hydraulic cement. | | | Portland cement. | | |
|--------------|-----------------------------|-------------------|--------|----------------|------------------|-----------|----------------|
| | | Quantity. | Value. | Average value. | Quantity. | Value. | Average value. |
| | \$ | Barrels. | \$ | ¢ cts. | Barrels. | \$ | ¢ cts. |
| 1880..... | 28 | 10,034 | 10,306 | 1 03 | | 53,774 | |
| 1881..... | 298 | 7,812 | 7,821 | 1 00 | | 15,646 | |
| 1882..... | 86 | 11,945 | 13,410 | 1 12 | | 66,579 | |
| 1883..... | 548 | 11,659 | 13,755 | 1 18 | | 102,537 | |
| 1884..... | 1,236 | 8,606 | 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 | 177,158 | 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 28 |
| 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 | 5,638 | 8,948 | 1 57 | 204,407 | 242,400 | 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 | 355,261 | 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 |
| 1907..... | 16,201 | 1,192 | 685 | 0 57 | 1,551,493 | 523,120 | 1 34 |
| 1908..... | 12,415 | 18,860 | 6,710 | 0 36 | 2,427,381 | 852,041 | 0 35 |
| 1909..... | 5,733 | 438 | 466 | 1 06 | 1,460,850 | 475,676 | 0 33 |
| 1910..... | 7,678 | 588 | 553 | 0 94 | 490,809 | 158,487 | 0 32 |
| 1911..... | 6,275 | 389 | 365 | 0 94 | 1,283,121 | 494,081 | 0 39 |
| 1912..... | 7,821 | 901 | 579 | 0 64 | 2,592,025 | 936,425 | 0 36 |
| 1913..... | 10,680 | | | | 4,958,814 | 1,955,177 | 0 39 |

*Cement not elsewhere specified and manufactures of 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-

consumption of cement in Canada in 1913 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.

In 1912 the total consumption of cement was 8,567,145 barrels (1,499,250 tons), made up of 7,132,732 barrels (1,248,228 tons) of Canadian cement, and 1,434,413 barrels (251,022 tons) of imported cement, the Canadian cement representing 83.3 per cent, and the imported cement 16.7 per cent of the total.

In 1911 the total consumption of cement was 6,354,831 barrels (1,112,095 tons), made up of 5,692,915 barrels (996,260 tons) of Canadian cement, and 661,916 barrels (115,835 tons) of imported cement, the Canadian cement representing 90 per cent, and the imported cement 10 per cent of the total.

Annual Consumption of Portland Cement.

| Calendar Year. | Canadian. | | Imported. | | Total. Barrels. |
|----------------|-----------|-----------|-----------|-----------|--------------------|
| | Barrels. | Per cent. | Barrels. | Per cent. | |
| 1901 | 317,066 | 36 | 555,900 | 64 | 872,966 |
| 1902 | 591,594 | 52 | 544,954 | 48 | 1,139,548 |
| 1903 | 627,741 | 45 | 773,678 | 55 | 1,401,419 |
| 1904 | 910,358 | 54 | 781,630 | 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 | 469,019 | 15 | 3,134,308 |
| 1909 | 4,067,709 | 97 | 112,194 | 3 | 4,209,903 |
| 1910 | 1,753,975 | 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 |

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.

Quebec.—This Province has three completed cement mills all operated by the Canada Cement Company, Limited; two situated near Montreal at Longue Pointe and Pointe aux Trembles, 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 1913 in this Province was 2,940,211 barrels valued at \$3,430,023.

Ontario.—Ontario continues as the most important cement producing province in Canada having fourteen mills in operation during 1913 of which six with a total daily capacity of 11,100 barrels are operated by the Canada Cement Company, and eight mills, having a total daily capacity of 6,650 barrels, by independent companies. Five plants are operated on limestone and have a total daily capacity of 9,500 barrels, while nine plants, with an aggregate daily capacity of 8,250 barrels, utilize marl deposits. Three plants, one limestone and two marl, formerly producing cement were idle during 1913. 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 1913, were 3,992,988 barrels valued at \$4,311,183, as compared with 3,044,713 barrels valued at \$3,372,897 in 1912. There was thus an increase in sales of 948,275 barrels or over 31 per cent.

The detailed statistics of production during 1912 and 1913 are shown in the next table.

Cement Production in Ontario, 1912 and 1913.

| | 1912. | 1913. | Increase. | Per cent | Decrease. | Per cent. |
|--|-----------|-----------|-----------|----------|-----------|-----------|
| Cement sold or used... Bls. | 3,044,713 | 3,992,988 | 948,275 | 31.1 | | |
| Cement manufactured... " | 2,961,185 | 4,007,202 | 1,046,017 | 35.3 | | |
| Stock on hand Jan. 1... " | 563,066 | 439,010 | | | 124,056 | 22.0 |
| Stock on hand Dec. 31... " | 479,538 | 453,224 | | | 26,214 | 5.5 |
| Value of cement sold... \$ | 3,372,897 | 4,311,183 | 938,286 | 27.8 | | |
| Wages paid... " | 921,553 | 1,098,197 | 176,644 | 19.2 | | |
| Men employed... No. | 1,559 | 1,539 | | | 20 | 1.3 |
| Total daily capacity of operating plants... Bls. | 19,900 | 17,750 | | | 2,150 | 10.8 |

Manitoba.—The Commercial Cement Company of Winnipeg is operating a natural Portland cement plant at Babeock, 75 miles southwest of Winnipeg on the Canadian Northern railway. The capacity of the plant is reported as about 175 barrels per day. The Canada Cement Company completed and placed in operation its new plant near Winnipeg. This plant which was originally constructed as a clinker grinding mill was completed by the addition of a burning department. During 1913 all the cement produced at this plant was ground from clinker shipped from the Company's mill at Belleville, Ont. In the month of December, however, a commencement was made in the manufacture of clinker from raw materials obtained in the Province of Manitoba. The mill 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.—Four cement plants were operated in this Province during 1913, located respectively at Exshaw, Calgary, Blairmore, and Marlboro, the

first three being limestone plants and the last mentioned using marl. The mills at Exshaw and Calgary are operated by the Canada Cement Company and have a daily capacity now increased to 4,500 barrels. The capacity of the mill at Blairmore operated by the Rocky Mountains Cement Company has been increased to 1,000 barrels.

The new plant at Marlboro, 140 miles west of Edmonton, constructed to utilize the local marl deposits, was completed during the year and operated for a period of four months; the daily capacity of this plant is 1,500 barrels. The total quantity of cement marketed by producers in 1913 was 956,169 barrels valued at \$1,947,933.

In addition to the completed plants, two others 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.

British Columbia.—Two new plants were completed during the year, making three plants in operation in this Province in 1913. At Tod Inlet the Vancouver Portland Cement Company increased the capacity of its plant to about 3,000 barrels per day. The Associated Cement Company (Canada) Ltd., successors to the Portland Cement Construction Company, Ltd., operated the new plant at Bamberton also on Tod Inlet for a period of seven months, the daily capacity of this plant being 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, did not begin active production until late in the year and was operated for about four weeks only.

The total sales of cement from British Columbia mills in 1913 were 574,258 barrels valued at \$980,560.

The production of cement in Ontario has already been shown separately and the aggregate production in all other provinces during 1912 and 1913 is given in the next table.

Cement Production in Other Provinces, 1912 and 1913.

| | 1912. | 1913. | Increase. | Percent. | Decrease. | Percent. |
|---|-----------|-----------|-----------|----------|-----------|----------|
| Cement sold or used Bls. | 4,088,019 | 4,665,817 | 577,798 | 14.1 | | |
| Cement manufactured " " | 4,179,819 | 4,879,131 | 699,312 | 16.7 | | |
| Stock on hand Jan. 1 " " | 331,756 | 423,067 | 91,311 | 27.5 | | |
| Stock on hand Dec " " | 423,556 | 636,371 | 212,815 | 50.2 | | |
| Value of cement sold \$ | 5,733,659 | 6,708,235 | 964,576 | 16.8 | | |
| Wages paid " " | 1,702,349 | 2,368,254 | 665,905 | 39.1 | | |
| Men employed " No. | 1,902 | 2,737 | 835 | 43.9 | | |
| Total daily capacity of operating plants " Bls. | 18,115 | 32,790 | 14,675 | 81.0 | | |

Following is a list of cement manufacturing companies:—

| Name. | Location of Plant. | Head Office. |
|--|----------------------------|--------------------|
| Sydney Cement Company, Ltd. | Sydney, N.S. | Sydney, N.S. |
| Canada Cement Company, Ltd. | | Montreal, Que. |
| Montreal Mill, No. 1. | Longue Pointe, Que. | |
| Montreal Mill, No. 2. | Pointe Aux Trembles, Q. | |
| International Mill, No. 3. | Hull, Que. | |
| Owen Sound Mill, No. 9. | Shallow Lake, Ont. | |
| Belleville Mill, No. 4. | Belleville, O. (Point Ann) | |
| Lehigh Mill, No. 5. | " | |
| Lakefield Mill, No. 7. | Lakefield, Ont. | |
| Marlbank Mill, No. 6. | Marlbank, Ont. | |
| Port Colborne Mill, No. 8. | Port Colborne, Ont. | |
| Alberta Mill, No. 10. | Calgary, Alberta. | |
| †Dauntless Mill. | Dauntless, Alberta. | |
| Exshaw Mill, No. 12. | Exshaw, Alberta. | |
| Winnipeg Mill, No. 13. | Winnipeg, Man. | |
| The Doric Portland Cement Co., Ltd. | Owen Sound, Ont. | Owen Sound, Ont. |
| *The Imperial Cement Co., Ltd. | " | " |
| Hanover Portland Cement Co., Ltd. | Hanover, Ont. | Hanover, Ont. |
| The Ontario Portland Cement Co., Ltd. | Blue Lake, Ont. | Brantford, Ont. |
| The National Portland Cement Co., Ltd. | Durham, Ont. | Durham, Ont. |
| Kirkfield Portland Cement Co., Ltd. | Raven Lake, Ont. | Toronto, Ont. |
| Superior Portland Cement Co., Ltd. | Orangeville, Ont. | Orangeville, Ont. |
| The Maple Leaf Portland Cement Co., Ltd. | Atwood, Ont. | Listowel, Ont. |
| *The Crown Portland Cement Co., Ltd. | Wharton, Ont. | Wharton, Ont. |
| St. Mary's Portland Cement Co., Ltd. | St. Marys, Ont. | Toronto, Ont. |
| The Commercial Cement Co., Ltd. | Babeck, Man. | Winnipeg, Man. |
| The Rocky Mountains Cement Co. | Blairmore, Alberta. | Calgary, Alberta. |
| †The Keystone Portland Cement Co. | " | " |
| The Edmonton Portland Cement Co., Ltd. | Marlboro, Alberta. | Edmonton, Alberta. |
| Vancouver Portland Cement Co. | Ted Inlet, B.C. | Victoria, B.C. |
| British Columbia Portland Cement Co., Ltd. | Princeton, East. | Vancouver, B.C. |
| The Associated Cement Co. (Canada), Ltd. | Bamberton. | Victoria, B.C. |

†Mill not yet completed. *Idle.

CLAYS AND CLAY PRODUCTS¹.

For a number of years a small quantity of fireclay has been produced and sold as such, and during the past two years there has been a small 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 1913 was \$6,504,314 as compared with a value of \$10,575,869 in 1912, showing a decrease of \$1,071,555 or a little over 10 per cent. 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 the 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. Other clay products including ornamental brick, firebrick and fireclay, terra cotta fireproofing, pottery, sewerpipe, drain tiles and kaolin showed substantial increases in the quantity and value of products marketed. The average number of men employed and the total wages paid were greater in 1913 than in 1912. The average number of men employed in 1913 was 11,193 as compared with 10,415 in 1912, and 9,131 in

¹Special 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.

1911. The total wages paid in 1913 were \$4,082,801 as against \$4,488,957 in 1912, and \$3,524,058 in 1911.

A significant feature of the clay industry in 1913 was that the falling off in sales was almost entirely confined to the western provinces. There was an increase in the value of the sales of clay products in Nova Scotia, New Brunswick, and in Ontario. In the Province of Quebec the falling off was less than 5 per cent but the decrease in each of the four western provinces was very marked, ranging from 30 to 50 per cent.

Largely because of her preponderance of population and older development, Ontario is by far the largest producer of clay products, having contributed in 1913 nearly 55 per cent of the total values marketed, as compared with 43 per cent in 1912. Quebec contributed 17 per cent in 1913 as against 16 per cent the preceding year; Alberta 9.4 per cent in 1913, as compared with 12.5 per cent in 1912; Manitoba 5 per cent in 1913 as against 10 per cent in 1912, and British Columbia 7 per cent in 1913 as compared with 8 per cent in the previous year.

Of the total value of the production in 1913, building and paving brick, including fire proofing, contributed \$7,928,585 or about 75 per cent, as against \$9,163,666 or 86 per cent of the total in 1912. Sewerpipe and tile production in 1913 were valued at \$1,374,458 or 13 per cent of the total, as against \$1,242,503 or 11.7 per cent of the total in 1912. The total value of the production of pottery in 1913 was reported as \$368,916 of which \$53,533 only, is estimated as attributable to Canadian clays, and the balance to imported clays. The value of the production of fireclay and fire brick from domestic clays was reported as \$142,738. Compared with the previous year the production of building, paving, and fireproofing brick shows a decrease of about 13 per cent, whereas the production of sewerpipe shows an increase of nearly 11 per cent.

The average price of common and building brick for the whole of Canada in 1913 was \$8.85 as compared with \$9.11 in 1912; \$8.37 in 1911, \$8.13 in 1910, and \$7.81 in 1909. The average price of pressed or front brick for the same years was respectively \$12.49, \$12.86, \$12.53, \$11.89, and \$11.01, thus showing a general increase in the cost of building brick until 1912, with a slight falling off in 1913.

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 1913 was \$6,760,752 (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 \$16,212,733 is shown of which about 58.6 per cent was of domestic production.

In 1912 the approximate consumption was valued at \$17,149,659, of which about 62 per cent was of domestic production. In 1911 the con-

sumption was valued at \$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 are more than double and those of firebrick about eight times the Canadian production. The imports of drain tile and sewerpipe were about one-third the Canadian production.

Statistics of production in 1913 and 1912 of the several classes of clay products by provinces are shown in the following tables:—

Production of Clay Products by Provinces, 1913

| Province. | No. of ac- tive firms reporting. | No. of men employed. | Wages. \$ | Common brick. | | | | Pressed brick. | | | | |
|-----------------------|--|----------------------------|--------------|------------------------|--|--|--------------------|------------------------|----------------------------|--------------------|--------------------------------------|-------|
| | | | | No. manu- factured. | No. sold. | Value of sales. | Per M. \$ | No. manu- factured. | No. sold. | Value of sales. | Per M. \$ | |
| Nova Scotia..... | 12 | 395 | 123,554 | 25,052,866 | 21,923,573 | 171,418 | 7 82 | 175,186 | 162,192 | \$ 2,606 | cts | |
| New Brunswick..... | 8 | 173 | 34,540 | 7,158,240 | 6,139,152 | 61,369 | 10 00 | 50,000 | 50,000 | 2,600 | 16 06 | |
| Quebec..... | 76 | 2,055 | 721,435 | 180,063,371 | 145,972,957 | 1,152,444 | 7 89 | 10,358,313 | 7,723,285 | 98,321 | 12 00 | |
| Ontario..... | 271 | 5,200 | 2,393,357 | 401,055,851 | 349,846,487 | 3,105,256 | 8 88 | 89,494,500 | 80,183,044 | 920,773 | 12 73 | |
| Manitoba..... | 17 | 1,134 | 283,143 | 67,078,850 | 39,559,320 | 443,498 | 11 21 | 6,931,079 | 4,101,000 | 70,860 | 11 48 | |
| Saskatchewan..... | 14 | 1,379 | 116,312 | 23,169,000 | 16,475,000 | 162,370 | 9 86 | 2,750,000 | 1,700,000 | 27,450 | 17 28 | |
| Alberta..... | 30 | 991 | 592,709 | 65,991,783 | 52,378,283 | 477,988 | 9 13 | 25,016,515 | 19,618,060 | 254,410 | 16 15 | |
| British Columbia..... | 27 | 806 | 417,751 | 43,919,240 | 36,131,903 | 343,020 | 9 49 | 5,728,907 | 3,264,472 | 83,713 | 12 97 | |
| Totals..... | 455 | 11,193 | 4,682,801 | 812,589,201 | 668,428,675 | 5,917,373 | 8 85 | 139,684,500 | 116,802,053 | 1,458,733 | 25 65 | |
| | | | | | | | | | | | | 12 49 |
| Province. | Paving brick. | | Ornamental. | | Firebrick and fireclay shapes. Value. | Fireproof- ing and terra-cotta, etc. Value. | Pottery. Value. | Sewerpipe. Value. | Tiles, drain. Value. | Kaolin. Value. | Total value. Clay products. | |
| | No. sold. | Value. | No. sold. | Value. | | | | | | | | |
| Nova Scotia..... | | \$ | | \$ | 17,173 | | | 138,209 | 2,866 | | \$ 332,272 | |
| New Brunswick..... | | | | | 29,528 | | | 184,248 | 300 | | 62,269 | |
| Quebec..... | 3,995,180 | 69,840 | 195,000 | 4,875 | 122,000 | 1,800 | 1,800 | 8,600 | 8,600 | 5,000 | 1,606,816 | |
| Ontario..... | | | 635,855 | 9,810 | 150,268 | 48,864 | 600,797 | 314,859 | | | 5,220,467 | |
| Manitoba..... | | | | | | | | | | | 514,358 | |
| Saskatchewan..... | 100,000 | 3,000 | 44,500 | 738 | 146,200 | 2,369 | 7,219 | | 974 | | 189,820 | |
| Alberta..... | 113,115 | 2,829 | | | 42,919 | | 105,433 | | | | 893,408 | |
| British Columbia..... | 4,208,295 | 75,969 | 875,355 | 15,423 | 461,387 | (a) 53,533 | 1,035,906 | 338,552 | 5,000 | 9,504,314 | | |
| Totals..... | | | | | (b) 142,738 | | | | | | | |

(a) There was also a production of \$315,383 from imported clays.
 (b) There was also a production of \$22,925 from imported clays.

Production of Clay Products by Provinces, 1912.

| Province. | No. of active firms reporting. | No. of men employed. | Wages. | Common brick. | | | | Pressed brick. | | | |
|-----------------------|--------------------------------|----------------------|-----------|---------------------|-------------|-----------------|--------|---------------------|-------------|-----------------|--------|
| | | | | No. manu- factured. | No. sold. | Value of sales. | Per M. | No. manu- factured. | No. sold. | Value of sales. | Per M. |
| Nova Scotia..... | 11 | 316 | \$ 98,939 | 20,095,202 | 18,722,960 | \$ 128,508 | cta. | 220,000 | 100,000 | \$ 1,600 | 16 00 |
| New Brunswick..... | 7 | 148 | 45,536 | 6,179,000 | 5,730,000 | 52,850 | 9 22 | 50,000 | 50,000 | 1,500 | 10 00 |
| Quebec..... | 74 | 1,917 | 545,221 | 181,219,323 | 161,836,557 | 1,308,380 | 8 08 | 10,386,454 | 11,500,000 | 138,500 | 12 04 |
| Ontario..... | 271 | 4,696 | 2,069,542 | 356,964,931 | 350,431,874 | 3,045,840 | 8 69 | 75,231,791 | 73,208,310 | 761,355 | 10 40 |
| Manitoba..... | 21 | 1,088 | 405,920 | 83,556,437 | 83,681,237 | 969,894 | 11 47 | 3,460,000 | 3,497,700 | 52,947 | 15 13 |
| Saskatchewan..... | 14 | 363 | 162,664 | 24,603,771 | 24,638,771 | 246,443 | 9 73 | 5,950,000 | 5,200,000 | 86,500 | 16 63 |
| Alberta..... | 33 | 1,053 | 587,223 | 73,394,693 | 70,074,568 | 755,986 | 10 69 | 25,798,410 | 23,685,412 | 349,926 | 14 77 |
| British Columbia..... | 28 | 814 | 492,916 | 59,569,470 | 53,345,565 | 512,514 | 9 61 | 8,210,800 | 7,939,000 | 218,526 | 27 53 |
| Totals..... | 459 | 10,415 | 4,488,967 | 802,582,827 | 769,191,532 | 7,010,775 | 9 11 | 120,297,455 | 125,180,422 | 1,609,854 | 12 86 |

| Province | Paving brick. | | Ornamental. | | Firebrick and fireclay shapes. Value. | Fireproof- ing and terra-cotta, etc. Value. | Pottery. Value. | Sewerpipe Value. | Tiles, drain. Value. | Kaolin. Value. | Total value. Clay products. |
|-----------------------|---------------|--------|-------------|--------|---------------------------------------|---|-----------------|------------------|----------------------|----------------|-----------------------------|
| | No. sold. | Value. | No. sold. | Value. | | | | | | | |
| Nova Scotia..... | | \$ | | \$ | \$ 15,375 | \$ 1,270 | \$ | \$ 115,000 | \$ 10,300 | \$ | \$ 272,053 |
| New Brunswick..... | | | | | | | | | | | 54,910 |
| Quebec..... | | | | | 25,000 | 42,530 | 500 | 165,000 | 390 | 160 | 1,680,460 |
| Ontario..... | 4,554,500 | 85,589 | 352,816 | 7,168 | | 135,087 | 43,455 | 478,156 | 308,050 | | 4,864,700 |
| Manitoba..... | | | | | | | | | | | 1,018,081 |
| Saskatchewan..... | | | | | | | | | | | 1,332,943 |
| Alberta..... | 25,000 | 400 | 10,000 | 427 | 85,210 | 248,712 | | | | | 1,356,184 |
| British Columbia..... | | | | | | 21,254 | | | | | 996,568 |
| Totals..... | 4,579,500 | 85,989 | 371,356 | 8,595 | (b) 125,585 | 448,853 | (a) 43,955 | 884,641 | 357,862 | 160 | 10,575,869 |

(a) There was also a production of \$383,134 from imported clays.
 (b) Also a production of \$25,000 from imported clays.

Production of Clay Products, 1910 and 1911.

| | 1910. | | | 1911. | | |
|---|-------------|-----------|---------|-------------|-----------|---------|
| | Quantity. | Value. | Per M. | Quantity. | Value. | Per M. |
| | | \$ | \$ cts. | | \$ | \$ cts. |
| Bricks— | | | | | | |
| Common.....No. | 627,715,319 | 5,105,354 | 8 13 | 645,550,517 | 5,420,890 | 8 37 |
| Pressed....." | 67,895,034 | 807,294 | 11 89 | 87,350,539 | 1,094,582 | 12 53 |
| Paving....." | 4,214,917 | 78,980 | 18 74 | 5,220,400 | 79,444 | 15 22 |
| Ornamental....." | 703,345 | 16,092 | 22 89 | 605,643 | 11,281 | 18 63 |
| Firebrick and fireclay shapes, etc..... | | 50,215 | | | 89,130 | |
| Fireproofing, and architectural terra-cotta, etc..... | | 176,979 | | | 409,585 | |
| Pottery..... | | 250,924 | | | 102,493 | |
| Sewerpipe..... | | 774,110 | | | 812,716 | |
| Tiles, drain..... | 24,562,648 | 370,008 | | | 339,812 | |
| Totals..... | | 7,629,956 | | | 8,359,933 | |

Production of Clay Products by Provinces, 1908-1913.

| Province. | 1908. | 1909 | 1910. | 1911. | 1912. | 1913. |
|-----------------------|-----------|-----------|-----------|-----------|------------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 117,833 | 188,185 | 204,782 | 274,249 | 272,053 | 332,272 |
| New Brunswick..... | 75,513 | 65,570 | 56,475 | 38,000 | 54,910 | 62,269 |
| Quebec..... | 893,717 | 1,153,832 | 1,442,842 | 1,341,467 | 1,680,460 | 1,606,816 |
| Ontario..... | 2,476,152 | 3,425,841 | 3,667,810 | 3,916,575 | 4,864,700 | 5,220,467 |
| Manitoba..... | 265,091 | 559,008 | 781,605 | 834,428 | 1,018,051 | 514,358 |
| Saskatchewan..... | 87,566 | 145,516 | 160,850 | 226,958 | 332,943 | 189,820 |
| Alberta..... | 240,384 | 442,486 | 753,232 | 1,052,751 | 1,356,184 | 893,408 |
| British Columbia..... | 344,446 | 470,402 | 562,360 | 675,505 | 996,568 | 684,904 |
| | 4,500,702 | 6,450,840 | 7,629,956 | 8,359,933 | 10,575,869 | 9,504,314 |

Annual Value of Production of Clay Products, 1899-1913.

| Calendar Year. | Value. | Calendar Year. | Value. | Calendar Year. | Value. |
|----------------|-----------|----------------|-----------|----------------|------------|
| | \$ | | \$ | | \$ |
| 1899..... | 2,988,099 | 1904..... | 3,841,560 | 1909..... | 6,450,840 |
| 1900..... | 3,195,105 | 1905..... | 4,709,842 | 1910..... | 7,629,956 |
| 1901..... | 3,382,706 | 1906..... | 5,072,635 | 1911..... | 8,359,933 |
| 1902..... | 3,625,489 | 1907..... | 5,772,147 | 1912..... | 10,575,869 |
| 1903..... | 4,034,289 | 1908..... | 4,500,702 | 1913..... | 9,504,314 |

Exports and Imports.—The total value of the exports of clay products in 1913 was \$52,333 and included 977,000 building brick valued at \$8,579, manufactures of clay valued at \$27,201 and earthenware valued at \$16,553.

In 1912 the total value of the exports was \$18,750, which included 694,000 building brick valued at \$8,493, manufactures of clay valued at \$256 and earthenware valued at \$10,001.

The imports of clays and clay products reached a total value during the calendar year 1913 of \$6,760,752, or equivalent to about 71 per cent of the domestic production. The total imports in 1912 were valued at \$6,592,540 showing an increase in 1913 of \$168,212 or less than 3 per cent, as against an increase in 1912 over 1911 of nearly 28 per cent in imports. Not only have the imports during the past few years been increasing at a more rapid rate than the home production, but in 1913 there was an increase in imports notwithstanding a decrease in the value of domestic clay products marketed.

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 1913 were valued at \$324,290 and included chiefly china-clay and fireclay with a small quantity of pipeclay and other clays not classified. The value of china-clay imported was \$149,337 and of fireclay \$143,399, in both cases an increase over the imports of the previous year. In 1912 the total value of the imports of clays was \$288,394 and included china-clay valued at \$127,402 and fireclay at \$140,500. The imports of these clays have varied considerably from year to year. The present imports of china-clay are the highest recorded but the imports of fireclay in 1908 exceeded the 1913 imports.

The imports classified under brick and tile were valued in 1913 at \$3,121,592 a slightly lower value than the imports in 1912 which were \$3,209,190. A large portion of these imports are made up of firebrick, nearly 40 per cent in 1913. 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 1913 at \$3,314,870 as against \$3,094,956 in 1912, an increase of about 4 per cent. 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 since 1907 is shown in the next table, the figures for the years 1907 to 1909 covering the fiscal year; for the last five years the calendar year is used.

Imports of Clay Products, 1907 to 1913.

| Imports. | 9 months ending March, 1907. | 12 months ending March, 1908. | 12 months ending March, 1909. | Calendar year 1910. | Calendar year 1911. | Calendar year 1912. | Calendar year 1913. |
|---|------------------------------|-------------------------------|-------------------------------|---------------------|---------------------|---------------------|---------------------|
| Brick and tile— | | | | | | | |
| Bath brick..... | \$ 1,076 | \$ 1,834 | \$ 1,495 | \$ 2,290 | \$ 2,623 | \$ 1,927 | \$ 2,680 |
| Building brick..... | 88,144 | 139,105 | 195,360 | 274,482 | 475,865 | 763,470 | 575,269 |
| Paving brick..... | 23,256 | 61,346 | 139,366 | 124,944 | 164,232 | 160,663 | 176,497 |
| Firebrick, of a class or kind not made in Canada..... | *506,801 | 639,347 | 485,994 | 811,927 | 814,414 | 953,621 | 976,097 |
| Drain tile, not glazed..... | 12,106 | 2,090 | 2,785 | 4,465 | 5,640 | 4,018 | 12,156 |
| Drain pipe, sewerpipe, and earthenware fittings therefor, chimney linings or vents, chimney tops and inverted blocks, glazed or unglazed..... | 93,458 | 125,747 | 170,280 | 175,599 | 352,929 | 507,024 | 465,397 |
| Manufactures of clay, n.o.p..... | 45,845 | 110,097 | 254,170 | 361,996 | 523,998 | 818,467 | (a)912,886 |
| Total..... | 770,686 | 1,079,556 | 815,033 | 1,755,773 | 2,369,761 | 3,209,190 | 3,121,592 |
| Earthenware and chinaware— | | | | | | | |
| Brown or coloured earthenware and stoneware, and Rockingham ware..... | 9,625 | 22,847 | 28,273 | 53,413 | 52,100 | 62,161 | 70,632 |
| C. C. or cream coloured ware, decorated, printed or sponged, and all earthenware, n.o.p..... | 154,879 | 239,513 | 197,623 | 202,475 | 184,291 | 291,804 | 264,090 |
| Demi-glazes, churns, or crocks..... | 9,342 | 17,836 | 10,571 | 6,607 | 4,933 | 18,404 | 32,599 |
| Tableware of china, porcelain, white granite or iron-stoneware..... | 902,798 | 1,555,517 | 1,202,537 | 1,545,538 | 1,718,582 | 2,068,362 | 2,185,601 |
| China and porcelain ware, n.o.p..... | 134,675 | 109,446 | 87,798 | 95,509 | 62,025 | 71,751 | 43,696 |
| Tiles or blocks of earthenware or stone prepared for mosaic flooring..... | 62,547 | 45,836 | 43,299 | 90,524 | 123,203 | 160,082 | 173,445 |
| Earthenware tiles, n.o.p..... | 67,027 | 116,480 | 79,854 | 81,393 | 125,772 | 154,351 | 239,391 |
| Manufactures of earthenware, n.o.p..... | 81,987 | 83,309 | 66,932 | 78,063 | 163,278 | 217,051 | 183,001 |
| Total..... | 1,422,880 | 2,190,784 | 1,716,887 | 1,781,759 | 2,283,116 | 3,094,956 | 3,314,370 |
| Clays— | | | | | | | |
| China-clay ground, or unground..... | 78,772 | 97,236 | 90,922 | 100,066 | 142,125 | 125,768 | 127,402 |
| Fireclay, ground or unground..... | 85,044 | 155,873 | 77,146 | 86,161 | 124,293 | 125,196 | 140,500 |
| Pipeclay, ground or unground..... | 307,307 | 319 | 887 | 310 | 1,786 | 234 | 385 |
| Clays, all other, n.o.p..... | 14,117 | 14,292 | 21,280 | 29,793 | 25,976 | 20,238 | 31,169 |
| Totals..... | 178,240 | 267,720 | 190,235 | 216,330 | 292,508 | 270,247 | 298,394 |
| Grand total..... | 2,371,806 | 3,538,060 | 2,722,155 | 3,247,539 | 4,331,397 | 5,156,544 | 6,592,540 |
| Baths, bath-tubs, basins, closets, lavatories, urinals, sinks and laundry tubs of any material..... | 62,547 | 234,505 | 157,881 | 211,837 | 292,667 | 295,847 | 382,920 |
| Chalk, china or Cornwall stone, cliff stone and fieldspar, fluorspar, magnesite, ground or unground..... | 7,376 | 72,467 | 81,675 | 96,747 | 121,959 | 147,640 | 167,990 |
| *Includes stove linings, n.c.s. | | | | | | | |
| (†) Includes Building Blocks (9 mos.) \$356,366; Firebrick, N.O.P. (9 mos.) \$216,760; and manufactures of clay N.O.P. \$339,760. | | | | | | | |

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 unground,' much of which is no doubt used in connexion with the manufacture of clay products. The value of these imports during the calendar year 1913 was \$164,879; of which \$138,524 was from the United States, \$21,860 from Great Britain, and \$4,495 from other countries. The value of the imports under this item during the calendar year 1912 was \$167,990. 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 1913 being \$477,133 as compared with \$382,920 during the year 1912.

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 86.5 per cent was from the United States and 13.2 per cent from Great Britain; and only \$5,727 worth from other countries. Of the earthenware and chinaware, 59 per cent was imported from Great Britain; 18 per cent from the United States; 11 per cent from Germany; 6 per cent from France, and considerable values also from Japan, Austria-Hungary, and other countries. The crude clays were imported principally from Great Britain and the United States.

Imports of Clay Products During the Twelve Months Ending March 1913, Showing Countries of Origin.

| Imports. | Great Britain. | United States. | Germany. | France. | Austria-Hungary. | Japan. | Other countries. | Total. |
|--|----------------|----------------|----------|---------|------------------|---------|------------------|-----------|
| Brick and tile— | \$ 1,454 | \$ 196 | | | | | | \$ 1,650 |
| Bath brick..... | 31,812 | 777,556 | | | | | | 809,368 |
| Building brick..... | 63,171 | 96,005 | | 678 | | | | 159,854 |
| Paving brick..... | 114,201 | 862,569 | | 8 | 250 | | 3,488 | 1,000,516 |
| Fire brick, of a class or kind not made in Canada..... | 1,199 | 2,873 | | 381 | | | | 4,453 |
| Drain tile, not glazed..... | | | | | | | | |
| Drain pipe, sewerpipe, and earthenware fittings thereof, chimney linings or vents, chimney tops and inverted blocks, glazed or unglazed..... | 81,029 | 432,491 | | | | | | 513,520 |
| Manufactures of clay, n.o.p..... | 145,403 | 668,432 | 270 | 449 | 66 | | 137 | 814,757 |
| Total..... | 438,269 | 2,860,122 | 270 | 1,516 | 316 | | 3,625 | 3,304,118 |
| Earthenware and chinaware.— | | | | | | | | |
| Brown or coloured earthenware and stoneware, and Roekingham ware..... | 22,131 | 40,112 | 202 | | | 7 | 17 | 62,491 |
| C. C. or cream coloured ware, decorated printed or sponged, and all earthenware, n.o.p..... | 192,367 | 58,916 | 21,814 | 3,475 | 1,652 | 10,768 | 7,646 | 296,638 |
| Demiophas, churas, or crocks..... | 2,454 | 22,843 | 12 | 83 | | | 94 | 25,486 |
| Tableware of china, porcelain, white granite or iron-stoneware..... | 1,470,349 | 36,826 | 303,325 | 174,431 | 76,168 | 85,088 | 15,976 | 2,166,163 |
| Chinaware, to be silver mounted, imported by manufacturers of silverware..... | 125 | 232 | 45 | | | | | 402 |
| China and porcelain ware, n.o.p..... | 33,061 | 17,322 | 9,344 | 908 | 1,792 | 3,512 | 987 | 66,926 |
| Tiles or blocks of earthenware or stone prepared for mosaic flooring..... | 29,709 | 142,713 | 1,093 | 3,174 | | 11 | 108 | 176,808 |
| Farthenware tiles, n.o.p..... | 127,715 | 147,049 | 148 | 1,162 | | | 839 | 276,913 |
| Manufactures of earthenware, n.o.p..... | 54,507 | 118,346 | 7,898 | 1,412 | 813 | 6,194 | 4,183 | 193,353 |
| Total..... | 1,932,418 | 584,359 | 343,881 | 184,645 | 80,432 | 109,595 | 29,850 | 3,265,180 |
| Clays.— | | | | | | | | |
| China-clay, ground or unground..... | 95,147 | 49,980 | | | 298 | | | 145,425 |
| Fire-clay, ground or unground..... | 23,388 | 131,048 | 1,283 | | 40 | | | 158,759 |
| Pipe-clay, ground or unground..... | 98 | 210 | | | | | | 308 |
| Clays, all other, n.o.p..... | 478 | 21,888 | 512 | | | | | 22,878 |
| Total..... | 119,111 | 206,126 | 1,795 | | 338 | | | 327,370 |
| Grand Total..... | 2,489,798 | 3,650,607 | 345,946 | 186,161 | 81,066 | 109,595 | 33,475 | 6,896,068 |
| Per cent of total..... | 36.10 | 52.93 | 5.02 | 2.70 | 1.18 | 1.59 | 0.48 | |
| Baths, bath-tubs, basins, closets, lavatories, urinals, sinks, and laundry tubs of any material..... | 128,911 | 294,057 | 381 | | | | | 423,349 |
| Chalk, china or cornwall stone, cliff stone, and feldspar, fluorspar, magnesite, ground or unground..... | 35,136 | 134,276 | 98 | | 164 | | 1,293 | 170,976 |

A record of the total annual value of the imports of clay products since 1900 by fiscal years, is shown in the following table. In fourteen years Canada has imported clay products to the value of \$42,293,374. The increase in imports has been most pronounced in the case of brick and tile, the imports of which in 1900 amounted to \$145,914 as compared with \$3,304,118 in the fiscal year 1913, an increase of over twenty-fold. The imports of earthenware and chinaware have more than trebled, and the imports of clays have almost trebled in the same period.

Imports of Clay Products (total value) 1900-13.

| 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 |
| 1909..... | 815,033 | 1,716,887 | 190,235 | 2,722,155 |
| 1910..... | 1,341,310 | 1,859,302 | 218,232 | 3,418,844 |
| 1911..... | 1,895,201 | 2,398,416 | 290,533 | 4,593,150 |
| 1912..... | 2,462,181 | 2,582,966 | 257,671 | 5,302,818 |
| 1913..... | 3,304,118 | 3,265,180 | 327,370 | 6,896,668 |
| | 14,298,955 | 25,132,250 | 2,862,169 | 42,293,374 |

*9 months ending March 1907.

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

The Canadian Customs duties affecting clays and clay products are shown as follows:—

Canadian Customs Duties on Clay Products.

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

| Item. | | 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., demijohns, 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 spangled, 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; ganister and sand; gravels; earths, crude only..... | Free. | Free. | Free. |

CLAY BUILDING BRICK.

The total sales from Canadian plants of clay building brick including the 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 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.

In 1912 the total sales were 894,371,954, valued at \$8,620,229, made up of 769,191,532 common, valued at \$7,010,310, or an average value per thousand of \$9.11; and 125,180,422 pressed brick, valued at \$1,609,854, or an average value per thousand of \$12.86. In addition to the common and pressed brick, there was a production of ornamental brick of 371,356 valued at \$8,595, and a production of fireproofing brick and architectural terra-cotta valued at \$448,853.

In 1911 the total sales were 732,901,056, valued at \$6,515,472, made up of 645,550,517 common, valued at \$5,420,890, or an average value per thousand of \$8.37; and 87,350,539 pressed brick, valued at \$1,094,582, or an average value per thousand of \$12.53. In addition to the common and pressed brick there was a production of ornamental brick of 605,643, valued at \$11,281, and a production of fireproofing brick and architectural terra-cotta valued at \$409,585.

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

| Province. | 1912. | | | | 1913. | | | |
|------------------|--------------------------------|-------------|-----------|--------------------------|--------------------------------|-------------|-----------|--------------------------|
| | 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 | 18,822,960 | 130,103 | 1.5 | 12 | 22,085,765 | 174,024 | 2.3 |
| New Brunswick.. | 7 | 5,780,000 | 53,350 | 0.6 | 8 | 6,189,152 | 61,969 | 0.8 |
| Quebec..... | 74 | 173,336,557 | 1,446,880 | 16.8 | 76 | 153,696,242 | 1,250,765 | 17.0 |
| Ontario..... | 271 | 423,670,184 | 3,807,195 | 44.2 | 271 | 430,029,531 | 4,026,029 | 54.6 |
| Manitoba..... | 21 | 87,178,937 | 1,012,801 | 11.7 | 17 | 43,660,320 | 514,358 | 7.0 |
| Saskatchewan.... | 14 | 30,538,771 | 332,943 | 3.9 | 14 | 18,175,000 | 189,820 | 2.6 |
| Alberta..... | 33 | 93,759,980 | 1,105,912 | 12.8 | 30 | 71,093,343 | 732,408 | 9.9 |
| British Columbia | 28 | 61,254,565 | 731,016 | 8.5 | 27 | 35,375 | 426,733 | 5.8 |
| Totals..... | 459 | 894,371,954 | 8,620,229 | 100.0 | 455 | 785,228,728 | 7,376,106 | 100.0 |

**Production of Clay Building Brick (Common and Pressed) 1910
and 1911.**

| Province. | 1910. | | | 1911. | | |
|-----------------------|-------------|-----------|--------------------------|-------------|-----------|--------------------------|
| | No. sold. | Value. | Per cent of total value. | No. sold. | Value. | Per cent of total value. |
| | | \$ | | | \$ | |
| Nova Scotia..... | 18,730,000 | 113,436 | 1.92 | 23,530,000 | 141,640 | 2.17 |
| New Brunswick..... | 3,950,000 | 31,350 | 0.53 | 4,400,000 | 38,000 | 0.58 |
| Quebec..... | 130,278,310 | 929,492 | 15.72 | 122,047,580 | 1,033,270 | 15.86 |
| Ontario..... | 342,119,078 | 2,785,361 | 47.11 | 369,004,371 | 3,028,046 | 46.48 |
| Manitoba..... | 75,834,550 | 746,704 | 12.63 | 81,400,000 | 826,928 | 12.69 |
| Saskatchewan..... | 14,733,340 | 160,850 | 2.72 | 21,071,660 | 224,755 | 3.45 |
| Alberta..... | 73,639,771 | 750,982 | 12.70 | 71,772,930 | 779,001 | 11.96 |
| British Columbia..... | 36,316,304 | 394,473 | 6.67 | 39,680,515 | 443,829 | 6.81 |
| Totals..... | 695,610,353 | 5,912,648 | 100.00 | 732,901,056 | 6,515,472 | 100.00 |

The exports of building brick since 1891 and the imports since 1880 are shown in the two 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 \$8,579 in 1913.

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 1913 the imports were 56,846,000 brick valued at \$575,269 of which 2,427,000 valued at \$28,645 or an average of \$11.80 per thousand were imported from Great Britain, and 54,419,000 valued at \$546,624 or an average of \$10.04 per thousand, from the United States. The imports during the calendar year 1912 were 81,425,000 brick valued at \$763,470, of which 3,071,000 valued at \$32,731, or an average of \$10.66 per thousand were imported from Great Britain, and 78,350,000 valued at \$730,739, or an average of \$9.33 per thousand from the United States.

It will be noted that in 1913 there was a considerable falling off in the imports of brick, both from Great Britain and the United States, and an increase in the average price of the brick imported

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 | 4,799 | 1908 | 2,344 | 9,047 |
| 1893 | 6,073 | 44,110 | 1901 | 646 | 5,110 | 1909 | 365 | 2,255 |
| 1894 | 1,095 | 7,405 | 1902 | 2,110 | 12,486 | 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 | 373 | 2,679 | 1905 | 754 | 5,888 | 1913 | 977 | 8,579 |
| 1898 | 65 | 442 | 1906 | 697 | 6,541 | | | |

Imports of Building Brick.

| Fiscal Year. | M. | Value. | Fiscal Year. | M. | Value. | Fiscal Year. | M. | Value. |
|--------------|-------|--------|--------------|-------|--------|---------------|--------|---------|
| | | \$ | | | \$ | | | \$ |
| 1880 | 340 | 2,067 | 1891 | 589 | 9,744 | 1902 | 4,067 | 33,802 |
| 1881 | 415 | 4,281 | 1892 | 621 | 5,075 | 1903 | 2,881 | 28,493 |
| 1882 | 3,500 | 24,572 | 1893 | 1,489 | 14,108 | 1904 | 13,455 | 117,468 |
| 1883 | 1,448 | 14,234 | 1894 | 2,220 | 18,320 | 1905 | 25,515 | 168,122 |
| 1884 | 3,263 | 20,258 | 1895 | 575 | 4,705 | 1906 | 21,934 | 194,897 |
| 1885 | 3,108 | 14,632 | 1896 | 1,057 | 23,189 | 1907 (9 mos.) | 8,495 | 88,144 |
| 1886 | 983 | 5,929 | 1897 | 2,094 | 10,336 | 1908 | 13,790 | 139,105 |
| 1887 | 276 | 2,440 | 1898 | 639 | 6,652 | 1909 | 10,894 | 103,773 |
| 1888 | 2,483 | 20,720 | 1899 | 2,611 | 21,306 | 1910 | 30,444 | 218,175 |
| 1889 | 2,590 | 24,585 | 1900 | 1,792 | 19,305 | 1911 | 32,748 | 309,553 |
| 1890 | 1,933 | 12,500 | 1901 | 2,800 | 20,677 | 1912 | 51,073 | 465,997 |
| | | | | | | 1913 | 85,943 | 809,368 |

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 1913 according to these returns was \$8.85, as compared with \$9.11 in 1912, and \$8.37 in 1911; and of pressed brick \$12.49 in 1913, as compared with \$12.86 in 1912, and \$12.53 in 1911.

In the Maritime Provinces during 1913 the price of common brick varied from \$7.00 to \$12.00, averaging for Nova Scotia \$7.82, and for New Brunswick \$10.00.

In Quebec the price of common brick varied between \$5 and \$10, averaging \$7.89, while the price of pressed brick averaged \$12.73. The average price of common brick in Ontario was \$8.88, the limits of variation being \$6.00 and \$11.00; while for pressed brick the average was \$11.48 and the variation from \$10.00 to \$17.00.

In all the western provinces common brick ranged from about \$8.00 to \$13.00, averaging \$11.21 in Manitoba, \$9.86 in Saskatchewan, \$9.13 in Alberta, and \$9.49 in British Columbia. Pressed brick ranged from \$11.00 to \$27.00 in individual yards, averaging \$17.28 in Manitoba, \$16.15 in Saskatchewan, \$12.97 in Alberta, and \$25.65 in British Columbia.

The following table shows the average values at the kilns, of common and pressed brick, during 1911, 1912, and 1913, as furnished by the producers.

Average Prices per Thousand of Common and Pressed Brick.

| | Common brick. | | | Pressed brick. | | |
|-----------------------|---------------|---------|---------|----------------|---------|---------|
| | 1911. | 1912. | 1913. | 1911. | 1912. | 1913. |
| | \$ cts. | \$ cts. | \$ cts. | \$ cts. | \$ cts. | \$ cts. |
| Nova Scotia..... | 5 88 | 6 86 | 7 82 | 9 52 | 16 00 | 16 06 |
| New Brunswick..... | 5 55 | 9 22 | 10 00 | 12 00 | 10 00 | 12 00 |
| Quebec..... | 7 67 | 8 08 | 7 89 | 16 20 | 12 04 | 12 73 |
| Ontario..... | 7 89 | 8 09 | 8 88 | 10 21 | 10 40 | 11 48 |
| Manitoba..... | 10 11 | 11 47 | 11 21 | 12 08 | 15 13 | 17 28 |
| Saskatchewan..... | 9 49 | 9 73 | 9 86 | 15 31 | 16 63 | 16 15 |
| Alberta..... | 10 10 | 10 69 | 9 13 | 13 81 | 14 77 | 12 97 |
| British Columbia..... | 9 70 | 9 61 | 9 49 | 24 94 | 27 53 | 25 65 |
| Canada..... | 8 37 | 9 11 | 8 85 | 12 53 | 12 86 | 12 49 |

According to trade journals, the following retail prices were quoted during the year:—

Toronto:—Grey stock brick were quoted uniformly throughout the year at \$11.50 per M and red stock bricks at \$12; Don Valley No. 1 dry pressed and buff brick \$17 at the yard; Port Credit brick, f.o.b. Port Credit, wire cut, \$10 per M, and pressed brick \$12 to \$15 according to grade.—

Winnipeg:—Kiln run brick were quoted throughout the year at \$13, sewer and chimney brick at \$14 and veneer brick at \$15. Pressed brick were quoted at from \$25 to \$50.

Production of Brick by Provinces.

Nova Scotia and New Brunswick:—There was an increase in the production of brick in both these Provinces in 1913. The total sales in Nova Scotia were 22,085,765 brick valued at \$174,024, as compared with sales of 18,822,960 brick valued at \$130,108 in 1912. The chief sources of production were: Annapolis Royal, Middleton, Pugwash, Elmsdale, Amherst, Mira Gut, River Denys, Pictou, and New Glasgow.

The total sales in New Brunswick were 6,189,152 brick valued at \$61,969 as compared with 5,780,000 brick valued at \$53,350 in 1912, and the principal sources of production were Fredericton, St. John, Chatham, and Moncton.

Quebec:—The total sales of brick in Quebec in 1913 were 153,696,242 valued at \$1,250,765, comprising 145,972,957 common brick valued at \$1,152,444 or \$7.89 per thousand, and 7,723,285 pressed brick valued at \$98,321 or \$12.73 per thousand.

The sales in 1912 were 173,336,557 bricks valued at \$1,446,880, comprising 161,836,557 common brick valued at \$1,308,380 or \$8.08 per thousand, and 11,500,000 pressed brick valued at \$138,500 or \$12.04 per thousand.

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

Ontario:—This Province is credited in 1913 with over 54 per cent of the brick production of Canada, the total sales as reported by 271 firms being 430,029,531 brick valued at \$4,026,029 and including 349,846,487 common brick valued at \$3,105,256 or an average of \$8.88 per thousand, and 80,183,044 pressed brick valued at \$920,773 or an average of \$11.48 per thousand.

The total sales in 1912 were 423,670,184 valued at \$3,807,195, and comprised 350,461,874 common brick, valued at \$3,045,840 or an average of \$8.69 per thousand, and 73,208,310 pressed brick valued at \$761,355 or an average of \$10.40 per thousand.

The city of Toronto and vicinity, including the counties of York and Halton, is the principal brick making section and in 1913 produced about 50 per cent of the Ontario production or about 27 per cent of the total Canadian production of brick.

The district next in importance is the county of Wentworth, comprising the city of Hamilton and vicinity, producing over 11 per cent of the Ontario production. The county of Peel produced over 6 per cent and the Ottawa district, including the counties of Russell and Carleton, a little less than 6 per cent.

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

The production by principal counties in 1913 and 1912 is shown in the accompanying tables.

Sales of Common and Pressed Brick in Ontario by Principal Counties, 1913.

| County. | Common. | | | Pressed. | | | Total value. | Per cent. |
|------------------------|-------------|-----------|---------|------------|---------|---------|--------------|-----------|
| | No. | Value. | Per M | No. | Value. | Per M | | |
| | | \$ | \$ cts. | | \$ | \$ cts. | | |
| York..... | 155,311,199 | 1,376,191 | 8 86 | 5,641,285 | 84,619 | 15 00 | 1,460,810 | 36.28 |
| Halton..... | | | | 48,703,150 | 553,920 | 11 37 | 553,920 | 13.76 |
| Wentworth..... | 37,414,652 | 320,400 | 8 56 | 12,633,406 | 127,528 | 10 09 | 447,928 | 11.13 |
| Peel..... | 20,206,400 | 163,688 | 8 10 | 9,861,341 | 109,097 | 11 06 | 272,785 | 6.78 |
| Algoma..... | 15,105,673 | 149,058 | 9 87 | 1,294,878 | 21,015 | 16 23 | 170,073 | 4.22 |
| Carleton..... | 13,765,000 | 138,740 | 10 08 | | | | 138,740 | 3.45 |
| Russell..... | 11,053,000 | 80,849 | 6 94 | 848,000 | 10,176 | 12 00 | 91,025 | 2.26 |
| Kent..... | 9,762,500 | 76,943 | 7 88 | | | | 76,943 | 1.91 |
| Grey..... | 8,860,556 | 69,573 | 7 85 | | | | 69,573 | 1.73 |
| Waterloo..... | 7,255,672 | 67,330 | 9 28 | | | | 67,330 | 1.67 |
| Middlesex..... | 6,802,197 | 64,042 | 9 42 | | | | 64,042 | 1.59 |
| Nipissing..... | 6,273,000 | 64,030 | 10 21 | | | | 64,030 | 1.59 |
| Lincoln..... | 4,998,893 | 45,882 | 9 18 | 1,200,984 | 14,412 | 12 00 | 60,294 | 1.50 |
| Simcoe..... | 4,846,000 | 40,600 | 8 38 | | | | 40,600 | 1.01 |
| Renfrew..... | 4,226,000 | 38,134 | 9 02 | | | | 38,134 | 0.95 |
| Essex..... | 4,649,775 | 37,515 | 8 07 | | | | 37,515 | 0.93 |
| Brant..... | 2,993,200 | 35,213 | 11 77 | | | | 35,213 | 0.87 |
| Total, 17 counties.... | 314,123,717 | 2,768,188 | 8 81 | 80,183,044 | 920,773 | 11 48 | 3,688,961 | 91.63 |
| Total, other counties | 35,722,770 | 337,068 | 9 44 | | | | 337,068 | 8.37 |
| Total, Ontario..... | 349,846,487 | 3,105,256 | 8 88 | 80,183,044 | 920,773 | 11 48 | 4,026,029 | 100.00 |

Sale of Common and Pressed Brick in Ontario by Principal Counties, 1912.

| County. | Common. | | | Pressed. | | | Total value. | Per cent. |
|------------------------|-------------|-----------|---------|------------|---------|---------|--------------|-----------|
| | No. | Value. | Per M | No. | Value. | Per M | | |
| | | \$ | \$ cts. | | \$ | \$ cts. | | |
| York..... | 159,650,579 | 1,458,741 | 9 14 | 8,813,700 | 108,855 | 12 35 | 1,567,596 | 41.17 |
| Halton..... | | | | 41,507,692 | 420,967 | 10 14 | 420,967 | 11.06 |
| Wentworth..... | 34,661,376 | 286,268 | 8 26 | 12,067,803 | 129,273 | 10 20 | 415,541 | 10.91 |
| Peel..... | 12,123,100 | 90,588 | 7 47 | 9,582,680 | 95,008 | 9 91 | 185,596 | 4.88 |
| Carleton..... | 17,810,000 | 170,150 | 9 55 | | | | 170,150 | 4.47 |
| Algoma..... | 11,900,000 | 114,875 | 9 65 | | | | 114,875 | 3.02 |
| Russell..... | 15,125,000 | 103,150 | 6 82 | | | | 103,150 | 2.71 |
| Middlesex..... | 8,002,000 | 66,766 | 8 34 | | | | 66,766 | 1.75 |
| Nipissing..... | 6,115,800 | 65,058 | 10 64 | | | | 65,058 | 1.71 |
| Waterloo..... | 7,666,778 | 59,107 | 7 71 | | | | 59,107 | 1.55 |
| Simcoe..... | 0,329,000 | 53,271 | 8 42 | | | | 53,271 | 1.40 |
| Grey..... | 6,090,000 | 47,540 | 7 81 | | | | 47,540 | 1.25 |
| Kent..... | 5,442,250 | 38,524 | 7 08 | | | | 38,524 | 1.02 |
| Lincoln..... | 3,209,200 | 27,345 | 8 52 | 598,935 | 6,915 | 11 54 | 34,260 | 0.90 |
| Renfrew..... | 4,110,000 | 33,615 | 8 18 | | | | 33,615 | 0.88 |
| Peterborough..... | 3,700,000 | 33,300 | 0 00 | | | | 33,300 | 0.87 |
| Essex..... | 4,502,587 | 32,690 | 7 26 | | | | 32,690 | 0.86 |
| Total, 17 counties.... | 306,437,676 | 2,680,988 | 8 75 | 73,170,810 | 761,018 | 10 40 | 3,442,006 | 90.41 |
| Total, other counties. | 44,024,204 | 364,852 | 8 29 | 37,500 | 337 | 9 00 | 305,189 | 9.59 |
| Total, Ontario..... | 350,461,874 | 3,045,840 | 8 69 | 73,208,310 | 761,355 | 10 40 | 3,807,195 | 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.

| | Common brick. | | | Pressed brick. | | |
|-----------|---------------|-----------|----------------|----------------|---------|----------------|
| | M. | Value. | Average per M. | M. | Value. | Average per M. |
| | | \$ | \$ cts. | | \$ | \$ cts. |
| 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 | 12,840 | 104,394 | 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 | 504,630 | 10.701 |
| 1912..... | 385,000 | 3,178,250 | 8.255 | 65,598 | 634,169 | 9.667 |
| 1913..... | 408,808 | 3,452,352 | 8.445 | 81,238 | 919,741 | 11.321 |

In addition to the ordinary clay building brick, there was produced in this Province in 1913 of ornamental brick valued at \$15,423 and fireproofing and terra-cotta valued at \$461,387. In 1912 the production of ornamental brick was valued at \$7,168 and of fireproofing and terra-cotta \$135,087.

Manitoba.—Throughout all of the western provinces there was a large falling off in the demand for brick in 1913. In Manitoba the total sales were 43,660,320 valued at \$514,358, comprising 39,559,320 common brick valued at \$443,498 or an average of \$11.21 per thousand and 4,101,000 pressed brick valued at \$70,860 or \$17.28 per thousand.

The sales in 1912 were 87,178,937, valued at \$1,012,801 comprising 83,681,237 common brick, valued at \$957,854 or an average of \$11.47 per thousand, and 3,497,700 pressed brick valued at \$52,947 or \$15.13 per thousand. There was thus a falling off in total sales of nearly 50 per cent.

In each of the provinces the number of brick burned was considerably in excess of the number marketed and this excess was more especially evident in the western provinces as shown in the table on page 17. The number of brick made in Manitoba exceeded the number sold by nearly 30,000,000. The principal brick-making plants are located at Winnipeg,

St. Boniface, Lac du Bonnet, Portage la Prairie, Sidney, Gilbert Plains, Virden, Balmoral, Lavenham, and Neepawa.

Saskatchewan.—The total sales of clay building brick in Saskatchewan in 1913 were 18,175,000 valued at \$189,820 which includes 16,475,000 common brick valued at \$162,370 or an average of \$9.86 per thousand, and 1,700,000 pressed brick valued at \$27,450, or an average of \$16.15 per thousand. The total sales in 1912 were 30,538,771 brick valued at \$332,943 which included 25,338,771 common brick valued at \$246,443 or an average of \$9.73 per thousand, and 5,200,000 pressed brick valued at \$86,500, or an average of \$16.63 per thousand. The falling off in value of sales in 1913 was over 43 per cent and the excess in number of brick made during the year over the number sold was 7,744,000.

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

Alberta.—The total sales of clay building brick in 1913 were 71,996,343, valued at \$732,408, comprising 52,378,283 common brick valued at \$477,998 or an average of \$9.13 per thousand, and 19,618,060 pressed brick valued at \$254,410 or an average of \$12.97 per thousand.

The total sales in 1912 were 93,759,980 brick valued at \$1,105,912, which comprised 70,074,568 common brick valued at \$775,986 or an average of \$10.69 per thousand, and 23,685,412 pressed brick valued at \$349,926, or an average of \$14.77 per thousand.

The decrease in the value of sales in 1913 was over 33 per cent, and the excess in number of brick made during the year over the number sold was over 18,000,000.

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

There was also a production during 1913 of ornamental brick valued at \$738 and fireproofing and terra-cotta valued at \$146,200 as compared with ornamental brick valued at \$1,000 and fireproofing, etc., valued at \$248,712 in 1912.

British Columbia.—The total sales of brick in this Province in 1913 were reported as 39,396,375 valued at \$426,733 which included 36,131,903 common brick valued at \$343,020 or an average of \$9.49 per thousand, and 3,264,472 pressed brick, valued at \$83,713 or an average of \$25.65 per thousand.

The total sales in 1912 were 61,284,565 valued at \$731,040, comprising 53,345,565 common brick valued at \$512,514 or an average value of \$9.61 per thousand, and 7,939,000 pressed brick valued at \$218,526 or an average of \$27.53 per thousand. The decrease in the value of the sales in 1913 was over 41 per cent, and the excess in the number of brick made during the year over the number sold, was over 10,000,000 brick.

In addition to the building brick there was also a production of fireproofing brick valued at \$42,919 as against a value of \$21,254 in 1912.

The principal centres of manufacture are: Vancouver, New Westminster, Clayburn, Cloverdale, 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 1913 was reported as 4,208,295 valued at \$75,669, or an average value per thousand of \$17.98, as compared with a production of 4,579,500 valued at \$85,989, or an average value of \$18.78 per thousand in 1912.

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 Edmonton, Alberta, and 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 1913, the imports were 13,035,000 valued at \$176,497, or an average value, per thousand, of \$13.54, and included 7,779,000 valued at \$103,572, or an average of \$13.31 from the United States, and 5,256,000 valued at \$72,925, or an average of \$13.87 from Great Britain. The total imports during the calendar year 1912 were 11,793,000 valued at \$160,663 or an average of \$13.62 per thousand and included 6,709,000 valued at \$95,610 or an average of \$14.25 from the United States, 5,044,000 valued at \$64,375 or an average of \$12.76 per thousand, from Great Britain; and 40,000 valued at \$678 or \$16.95 per thousand, from other countries.

Annual Production of Paving Brick.*

| Year. | M. | Value. | Average per M. | Year. | M. | Value. | Average per M. |
|-----------|-------|--------|-------------------|-----------|-------|--------|-------------------|
| | | \$ | \$ cts. | | | \$ | \$ cts. |
| 1897..... | 4,568 | 45,670 | 10 00 | 1905..... | 4,500 | 54,000 | 12 00 |
| 1898..... | | | | 1906..... | 3,000 | 45,000 | 15 00 |
| 1899..... | 5,300 | 42,550 | 8 03 | 1907..... | 3,618 | 72,354 | 20 00 |
| 1900..... | 2,710 | 26,950 | 9 94 | 1908..... | 2,720 | 59,456 | 15 98 |
| 1901..... | 3,689 | 37,000 | 10 03 | 1909..... | 3,160 | 67,408 | 17 93 |
| 1902..... | 4,211 | 42,000 | 9 97 | 1910..... | 4,215 | 78,980 | 18 74 |
| 1903..... | 3,789 | 45,288 | 11 95 | 1911..... | 5,220 | 79,444 | 15 22 |
| 1904..... | 4,436 | 55,450 | 12 50 | 1912..... | 4,550 | 85,989 | 18 78 |
| | | | | 1913..... | 4,208 | 75,669 | 17 98 |

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

Imports of Paving Brick.*

| Fiscal Year. | M. | Value. | Average per M. | Fiscal Year. | M. | Value. | Average per M. |
|--------------|-------|--------|-------------------|--------------------|--------|---------|-------------------|
| | | \$ | \$ cts. | | | \$ | \$ cts. |
| 1895..... | 275 | 5,006 | 18 20 | 1904..... | 1,986 | 29,753 | 14 98 |
| 1896..... | 918 | 10,132 | 11 04 | 1905..... | 3,350 | 32,578 | 13 86 |
| 1897..... | 52 | 719 | 13 83 | 1906..... | 4,104 | 46,008 | 11 21 |
| 1898..... | 367 | 2,337 | 6 37 | 1907 (9 mos.)..... | 2,182 | 23,256 | 10 66 |
| 1899..... | 1,583 | 23,648 | 14 94 | 1908..... | 5,340 | 61,346 | 11 49 |
| 1900..... | 2,175 | 35,644 | 16 39 | 1909..... | | 101,187 | † |
| 1901..... | 900 | 10,414 | 11 57 | 1910..... | | 138,763 | |
| 1902..... | 1,030 | 16,788 | 16 30 | 1911..... | 10,836 | 130,861 | 12 08 |
| 1903..... | 1,337 | 18,811 | 14 07 | 1912..... | 11,538 | 165,650 | 14 36 |
| | | | | 1913..... | 12,043 | 159,854 | 13 27 |

*Duty 20 per cent.

†The imports during July, 1908, under the general tariff, are reported as 6,581 M, value \$7,317, an apparent error. There appears also to be an error in the entries for August and September of the same year. Similar errors were apparently made in the figures for the fiscal year 1910, and the total number has, therefore, been omitted for these years. The actual value of the imported brick varies from \$10 to \$12 per M.

FIRECLAY AND FIRECLAY PRODUCTS.

There are a number of clays from different localities in 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, Nova Scotia, and at Comox, Vancouver Island, 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 fireclay, firebrick, and fireclay products, in 1913, was \$142,738 as compared with a valuation of \$125,585 in 1912, and \$89,130 in 1911. There was in addition in 1913, a production of fireclay products valued at \$22,925 reported as being made from imported clays.

The production in 1913 included fireclay or refractory clay sold as such to the extent of 3,345 tons valued at \$14,018; firebrick 3,667,276 valued at \$86,164 or an average of \$23.50 per thousand; and other fireclay products valued at \$42,556.

In 1912 the production comprised 6,307 tons of fireclay and refractory clay sold as such valued at \$24,343; firebrick 3,429,594 valued at \$67,192 or an average of \$19.59 per thousand; and other fireclay products valued at \$34,050.

The imports of firebrick during the calendar year 1913 were valued at \$1,192,857 of which \$952,667 were imported from the United States; \$230,500 from Great Britain, and \$9,690 from other countries. The

imports in 1912 were valued at \$953,621 of which \$860,587 was from the United States, \$91,236 from Great Britain, and \$1,798 from other countries. Fireclay was imported during the calendar year 1913 to the value of \$143,399 as compared with a value of \$140,500 in 1912, and \$125,199 in 1911.

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 table:—

Production of Fireclay and Fireclay Products.

| Year. | Firebrick. | | | Fireclay | | | Other fireclay products | Total value. |
|-----------|------------|---------|---------|----------|--------|-------------|-------------------------------|-----------------|
| | No. sold. | Value. | Per M. | Tons. | Value. | Per Ton. | Value. | |
| | | \$ | \$ cts. | | \$ | \$ cts. | \$ | \$ |
| 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 |

Imports of Firebrick and Fireclay, 1900-13.

| Fiscal Year. | Fireclay. | Firebrick | Fiscal Year. | Fireclay. | Firebrick. |
|--------------|-----------|-----------|--------------|-----------|------------|
| | \$ | \$ | | \$ | \$ |
| 1900..... | 59,291 | 39,535 | 1907* | 85,044 | 349,185 |
| 1901..... | 79,530 | 32,831 | 1908..... | 155,873 | 639,347 |
| 1902..... | 64,541 | 45,608 | 1909..... | 77,146 | 350,457 |
| 1903..... | 94,509 | 34,522 | 1910..... | 86,151 | 519,454 |
| 1904..... | 52,716 | 38,335 | 1911..... | 129,728 | 864,465 |
| 1905..... | 73,837 | 44,746 | 1912..... | 118,863 | 860,763 |
| 1906..... | 131,130 | 51,892 | 1913..... | 158,759 | 1,000,516 |

*9 months ending March.

SEWERPIPE AND DRAIN TILE.

The total value of the sales of sewerpipe in 1913 was \$1,035,906, as compared with a value of \$884,641 in 1912, and \$812,716 in 1911. About 58 per cent of the production in 1913 was made in Ontario.

Following is a list of firms reporting production of sewerpipe in 1913:—
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 drain pipe and sewerpipe during 1913 were valued at \$465,997 of which \$396,641 were imported from the United States, and \$69,356 from Great Britain. The total imports during 1912 were valued at \$507,024 and included \$431,600 from the United States, \$75,394 from Great Britain, and \$30 from other countries.

The total sales of drain tile in Canada in 1913 as reported to this Branch were valued at \$338,552 as compared with sales of \$357,862 in 1912, and \$339,812 in 1911. The greater part of this production is in the Province of Ontario; the sales in this Province in 1913 as reported to this Branch were 19,210,748 valued at \$314,859, as against a value of \$308,050 in 1912, and \$300,029 in 1911.

The Ontario Bureau of Mines reports the total number of drain tile made in that Province during 1913 as 16,935,000 valued at \$292,767 or an average of \$17.28 per thousand, as compared with 16,463,000 valued at \$279,579 or an average of \$16.98 per thousand in 1912.

The imports of unglazed tile are comparatively small, the value during the calendar year 1913 being \$12,156, as compared with \$4,018 in 1912, and \$5,640 in 1911.

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 | | |

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 | 1906... | 17,700,000 | 252,500 |
| 1892.... | 10,000,000 | 100,000 | 1900.... | 19,544,000 | 209,738 | 1907.... | 15,578,000 | 250,122 |
| 1893.... | 17,300,000 | 190,000 | 1901.... | 21,592,000 | 231,374 | 1908.... | 24,800,000 | 338,658 |
| 1894.... | 25,000,000 | 280,000 | 1902.... | 17,510,000 | 199,000 | 1909.... | 27,418,000 | 393,550 |
| 1895.... | 14,330,000 | 157,005 | 1903.... | 18,200,000 | 227,000 | 1910.... | 21,028,000 | 318,456 |
| 1896.... | 13,200,000 | 144,000 | 1904.... | 16,000,000 | 210,000 | 1911.... | 21,630,000 | 349,545 |
| 1897.... | * | * | 1905.... | 15,000,000 | 220,000 | 1912.... | 16,463,000 | 279,579 |
| 1898.... | 22,668,000 | 225,000 | | | | 1913.... | 16,935,000 | 292,767 |

*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 | 1897..... | 416 | 33,870 |
| 1881..... | | 37,368 | 1898..... | 157 | 29,454 |
| 1882..... | | 70,061 | 1899..... | 1,817 | 32,071 |
| 1883..... | | 70,699 | 1900..... | 1,383 | 37,766 |
| 1884..... | 5,585 | 66,170 | 1901..... | 1,264 | 54,819 |
| 1885..... | 2,911 | 66,678 | 1902..... | 269 | 55,261 |
| 1886..... | 1,905 | 56,048 | 1903..... | 252 | 57,100 |
| 1887..... | 2,183 | 69,020 | 1904..... | 1,637 | 53,958 |
| 1888..... | 4,290 | 96,967 | 1905..... | 1,229 | 101,166 |
| 1889..... | 2,346 | 80,869 | 1906..... | 4,727 | 131,353 |
| 1890..... | 3,780 | 73,654 | 1907 (9 mos.)..... | 12,106 | 93,458 |
| 1891..... | 673 | 86,522 | 1908..... | 2,080 | 125,747 |
| 1892..... | 473 | 59,064 | 1909..... | 2,394 | 106,399 |
| 1893..... | 110 | 38,891 | 1910..... | 2,739 | 196,002 |
| 1894..... | 53 | 24,572 | 1911..... | 4,378 | 174,653 |
| 1895..... | 695 | 20,358 | 1912..... | 5,778 | 405,998 |
| 1896..... | 339 | 18,957 | 1913..... | 4,453 | 513,520 |

(a) Drain tile, not glazed.

(b) Drain pipes, sewerpipes, 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 make a higher grade product of stoneware, but the majority of these use imported clays. Sanitaryware 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 sanitaryware in 1913, according to returns received, was \$368,916 of which it is estimated that the value of \$315,383 is attributable to imported clays. The total value of the production in 1912 was \$427,089 of which a value of \$383,134 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 | 1905..... | \$ 120,000 |
| 1889..... | Not available | 1898..... | 214,675 | 1906..... | 150,000 |
| 1890..... | 195,242 | 1899..... | 185,000 | 1907..... | 253,809 |
| 1891..... | 258,844 | 1900..... | 200,000 | 1908..... | 200,541 |
| 1892..... | 265,811 | 1901..... | 200,000 | 1909..... | 285,285 |
| 1893..... | 213,186 | 1902..... | 200,000 | 1910..... | 250,924 |
| 1894..... | 162,144 | 1903..... | 200,000 | 1911..... | 102,493 |
| 1895..... | 151,588 | 1904..... | 140,000 | 1912..... | 43,955 |
| 1896..... | 163,427 | | | 1913..... | 53,533 |

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 1913 were valued at \$3,314,870, as compared with a value of \$3,094,956 in 1912, and \$2,516,536 in 1911. These imports are subdivided into eight classes, and in 1913 include: brown or coloured earthenware, etc., \$70,632; C.C. or cream coloured ware, decorated, printed, or sponged, etc., \$264,090; demijohns, churns or crocks, \$12,599; tableware of china, porcelain, white granite, etc., \$2,185,601; china and porcelain ware, n.o.p., \$43,696; tiles or blocks of earthenware or stone prepared for mosaic flooring, \$173,445; earthenware tiles, n.o.p., \$296,791; manufactures of earthenware, n.o.p., \$248,016.

The imports in 1912 comprised: brown or coloured earthenware, etc., \$62,161; C.C. or cream coloured ware, decorated, printed, sponged, etc., \$291,804; demijohns, churns or crocks, \$18,404; tableware of china, porcelain, white granite, etc., \$2,068,362; china and porcelain ware, n.o.p., \$71,751; tiles or blocks of earthenware, or stone prepared for mosaic flooring, \$160,082; earthenware tiles, n.o.p., \$239,391; manufactures of earthenware, n.o.p., \$183,001.

It will be observed that there has been a general increase in almost all classes of earthenware and chinaware imported. 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 | 1891..... | 634,907 | 1902..... | 1,275,093 |
| 1881..... | 439,029 | 1892..... | 748,810 | 1903..... | 1,406,610 |
| 1882..... | 646,734 | 1893..... | 709,737 | 1904..... | 1,611,356 |
| 1883..... | 657,886 | 1894..... | 695,514 | 1905..... | 1,636,214 |
| 1884..... | 544,586 | 1895..... | 547,935 | 1906..... | 1,692,359 |
| 1885..... | 511,853 | 1896..... | 575,493 | 1907 (9 mos.)..... | 1,422,880 |
| 1886..... | 509,269 | 1897..... | 505,822 | 1908..... | 2,150,784 |
| 1887..... | 750,691 | 1898..... | 675,874 | 1909..... | 1,716,887 |
| 1888..... | 607,682 | 1899..... | 916,727 | 1910..... | 1,859,302 |
| 1889..... | 667,949 | 1900..... | 959,526 | 1911..... | 2,398,416 |
| 1890..... | 695,206 | 1901..... | 1,114,677 | 1912..... | 2,532,966 |
| | | | | 1913..... | 3,265,180 |

KAOLIN.

About 500 tons of kaolin valued at \$5,000 were shipped in 1913, as compared with 20 tons valued at \$160 in 1912. The production was obtained from the deposits in the township of Amherst, Ottawa county, Quebec, which were 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 Canadian Northern Quebec railway—94 miles northwest of Montreal.

The clay is mined by digging, no drilling or blasting being necessary, trammed 600 feet to the plant, washed free from grit and allowed to settle. After the filter presses have extracted the surplus moisture, it is dried in the open air in stacks. Dry kilns have been built for winter drying. After drying the clay is pulverized and bagged for shipment, chiefly to papermills.

The imports of china-clay ground and unground, into Canada during the twelve months ending December 1913, were 21,164 tons valued at \$149,337 or \$7.06 per ton, as against imports of 18,332 tons valued at \$127,402 or \$6.95 per ton in 1912, and 18,819 tons valued at \$125,768 or an average of \$6.68 in 1911. These figures indicate to some extent at least the present actual demand for this product.

The imports of earthenware and chinaware were, however, valued at \$3,314,870 in 1913, and were comprised chiefly of tableware of china, porcelain, etc., showing the possibilities for the development of industries utilizing china-clays.

Kaolin or china-clay is also in considerable demand in the United States, the imports into that country in 1913 being 240,120 gross tons, valued at \$1,625,451.

LIME.

The lime industry in common with other materials of construction, was affected by the financial depression during the latter part of the year, and a falling off in production is shown. According to returns received from the producers, the total production in 1913 was 7,558,484 bushels, this being the amount sold or used (equivalent to about 264,547 tons) valued at \$1,609,398, or an average of 21 cents per bushel, or about \$6.08 per ton.

The production in 1912 was reported as 8,475,839 bushels, (296,654 tons) valued at \$1,844,849, or an average of 22 cents per bushel, or \$6.25 per ton. The decrease in production in 1913 was therefore 117,355 bushels, or slightly over 10 per cent.

Returns were received from 77 active firms in 1913, as compared with 78 firms in 1912. The average number of men employed in 1913 was 1,076, and wages paid \$577,841, as against 1,103 men employed and \$576,217 paid in wages in 1912. 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 1913 varied from a minimum of 18 cents in Ontario, to a maximum of 32 cents in British Columbia. In 1912 the range was from a minimum of 17 cents in Ontario to a maximum of 36 cents in Saskatchewan.

Sales of hydrated lime were reported by two firms only; the Standard Lime Company, Limited, Joliette, Quebec, and the Standard White Lime Company of Guelph, Ontario. The quantity of production is not completely reported but will probably not exceed 5,000 tons. Hydrators are also reported as being installed at Orangeville, Ontario, by the Contractors Supply Company, and at Blubber Bay, B.C., by the Pacific Lime Company, Limited.

A small quantity of lime is annually made in Prince Edward Island. The production is shown separately in 1911, 1912, and 1913, and for the previous years is included in the Nova Scotia figures.

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 | cts. 30 | % 10-65 |
| Nova Scotia..... | 1 | 10 | 5,199 | 851,050 | 170,210 | 20 | 6-14 |
| New Brunswick.. | 5 | 93 | 50,180 | 392,985 | 98,841 | 25 | |
| Quebec..... | 17 | 321 | 162,422 | 1,616,446 | 418,008 | 26 | 25-97 |
| Ontario..... | 39 | 410 | 239,143 | 3,254,482 | 573,209 | 18 | 35-02 |
| Manitoba..... | 5 | 42 | 21,640 | 576,938 | 107,281 | 19 | 6-66 |
| Saskatchewan.... | 1 | 8 | 3,000 | 35,000 | 10,000 | 29 | 0-62 |
| Alberta..... | 6 | 70 | 50,127 | 465,250 | 115,355 | 25 | 7-17 |
| British Columbia | 2 | 120 | 46,000 | 362,571 | 115,365 | 32 | 7-17 |
| Total..... | 77 | 1,076 | 577,841 | 7,558,484 | 1,609,398 | 21 | 100-00 |

Lime Production by Provinces, 1912.

| Province. | No. of active firms reporting | Men employed | Wages paid. | SALES. | | | |
|-------------------|-------------------------------|--------------|-------------|-----------|-----------|---------------------|---------------------------|
| | | | | Bushels. | Value. | Average per bushel. | Per cent. of total value. |
| P. E. Island..... | 4 | 10 | \$ 844 | 24,971 | \$ 8,191 | cts. 33 | % 0-44 |
| Nova Scotia..... | 1 | 8 | 5,510 | 684,625 | 136,930 | 20 | 7-42 |
| New Brunswick.. | 5 | 96 | 53,536 | 616,835 | 133,742 | 22 | 7-25 |
| Quebec..... | 21 | 334 | 157,909 | 1,729,614 | 474,595 | 27 | 25-77 |
| Ontario..... | 32 | 470 | 242,196 | 3,376,193 | 573,269 | 17 | 31-6 |
| Manitoba..... | 5 | 10 | 2,656 | 818,237 | 168,257 | 21 | 9-12 |
| Saskatchewan.... | 1 | 6 | 450 | 4,000 | 1,440 | 36 | 0-08 |
| Alberta..... | 4 | 75 | 52,272 | 704,035 | 166,520 | 24 | 9-03 |
| British Columbia | 5 | 93 | 60,844 | 517,329 | 181,905 | 35 | 9-86 |
| Total..... | 78 | 1,103 | 576,217 | 8,475,839 | 1,844,849 | 22 | 100-00 |

Lime Production by Provinces, 1911.

| Province. | No. of active firms reporting | Men employed | Wages paid. | SALES. | | | |
|--------------------|-------------------------------|--------------|-------------|-----------|-----------|---------------------|---------------------------|
| | | | | Bushels. | Value. | Average per bushel. | Per cent. of total value. |
| P. E. Island*..... | 3 | 8 | \$ 852 | 20,250 | \$ 6,765 | cts. 33 | % 0-44 |
| Nova Scotia..... | 1 | 10 | 3,964 | 618,950 | 123,790 | 20 | 8-16 |
| New Brunswick.. | 5 | 100 | 41,378 | 613,728 | 132,897 | 22 | 8-76 |
| Quebec..... | 22 | 307 | 139,466 | 1,428,392 | 356,453 | 25 | 23-49 |
| Ontario..... | 31 | 423 | 205,618 | 3,360,265 | 538,902 | 16 | 35-51 |
| Manitoba..... | 5 | 89 | 44,379 | 706,888 | 140,629 | 20 | 9-27 |
| Alberta..... | 4 | 33 | 33,960 | 434,038 | 100,407 | 23 | 6-61 |
| British Columbia | 4 | 86 | 53,901 | 351,014 | 117,756 | 34 | 7-76 |
| Total..... | 75 | 1,056 | 523,518 | 7,533,525 | 1,517,599 | 20 | 100-00 |

*Production in previous years included in Nova Scotia figures.

Lime Production by Provinces, 1909 and 1910.

| Province. | 1909. | | | | 1910. | | | |
|------------------|-----------|-----------|---------------------|--------------------------|-----------|-----------|---------------------|--------------------------|
| | Bushels. | Value. | Average per bushel. | Per cent of total value. | Bushels. | Value. | Average per bushel. | Per cent of total value. |
| | | \$ | cts. | % | | \$ | cts. | % |
| Nova Scotia..... | 57,730 | 16,729 | 29 | 1.5 | 55,750 | 13,490 | 24 | 1.2 |
| New Brunswick... | 697,466 | 154,151 | 22 | 13.6 | 470,050 | 105,593 | 22 | 9.3 |
| Quebec..... | 1,281,827 | 315,633 | 25 | 27.9 | 1,227,555 | 299,126 | 23 | 26.3 |
| Ontario..... | 2,619,553 | 434,147 | 17 | 38.3 | 2,988,020 | 476,137 | 16 | 41.9 |
| Manitoba..... | 423,954 | 69,670 | 16 | 6.2 | 606,679 | 100,808 | 17 | 8.8 |
| Alberta..... | 281,125 | 67,350 | 24 | 5.9 | 303,214 | 69,268 | 23 | 6.1 |
| British Columbia | 231,269 | 75,076 | 32 | 6.6 | 196,878 | 72,657 | 37 | 6.4 |
| | 5,592,924 | 1,132,766 | 20 | 100.00 | 5,848,146 | 1,137,079 | 19 | 100.0 |

Exports and Imports.—The value of the lime exported during the calendar year 1913, was \$29,234, the destination being mainly the United States. In 1912 the exports were valued at \$35,097. The imports of lime during the calendar year 1913, were 386,693 barrels, (38,669 tons) valued at \$238,271, or an average of 62 cents per barrel, or \$6.16 per ton, and were derived chiefly from the United States. The imports during 1912 were 329,925 barrels (32,992 tons) valued at \$207,481 or an average of 63 cents per barrel, or \$6.29 per ton.

Annual statistics of imports and exports 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 | 1906..... | 57,072 |
| 1892..... | 121,535 | 1900..... | 80,852 | 1907..... | 55,903 |
| 1893..... | 86,623 | 1901..... | 99,194 | 1908..... | 43,316 |
| 1894..... | 83,670 | 1902..... | 116,009 | 1909..... | 48,821 |
| 1895..... | 71,667 | 1903..... | 131,412 | 1910..... | 44,762 |
| 1896..... | 70,820 | 1904..... | 73,838 | 1911..... | 39,536 |
| 1897..... | 53,177 | 1905..... | 85,723 | 1912..... | 35,097 |
| 1898..... | 49,594 | | | 1913..... | 29,234 |

Imports of Lime.

| Fiscal Year. | Barrels. | Value. | Average value. | Fiscal Year. | Barrels. | Value. | Average value. |
|--------------|----------|--------|----------------|----------------------------|----------|---------|----------------|
| | | \$ | \$ cts. | | | \$ | \$ cts. |
| 1880..... | 6,100 | 6,013 | 0 99 | 1897..... | 16,108 | 10,520 | 0 65 |
| 1881..... | 5,796 | 4,177 | 0 72 | 1898..... | 12,850 | 9,002 | 0 70 |
| 1882..... | 5,064 | 5,365 | 1 06 | 1899..... | 15,720 | 11,124 | 0 71 |
| 1883..... | 7,623 | 9,224 | 1 21 | 1900..... | 12,865 | 11,211 | 0 87 |
| 1884..... | 10,804 | 11,200 | 1 04 | 1901..... | 19,657 | 14,534 | 0 74 |
| 1885..... | 12,072 | 11,503 | 0 95 | 1902..... | 24,602 | 17,584 | 0 71 |
| 1886..... | 11,021 | 9,347 | 0 85 | 1903..... | 31,108 | 22,470 | 0 72 |
| 1887..... | 10,835 | 8,524 | 0 79 | 1904..... | 54,359 | 39,639 | 0 73 |
| 1888..... | 10,142 | 7,537 | 0 74 | 1905..... | 98,676 | 71,588 | 0 73 |
| 1889..... | 13,079 | 9,363 | 0 72 | 1906..... | 134,334 | 93,630 | 0 70 |
| 1890..... | 8,149 | 5,360 | 0 66 | 1907 (9 mos.)..... | 88,919 | 67,573 | 0 76 |
| 1891..... | 6,259 | 4,273 | 0 68 | 1908..... | 129,379 | 99,611 | 0 77 |
| 1892..... | 6,132 | 4,241 | 0 69 | 1909..... | 153,934 | 106,263 | 0 69 |
| 1893..... | 6,879 | 4,917 | 0 71 | 1910..... | 191,537 | 116,964 | 0 61 |
| 1894..... | 6,766 | 4,907 | 0 73 | 1911..... | 194,809 | 143,338 | 0 74 |
| 1895..... | 12,008 | 5,743 | 0 48 | 1912..... | 230,013 | 162,593 | 0 71 |
| 1896..... | 10,239 | 7,331 | 0 72 | 1913—Duty 20 per cent..... | 360,243 | 225,444 | 0 62 |

It will be observed that the Provinces of Ontario and Quebec, being the chief centres of population in Canada, are the largest producers of lime, the former producing in 1913, 36 per cent of the total value, and the latter 26 per cent. The western provinces accounted for nearly 22 per cent of the total in 1913, as against 28 per cent in 1912, and 14 per cent in 1908.

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. | Cents per bushel. | Calendar Year. | Bushels. | Value. | Cents per bushel. |
|----------------|-----------|---------|-------------------|----------------|-----------|---------|-------------------|
| | | \$ | | | | \$ | |
| 1896..... | 1,600,000 | 222,000 | 12 | 1905..... | 3,100,000 | 424,700 | 14 |
| 1897..... | | | | 1906..... | 2,885,000 | 496,785 | 17 |
| 1898..... | 2,620,000 | 308,000 | 12 | 1907..... | 2,650,000 | 418,700 | 17 |
| 1899..... | 4,342,500 | 535,000 | 12 | 1908..... | 2,442,331 | 448,596 | 18 |
| 1900..... | 3,893,000 | 544,000 | 14 | 1909..... | 2,633,500 | 470,858 | 18 |
| 1901..... | 4,100,000 | 550,000 | 13 | 1910..... | 2,889,235 | 474,531 | 16 |
| 1902..... | 4,300,000 | 617,000 | 14 | 1911..... | 2,469,773 | 402,340 | 16 |
| 1903..... | 3,400,000 | 520,000 | 15 | 1912..... | 2,297,525 | 331,672 | 17 |
| 1904..... | 2,600,000 | 406,800 | 16 | 1913..... | 2,300,991 | 390,600 | 17 |

According to trade papers, quotations on lime in Toronto, during 1913 were as follows: in the city per 100 lbs. f.o.b cars, 30 cents; at kilns outside the city, f.o.b. cars, 25 cents per 100 lbs.; hydrated lime (imported) at warehouses, \$10 per ton.

The duty on lime is provided under item 711 of the Customs tariff and is 20 per cent under the general tariff, $17\frac{1}{2}$ per cent under the Intermediate tariff, and 15 per cent under the British Preferential tariff.

SAND-LIME BRICK.

The manufacture of sand-lime brick in Canada, is a comparatively new industry, and the first returns of production were obtained for the year 1907, when there was a production by ten firms amounting to 16,492,971 brick, valued at \$167,795. In 1913 the total sales were reported as 92,586,676 brick, valued at \$906,665, or an average of \$9.79 per M, as against sales in 1912 of 96,448,402 brick, valued at \$1,020,386 or an average of \$10.58 per M.

Annual statistics of production since 1907 are shown below:—

Annual Production of Sand-Lime Brick.

| Calendar Year. | No. of firms reporting. | Number sold. | Value. | Per M. |
|----------------|-------------------------|--------------|-----------|---------|
| | | | \$ | \$ cts. |
| 1907..... | 10 | 16,492,971 | 167,795 | 10 17 |
| 1908..... | 9 | 17,288,260 | 152,856 | 8 84 |
| 1909..... | 9 | 27,082,864 | 201,050 | 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 |

SAND AND GRAVEL.

The record of production of sand and gravel in 1913, while more complete than that obtained for 1912, is still only a partial and very incomplete record.

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, comprising \$243,126 from Quebec; \$363,668 from Ontario; \$101,653 from Manitoba; \$255,453 from Saskatchewan; \$148,704 from Alberta; \$385,946 from British Columbia, and \$13,549 from the Maritime Provinces.

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.

According to the return received, the total value of the production of sand and gravel in 1913 was \$2,258,874, to which the various provinces contributed as follows:—Maritime Provinces, \$101,201; Quebec, \$638,778; Ontario, \$638,771; Manitoba, \$197,719; Saskatchewan, \$236,377; Alberta, \$265,165; and British Columbia, \$180,863.

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 1913 there were exported from Canada 644,633 tons of sand and gravel, valued at \$440,956; while during the same year there were imported 439,673 tons, valued at \$440,343.

Annual Exports of Sand and Gravel.

| Calendar Year. | Tons. | Value. | Average value. | Calendar Year. | Tons. | Value. | Average value. |
|----------------|----------|----------|----------------|----------------|----------|----------|----------------|
| | | \$ | Cents. | | | \$ | Cents. |
| 1893..... | 329, 116 | 121, 795 | 37 | 1903..... | 355, 792 | 124, 006 | 35 |
| 1894..... | 324, 656 | 86, 940 | 27 | 1904..... | 399, 809 | 129, 803 | 32 |
| 1895..... | 277, 162 | 118, 359 | 43 | 1905..... | 306, 935 | 152, 805 | 50 |
| 1896..... | 224, 769 | 80, 110 | 36 | 1906..... | 336, 550 | 139, 712 | 41 |
| 1897..... | 152, 963 | 76, 729 | 50 | 1907..... | 298, 095 | 119, 853 | 40 |
| 1898..... | 165, 954 | 90, 498 | 55 | 1908..... | 298, 954 | 161, 387 | 54 |
| 1899..... | 242, 450 | 101, 640 | 42 | 1909..... | 481, 584 | 256, 166 | 53 |
| 1900..... | 197, 553 | 101, 666 | 51 | 1910..... | 624, 824 | 407, 974 | 65 |
| 1901..... | 197, 302 | 117, 465 | 60 | 1911..... | 573, 494 | 408, 110 | 71 |
| 1902..... | 159, 793 | 119, 120 | 75 | 1912..... | 660, 090 | 459, 952 | 70 |
| | | | | 1913..... | 644, 633 | 440, 956 | 68 |

Annual Imports of Sand and Gravel.

| Fiscal Year. | Tons. | Value. | Average value. | Fiscal Year. | Tons. | Value. | Average value. |
|--------------|--------|--------|----------------|------------------|---------|---------|----------------|
| | | \$ | \$ cts. | | | \$ | \$ cts. |
| 1893..... | 26,065 | 31,739 | 1 22 | 1903..... | 91,518 | 95,647 | 1 05 |
| 1894..... | 41,573 | 33,506 | 0 81 | 1904..... | 110,634 | 107,547 | 0 97 |
| 1895..... | 19,600 | 24,779 | 1 26 | 1905..... | 85,339 | 92,722 | 1 09 |
| 1896..... | 18,953 | 24,604 | 1 30 | 1906..... | 116,500 | 173,727 | 1 49 |
| 1897..... | 21,308 | 25,222 | 1 18 | 1907 (9 mos.)... | 171,700 | 177,412 | 0 9 |
| 1898..... | 32,148 | 43,287 | 1 35 | 1908..... | 266,704 | 223,043 | 0 8 |
| 1899..... | 30,288 | 42,209 | 1 39 | 1909..... | 132,158 | 136,011 | 1 05 |
| 1900..... | 35,713 | 41,280 | 1 16 | 1910..... | 151,982 | 155,012 | 1 02 |
| 1901..... | 35,749 | 42,891 | 1 20 | 1911..... | 241,375 | 246,613 | 1 02 |
| 1902..... | 47,381 | 58,668 | 1 24 | 1912..... | 263,971 | 258,438 | 0 98 |
| | | | | 1913..... | 542,927 | 465,263 | 0 86 |

SLATE.

There is a small annual production of slate in Canada obtained from the New Rockland quarries, Melbourne township, Richmond county, Quebec, operated by Messrs. Fraser & Davies. During the past two years this firm has also opened up and operated a quarry at Botsford, in Tenis-couata county. The production in 1913 is reported as 1,432 squares, valued at \$6,444, as compared with a production in 1912 of 1,894 squares valued at \$8,939.

The quarries in Richmond county have been operated for many years and at one time there was a production valued at upwards of \$100,000 per year.

Statistics of the annual production are shown herewith.

Annual Production of Slate.

| Calendar Year. | Quantity* | Value. | Calendar Year. | Quantity* | Value. |
|----------------|-----------|---------|----------------|-----------|--------|
| | Tons. | \$ | | Squares. | \$ |
| 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 | 90,325 | 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 |

*From 1903, in squares; previously, in tons.

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

The imports of slate have 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 1913 was \$235,474, comprising: roofing slate, \$97,730; school writing slate, \$51,953; slate pencils, \$9,166; and other slates and manufactures of, \$76,625. The total value of the imports during the calendar year 1912 was \$200,643 and included: roofing slate, \$88,911; school writing slate, \$39,858; slate pencils, \$6,978; and other slates and manufactures of, \$65,896. 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.

Statistics of imports and exports are shown in the following tables

Imports of Slate During the Years 1911, 1912, and 1913.

| Slate and manufactures of. | Calendar year 1911. | Calendar year 1912. | Calendar year 1913. |
|---|---------------------|---------------------|---------------------|
| Roofing slate..... | \$ 83,075 | \$ 88,911 | \$ 97,730 |
| School writing slate..... | 35,049 | 39,858 | 51,953 |
| Slate pencils..... | 6,036 | 6,978 | 9,166 |
| Slate of all kinds and manufactures of..... | 45,525 | 65,896 | 76,625 |
| | 169,685 | 200,643 | 235,474 |

Exports of Slate.

| Calendar Year. | Tons. | Value. | Calendar Year. | Tons. | Value. |
|----------------|-------|--------|-------------------|-------|--------|
| 1884..... | 0 | 845 | 1893..... | 178 | 3,168 |
| 1885..... | 34 | 274 | 1894..... | 187 | 3,610 |
| 1886..... | 34 | 95 | 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 1913..... | Nil. | Nil. |
| 1892..... | 87 | 2,638 | | | |

Imports of Slate.

| Fiscal Year. | Value. | Fiscal Year. | Value. | Fiscal Year. | Value. |
|--------------|-----------|--------------|-----------|--------------------|-----------|
| 1880..... | \$ 21,431 | 1891..... | \$ 46,104 | 1902..... | \$ 72,601 |
| 1881..... | 22,184 | 1892..... | 50,441 | 1903..... | 84,437 |
| 1882..... | 24,543 | 1893..... | 51,179 | 1904..... | 86,057 |
| 1883..... | 24,968 | 1894..... | 29,267 | 1905..... | 93,228 |
| 1884..... | 28,816 | 1895..... | 19,471 | 1906..... | 112,941 |
| 1885..... | 28,169 | 1896..... | 24,176 | 1907 (9 mos.)..... | 95,520 |
| 1886..... | 27,852 | 1897..... | 21,615 | 1908..... | 131,069 |
| 1887..... | 27,845 | 1898..... | 24,907 | 1909..... | 124,065 |
| 1888..... | 23,151 | 1899..... | 33,100 | 1910..... | 136,401 |
| 1889..... | 41,370 | 1900..... | 53,707 | 1911..... | 147,172 |
| 1890..... | 22,871 | 1901..... | 72,187 | 1912..... | 173,566 |
| | | | | 1913..... | 219,834 |

STONE.¹

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 the 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.

It is impossible, except in a few cases, to show the quantity of stone production, so that the value only of the shipment can be given.

The total value of the production of stone in 1913, according to returns received, was \$5,504,639, as compared with a value of \$4,726,171 in 1912, showing an increased production of \$778,468, or 16.5 per cent.

The number of active firms reporting in 1913 was 218, the total number of men employed 6,131, and the total wages paid \$3,219,465; in 1912 the number of active firms reporting was 192, the number of men employed 5,710, and wages paid \$2,918,116.

Of the total value of the 1913 production, limestone contributed \$3,204,091, or 58.2 per cent; granite, \$1,653,791, or 30 per cent; sandstone, \$396,782, or 7.2 per cent, and marble \$249,975, or 4.6 per cent.

Stone was used for building purposes to the value of \$1,686,806, or 30.7 per cent of the total; monumental and ornamental to the value of \$288,144, or 5.2 per cent; curb, paving and flagstone \$262,955, or 4.8 per cent; rubble \$563,907, or 10.2 per cent; crushed stone \$2,250,533, or 40.9 per cent, and furnace flux 862,744 tons, valued at \$452,294, or 8.2 per cent.

By provinces, Quebec again shows the largest output, having a value of \$2,329,461, or 42.3 per cent of the total; being made up of limestone

¹ 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 two reports of this series have already 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."

to the value of \$1,307,428: granite valued at \$790,896, marble \$231,137. Ontario takes second place with a production of \$1,593,168, or 29 per cent of the total, of which limestone is credited with \$1,196,130; granite \$324,062; sandstone \$54,738, and marble \$18,238. British Columbia ranks third in order of importance with a total of \$580,879, including granite \$469,666; sandstone \$71,783; limestone \$3,830, and marble \$600. The production in Manitoba was valued at \$389,904, made up of limestone \$382,984 and granite \$6,920. The Nova Scotia production was valued at \$350,511, comprising: limestone \$258,719; granite, \$29,302; and sandstone, \$62,490. The Alberta production was reported as \$156,984, of which limestone was valued at \$20,000, the balance \$136,984 consisting of sandstone. New Brunswick is credited with \$103,732, made up chiefly of sandstone and granite.

Production of Stone by Provinces, 1913.

| Province. | Granite. | Lime- stone. | Marble. | Sand- stone. | Total. | Labour. | | |
|-----------------------|-----------|-----------------|---------|-----------------|-----------|---------|---------------------------|-----------|
| | | | | | | % | No. men em- ployed. | Wages. |
| | \$ | \$ | \$ | \$ | \$ | | | \$ |
| Nova Scotia..... | 29,302 | 258,719 | | 62,490 | 350,511 | 6.3 | 733 | 200,598 |
| New Brunswick..... | 32,945 | | | 70,787 | 103,732 | 1.9 | 285 | 104,828 |
| Quebec..... | 790,896 | 1,307,428 | 231,137 | | 2,329,461 | 42.3 | 2,208 | 1,316,306 |
| Ontario..... | 324,062 | 1,196,130 | 18,238 | 54,738 | 1,593,168 | 29.0 | 1,621 | 812,137 |
| Manitoba..... | 6,920 | 382,984 | | | 389,904 | 7.0 | 558 | 280,224 |
| Alberta..... | | 20,000 | | 136,984 | 156,984 | 2.9 | 116 | 113,468 |
| British Columbia..... | 469,666 | 38,830 | 600 | 71,783 | 580,879 | 10.6 | 610 | 391,904 |
| Total..... | 1,653,791 | 3,204,091 | 249,975 | 396,782 | 5,504,639 | | 6,131 | 3,219,465 |
| Per cent..... | 30.0 | 58.2 | 4.6 | 7.2 | | 100.00 | | |

Production of Stone by Provinces, 1912.

| Province. | Granite. | Lime- stone. | Marble. | Sand- stone. | Total. | Labour. | | |
|-----------------------|-----------|-----------------|---------|-----------------|-----------|---------|---------------------------|-----------|
| | | | | | | % | No. men em- ployed. | Wages. |
| | \$ | \$ | \$ | \$ | \$ | | | \$ |
| Nova Scotia..... | 28,041 | 275,944 | | 20,645 | 324,630 | 6.9 | 788 | 220,501 |
| New Brunswick..... | 22,317 | | | 68,260 | 90,577 | 1.9 | 210 | 65,807 |
| Quebec..... | 522,114 | 1,187,751 | 247,838 | | 1,957,703 | 41.4 | 2,216 | 1,140,715 |
| Ontario..... | 174,916 | 862,052 | 12,926 | 59,240 | 1,109,164 | 23.5 | 1,281 | 614,171 |
| Manitoba..... | 1,523 | 381,572 | | | 383,095 | 8.1 | 544 | 274,548 |
| Alberta..... | | | | 81,391 | 81,391 | 1.7 | 107 | 70,276 |
| British Columbia..... | 624,178 | 55,617 | | 99,816 | 779,611 | 16.5 | 564 | 532,098 |
| Total..... | 1,373,119 | 2,762,936 | 260,764 | 329,352 | 4,726,171 | | 5,710 | 2,918,116 |
| Per cent..... | 29.0 | 58.5 | 5.5 | 7.0 | | 100.00 | | |

Value of Stone Sold for Various Purposes in 1913.

| Kind. | Building | Ornamental and monumental. | Paving and curb-stone. | Rubble. | Crushed. | Furnace flux. | Total. |
|----------------|-----------|----------------------------|------------------------|---------|-----------|---------------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| Granite..... | 554,505 | 47,377 | 243,534 | 266,442 | 541,933 | | 1,653,791 |
| Limestone..... | 790,795 | 8,676 | 14,073 | 257,419 | 1,680,834 | 452,294 | 3,204,091 |
| Marble..... | 18,838 | 230,739 | 398 | | | | 249,975 |
| Sandstone..... | 322,668 | 1,352 | 4,950 | 40,046 | 27,766 | | 396,782 |
| Total..... | 1,686,806 | 288,144 | 262,955 | 563,907 | 2,250,533 | 452,294 | 5,504,639 |

Value of Stone Sold for Various Purposes in 1912.

| Kind. | Building. | Ornamental and monumental. | Paving and curb-stone. | Rubble. | Crushed. | Furnace flux. | Total. |
|----------------|-----------|----------------------------|------------------------|---------|-----------|---------------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| Granite..... | 296,715 | 101,837 | 227,071 | 59,824 | 687,672 | | 1,373,119 |
| Limestone..... | 671,383 | 72,296 | 13,561 | 256,798 | 1,274,577 | 474,321 | 2,762,936 |
| Marble..... | 237,415 | 2,641 | 6,535 | | 14,173 | | 260,764 |
| Sandstone..... | 246,641 | 12,585 | 21,223 | 37,249 | 10,651 | | 329,352 |
| Total..... | 1,452,157 | 190,359 | 268,390 | 353,871 | 1,987,073 | 474,321 | 4,726,171 |

Production of Stone by Provinces and for Purposes Used, 1913.

| Province. | Building. | Ornamental and monumental. | Paving and curb-stone. | Rubble. | Crushed. | Furnace flux. | Total. |
|--------------------|-----------|----------------------------|------------------------|---------|-----------|---------------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 67,576 | 8,822 | 7,241 | 5,502 | 12,900 | 248,467 | 350,511 |
| New Brunswick.... | 68,647 | 126 | 10,843 | 21,403 | 2,713 | | 103,732 |
| Quebec..... | 900,478 | 270,304 | 97,884 | 60,784 | 999,046 | 965 | 2,329,461 |
| Ontario..... | 241,928 | 7,222 | 139,920 | 119,487 | 920,579 | 164,032 | 1,593,168 |
| Manitoba..... | 162,384 | 450 | | 94,270 | 132,800 | | 389,901 |
| Alberta..... | 133,030 | 386 | | 23,568 | | | 156,984 |
| British Columbia.. | 112,763 | 831 | 7,064 | 238,893 | 182,495 | 38,830 | 580,879 |
| Total..... | 1,686,806 | 288,144 | 262,955 | 563,907 | 2,250,533 | 452,294 | 5,504,639 |
| Per cent..... | 30.7 | 5.2 | 4.8 | 10.2 | 40.9 | 8.2 | 100.0 |

Production of Stone by Provinces and for Purposes Used, 1912.

| Province. | Building. | Ornamental and monumental. | Paving and curb-stone. | Rubble. | Crushed. | Furnace flux. | Total. |
|-----------------------|-----------|----------------------------|------------------------|---------|-----------|---------------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 24,150 | 15,911 | 8,625 | | | 275,944 | 324,630 |
| New Brunswick..... | 73,759 | 4,602 | 8,923 | 3,288 | | | 90,577 |
| Quebec..... | 814,380 | 149,584 | 97,749 | 95,170 | 800,026 | 794 | 1,957,703 |
| Ontario..... | 185,969 | 6,848 | 56,543 | 107,300 | 610,561 | 141,943 | 1,109,164 |
| Manitoba..... | 97,096 | | | 119,142 | 166,834 | 23 | 383,095 |
| Alberta..... | 52,771 | 13,414 | 5,145 | 10,061 | | | 81,391 |
| British Columbia..... | 204,032 | | 91,400 | 18,910 | 409,652 | 55,617 | 779,611 |
| Total..... | 1,452,157 | 190,359 | 268,390 | 353,871 | 1,987,073 | 474,321 | 4,726,171 |
| Per cent..... | 30.7 | 4.0 | 5.7 | 7.5 | 42.1 | 10.0 | 100.0 |

Exports and Imports:—The exports of stone from Canada in 1913 were valued at \$93,840, as against \$33,242 in 1912, and \$28,335 in 1911. The principal item in the export of stone during the past three years has been building stone unwrought, of which the exports in 1913 were, 191,981 tons, valued at \$82,646. The exports of dressed stone in 1913 including both ornamental and building stone, were valued at \$7,381.

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 1911, 1912, 1913.

| | 1911. | | 1912. | | 1913. | |
|---|--------|--------------|---------|--------------|---------|--------------|
| | Tons. | Value. \$ | Tons. | Value. \$ | Tons. | Value. \$ |
| Stone— | | | | | | |
| Crushed..... | | | | | 4,814 | 3,126 |
| Ornamental, granite, marble, etc., unwrought..... | 168 | 1,796 | 2,339 | 1,826 | 1,942 | 687 |
| Building, freestone, limestone, etc., unwrought..... | 83,707 | 25,103 | 108,516 | 28,795 | 191,981 | 82,646 |
| Ornamental, granite, marble, etc., dressed..... | | 980 | | 2,458 | | 7,381 |
| Building, freestone, limestone, etc., dressed..... | | 456 | | 163 | | 0 |
| | | 28,335 | | 33,242 | | 93,840 |

The annual exports of stone since 1890, are shown in the next table:—

Exports of Stone and Marble, Wrought and Unwrought.

| Calendar Year. | Wrought. | Unwrought | Calendar Year. | Wrought. | Unwrought |
|----------------|----------|-----------|----------------|----------|-----------|
| | \$ | \$ | | \$ | \$ |
| 1890..... | 21,725 | 43,611 | 1902..... | 8,632 | 124,829 |
| 1891..... | 13,398 | 46,162 | 1903..... | 7,684 | 46,295 |
| 1892..... | 7,698 | 47,424 | 1904..... | 4,760 | 17,802 |
| 1893..... | 9,102 | 12,532 | 1905..... | 3,545 | 13,069 |
| 1894..... | 22,576 | 34,130 | 1906..... | 23,097 | 4,675 |
| 1895..... | 8,587 | 51,616 | 1907..... | 4,233 | 3,067 |
| 1896..... | 4,934 | 32,897 | 1908..... | 15,194 | 36,820 |
| 1897..... | 9,415 | 42,054 | 1909..... | 33,598 | 24,087 |
| 1898..... | 2,526 | 65,370 | 1910..... | 5,352 | 22,219 |
| 1899..... | 5,092 | 101,931 | 1911..... | 1,436 | 26,899 |
| 1900..... | 5,933 | 115,711 | 1912..... | 2,621 | 30,621 |
| 1901..... | 5,917 | 157,739 | 1913..... | 7,381 | 86,450 |

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 1913, was \$1,640,849, as compared with a value of \$1,467,143 in 1912, showing an increase of \$173,706 or about 12 per cent. Of the total imports in 1913, \$570,116 in value was classed as building stone, and included \$105,576 worth of rough stone, and \$464,540 worth of dressed stone. The imports of sawn granite, manufactures of granite, and manufactures of stone N.O.P. were valued at \$250,077, paving blocks, \$52,321; marble and manufactures of, \$577,028. There was also an importation of refuse stone amounting to 356,073 tons, valued at \$191,307.

The total value of the imports from the United States in 1913 was \$1,287,440; Great Britain, \$185,531; from Italy, \$40,335; and from other countries, \$127,543.

The total value of the imports of stone during the calendar year 1912 was \$1,467,143, and included: building stone valued at \$568,672; manufactures of granite, \$245,333; paving blocks, \$64,053; marble, \$475,926; and refuse stone, 265,270 tons, valued at \$113,159. Of the total value \$1,240,264 was imported from the United States; \$182,496 from Great Britain; \$18,616, from Italy; and \$25,767, from other countries. During both years the imports were derived chiefly from the United States and Great Britain, the United States supplying building stone, paving blocks, and marble principally; and Great Britain mainly manufactures of granite. Marble is obtained also in some quantity from Italy and other countries.

A slight upward revision of the tariff on building stone was put into effect April 7, 1914.

Old and Revised Tariffs on Building Stone.

| Item. | Old Tariff. | | | *New Tariff. | | |
|---|-------------|----------|---------|--------------|----------|---------|
| | A. | B. | C. | A. | B. | C. |
| 305. Flagstone, sandstone and all building stone, not hammered, sawn or chiselled, and marble and granite, rough, not hammered or chiselled. | 10 p.c. | 12½ p.c. | 15 p.c. | 10 p.c. | 12½ p.c. | 15 p.c. |
| 306. Marble, sawn or sand rubbed, not polished; granite, sawn; flagstone and all other building stone, sawn or dressed; and paving blocks of stone. | | | | 15 p.c. | 20 p.c. | 20 p.c. |
| 306a. Building stone other than marble or granite, sawn on more than two sides, but not sawn on more than four sides, per hundred pounds. | 15 p.c. | 17½ p.c. | 20 p.c. | 10c. | 15c. | 15c. |
| 306b. Building stone other than marble or granite, planed, turned, cut or further manufactured than sawn on four sides, per one hundred pounds. | | | | 30c. | 45c. | 45c. |
| 307. Marble and granite, n.o.p., and all manufactures of marble or granite, n.o.p. | 30 p.c. | 32½ p.c. | 35 p.c. | 30 p.c. | 32½ p.c. | 35 p.c. |
| 308. Manufactures of stone, n.o.p. | 20 p.c. | 27½ p.c. | 30 p.c. | 20 p.c. | 27½ p.c. | 30 p.c. |

A. British Preferential Tariff. *In effect from April 7, 1914.
 B. Intermediate Tariff.
 C. General Tariff.

Total Imports of Stone During the Calendar Years 1912 and 1913.

| Imports. | 1912. | | 1913. | |
|---|---------|-----------|---------|-----------|
| | Tons. | Value. | Tons. | Value. |
| | | \$ | | \$ |
| Building stone, rough ¹ | | 117,037 | | 105,576 |
| Building stone, dressed ² | | 451,635 | | 464,540 |
| Refuse stone ³ | 265,270 | 113,159 | 356,073 | 191,307 |
| Granite, sawn only | | 20,706 | | 14,979 |
| Granite, manufactures of | | 180,346 | | 174,155 |
| Paving blocks | | 64,053 | | 72,321 |
| Manufactures of stone, n.o.p. | | 44,281 | | 60,943 |
| Marble and manufactures of:— | | | | |
| Marble, sawn or sand rubbed, not polished | | 209,990 | | 258,225 |
| Marble, rough, not hammered or chiselled | | 49,826 | | 128,475 |
| Marble, manufactures of, n.o.p. | | 216,310 | | 190,328 |
| | | 1,467,143 | | 1,640,849 |

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

² Flagstone and all other building stone, sawn or dressed.

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

Imports of Stone, Showing Country of Origin, Calendar Year 1913.

| Imports. | Great Britain. | | United States | | Italy. | Other countries |
|--|----------------|--------|---------------|-----------|--------|-----------------|
| | Tons. | Value. | Tons. | Value. | Value. | Value. |
| | | \$ | | \$ | \$ | \$ |
| Building stone, rough ¹ | 16,600 | | | 98,802 | | 2,155 |
| Building stone, dressed ² | 3,001 | | | 460,424 | | 955 |
| Refuse stone..... | | | | 100,327 | | 90,980 |
| Granite, sawn only..... | 7 | | | 1,244 | | |
| Granite, manufactures of..... | 16,225 | | | 3,432 | | 3 |
| Paving blocks..... | | | | 52,321 | | |
| Manufactures of stone, n.o.p..... | | | | 49,490 | | 7,700 |
| Marble and manufactures of:— | | | | | | |
| Marble, sawn or sand rubbed, not polished..... | 7,708 | | | 207,028 | 40,335 | 3,154 |
| Marble, rough, not hammered or chiselled..... | 1,115 | | | 112,170 | | 14,795 |
| Marble, manufactures of n.o.p..... | 3,325 | | | 179,202 | | 7,801 |
| | 183,531 | | | 1,287,440 | 40,335 | 127,543 |

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

² Flagstone; all other building stone, sawn or dressed.

Imports of Stone, Fiscal Years 1912 and 1913.

| Imports. | 1912. | | 1913. | |
|--|---------|-----------|---------|-----------|
| | Tons. | Value. | Tons. | Value. |
| | | \$ | | \$ |
| Building stone, rough ¹ | 20,185 | 81,260 | | 123,691 |
| Building stone, dressed ² | 51,775 | 300,378 | | 483,066 |
| Refuse..... | 258,731 | 108,281 | 249,307 | 103,947 |
| Granite, sawn only..... | 712 | 5,417 | | 24,636 |
| Granite, manufactures of..... | | 161,652 | | 185,531 |
| Paving blocks..... | | 64,737 | | 63,949 |
| Manufactures of stone, n.o.p..... | | 37,899 | | 51,238 |
| Marble, and manufactures of:— | | | | |
| Marble, sawn or sand rubbed, not polished..... | | 175,177 | | 239,678 |
| Marble, rough, not hammered or chiselled..... | | 56,336 | | 61,009 |
| Marble, manufactures of, n.o.p..... | | 169,222 | | 210,222 |
| | | 1,160,359 | | 1,551,967 |

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

² Flagstone; all other building stone, sawn or dressed.

Annual Imports of Stone.

| Fiscal Year | BUILDING STONE | | Manufactures of granite, etc. and refuse stone | Marble | Flagstone | Total value |
|-------------|----------------|---------|--|---------|-----------|-------------|
| | Rough | Dressed | | | | |
| | \$ | \$ | \$ | \$ | \$ | \$ |
| 1880... | 32,824 | 3,146 | 29,408 | 63,015 | | 128,389 |
| 1881... | 7,823 | 50,326 | 36,877 | 85,977 | 241 | 181,248 |
| 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 | 117,732 | 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 | 364,896 |
| 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 | 94,057 | 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 | 78,029 | 133,481 | Nil | 319,976 |
| 1904... | 59,864 | 31,914 | 141,165 | 181,511 | Nil | 416,454 |
| 1905... | 49,004 | 53,813 | 150,160 | 143,466 | Nil | 508,443 |
| 1906... | 66,994 | 65,134 | 178,435 | 189,599 | Nil | 500,152 |
| 1907* | 58,398 | 78,967 | 136,779 | 176,450 | Nil | 450,594 |
| 1908... | 80,950 | 90,740 | 192,248 | 287,587 | Nil | 651,525 |
| 1909... | 63,984 | 72,961 | 193,949 | 200,928 | Nil | 531,822 |
| 1910... | 110,997 | 184,620 | 223,462 | 184,798 | Nil | 703,877 |
| 1911... | 128,386 | 206,224 | 271,594 | 307,428 | Nil | 911,632 |
| 1912... | 81,260 | 300,378 | 377,986 | 400,735 | Nil | 1,160,359 |
| 1913... | 123,691 | 488,066 | 429,301 | 510,909 | Nil | 1,551,967 |

*9 months ending March 1907

GRANITE.

The production of granite including trap-rock, syenite, etc., in 1913, according to returns received from 65 active firms reporting, was valued at \$1,653,791 as compared with a production in 1912 by 57 firms, valued at \$1,373,119, showing an increased production in 1913 of \$280,672 or 20.4 per cent.

The largest production is reported from Quebec in 1913, the value being \$790,896, as against \$522,114 in 1912. The value of the production in British Columbia was \$469,666, as against \$624,178 in 1912. Ontario produced granite to the value of \$324,062 in 1913, as compared with \$174,946 in 1912. There was comparatively little change in the production

of the Maritime Provinces. 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 1913 was \$85,803, as against a value of \$82,935 produced in 1912.

Value of Granite Production by Provinces, 1913.

| Province. | Building. | Monu- mental or orna- mental. | Curly, or paving. | Rubble. | Crushed. | Total. |
|-----------------------|-----------|--|----------------------|---------|----------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 11,176 | 7,982 | 7,244 | | 2,900 | 29,302 |
| New Brunswick..... | 22,102 | (a) | 10,843 | | | 32,945 |
| Quebec..... | 454,105 | 37,481 | 83,838 | 27,549 | 187,923 | 700,896 |
| Ontario..... | 26,742 | 1,080 | 134,545 | | 161,695 | 324,062 |
| Manitoba..... | | | | | 6,920 | 6,920 |
| British Columbia..... | 40,380 | 834 | 7,064 | 238,893 | 182,495 | 469,666 |
| Total..... | 554,505 | 47,377 | 243,534 | 266,442 | 541,933 | 1,653,791 |

(a) The production of rough granite for ornamental or monumental purposes is included under building stone. Finished stone was produced at St. George to the value of \$85,803.

Value of Granite Production by Provinces, 1912.

| Province. | Building. | Monu- mental or orna- mental. | Curly, or paving. | Rubble. | Crushed. | Total. |
|-----------------------|-----------|--|----------------------|---------|----------|-----------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 3,601 | 15,815 | 8,625 | | | 28,041 |
| New Brunswick..... | 8,862 | *4,527 | 8,928 | | | 22,317 |
| Quebec..... | 180,036 | 81,180 | 79,368 | 13,912 | 167,618 | 522,114 |
| Ontario..... | | 315 | 38,750 | 27,602 | 108,879 | 174,946 |
| Manitoba..... | | | | | 1,523 | 1,523 |
| British Columbia..... | 104,216 | | 91,400 | 18,910 | 409,652 | 624,178 |
| Total..... | 296,715 | 101,837 | 227,071 | 59,824 | 687,672 | 1,373,119 |

*"Finished" stone in 1912 was valued at \$82,935.

Annual Production of Granite.

| Calendar Year. | Tons. | Value. | Calendar Year | Tons | Value. |
|----------------|--------|---------|---------------|--------|-----------|
| | | \$ | | | \$ |
| 1886.. | 6,062 | 63,309 | 1900.. | | 80,000 |
| 1887.. | 21,217 | 142,506 | 1901.. | | 155,000 |
| 1888.. | 21,352 | 147,305 | 1902.. | | 210,000 |
| 1889.. | 10,197 | 79,624 | 1903.. | | 200,000 |
| 1890.. | 13,307 | 65,985 | 1904.. | | 150,000 |
| 1891.. | 13,637 | 70,056 | 1905.. | | 226,305 |
| 1892.. | 24,302 | 89,326 | 1906.. | | 278,419 |
| 1893.. | 22,521 | 94,393 | 1907.. | | 194,712 |
| 1894.. | 16,392 | 109,936 | 1908.. | 15,136 | 282,320 |
| 1895.. | 19,238 | 84,838 | 1909.. | | 454,824 |
| 1896.. | 18,717 | 106,709 | 1910.. | | 739,516 |
| 1897.. | 19,345 | 61,934 | 1911.. | | 1,119,865 |
| 1898.. | 23,897 | 81,073 | 1912.. | | 1,373,119 |
| 1899.. | 13,418 | 90,542 | 1913.. | | 1,653,791 |

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 1913 was \$3,204,091, as compared with a value of \$2,762,936 in 1912, or an increase of about 16 per cent.

There was an increase in the production of building and paving stone, crushed stone and rubble, and a slight falling off in the production of furnace flux.

The production during 1913 of limestone for building purposes, was valued at \$799,471, as against \$743,679 in 1912. The value of crushed stone in 1913 was \$1,680,834, as against \$1,274,577 in the previous year. Curbstone and paving stone were produced to the value of \$14,073 in 1913, as against \$13,561 in 1912. The value of rubble in 1913 was \$257,419, as against \$256,798 in 1912. The production of furnace flux was 862,774 tons, valued at \$452,294 as compared with 904,528 tons valued at \$474,321 in 1912.

Value of Limestone Production by Provinces, 1913.

| Province. | Building and ornamental. | Crushed. | Curbstone and paving. | Rubble. | Furnace flux | | Total. |
|-----------------------|--------------------------|-----------|-----------------------|---------|--------------|---------|-----------|
| | \$ | | | | Tons. | \$ | |
| Nova Scotia..... | | \$ 10,000 | | \$ 252 | 489,516 | 248,467 | 258,719 |
| Quebec..... | 448,457 | 811,123 | 13,648 | 33,235 | 643 | 965 | 1,307,428 |
| Ontario..... | 188,180 | 733,831 | 425 | 100,662 | 281,246 | 164,032 | 1,196,130 |
| Manitoba..... | 162,834 | 125,880 | | 94,270 | | | 382,984 |
| Alberta..... | | | | 20,000 | | | 20,000 |
| British Columbia..... | | | | | 91,369 | 38,830 | 38,830 |
| Total..... | 799,471 | 1,680,834 | 14,073 | 257,419 | 862,774 | 452,294 | 3,204,091 |

Value of Limestone Production by Provinces, 1912.

| Province. | Building and ornamental. | Crushed. | Curbstone and paving. | Rubble. | Furnace flux. | | Total. |
|-----------------------|--------------------------|-----------|-----------------------|---------|---------------|---------|-----------|
| | \$ | \$ | \$ | \$ | Tons. | \$ | \$ |
| Nova Scotia..... | | | | | 538,730 | 275,944 | 275,944 |
| Quebec..... | 472,192 | 621,661 | 11,846 | 81,258 | 529 | 794 | 1,187,751 |
| Ontario..... | 174,391 | 487,605 | 1,715 | 56,398 | 272,544 | 141,943 | 862,052 |
| Manitoba..... | 97,096 | 165,311 | | 119,142 | 30 | 23 | 381,572 |
| British Columbia..... | | | | | 92,695 | 55,617 | 55,617 |
| Total..... | 743,679 | 1,274,577 | 13,561 | 256,798 | 904,528 | 474,321 | 2,763,936 |

Value of Limestone Production by Provinces, 1911.

| Province. | Building and ornamental. | Crushed. | Curbstone and paving. | Rubble. | Furnace flux. | | Total. |
|-----------------------|--------------------------|-----------|-----------------------|---------|---------------|---------|-----------|
| | \$ | \$ | \$ | \$ | Tons. | \$ | \$ |
| Nova Scotia..... | | 2,122 | | 1,577 | 483,035 | 241,517 | 245,216 |
| New Brunswick..... | 80 | | | | 60 | 30 | 110 |
| Quebec..... | 462,944 | 597,811 | 34,986 | 200,243 | 659 | 593 | 1,296,577 |
| Ontario..... | 126,700 | 532,050 | 1,916 | 65,725 | 295,837 | 154,070 | 690,461 |
| Manitoba..... | 74,424 | 134,576 | | 106,782 | | | 315,782 |
| British Columbia..... | | | | | 94,633 | 56,780 | 56,780 |
| Total..... | 664,148 | 1,066,559 | 36,902 | 374,327 | 874,224 | 452,990 | 2,594,926 |

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 six years. The total value of the production in 1913 was returned as \$249,975, as compared with \$260,764 in 1912, and \$162,783 in 1911.

Marble quarries were operated during 1913 at Philipsburg and South Stukely, Que., Dungannon and Faraday townships in Ontario, and at Marble Head, B.C.

The value of the Quebec production was \$231,137, as compared with \$247,838 in 1912 and \$135,187 in 1911. Ontario produced marble to the value of \$18,238 as against \$12,926 in 1912, and \$25,996 in 1911. There was a small production only in British Columbia, development work being chiefly in progress.

Annual Production of Marble.

| Calendar Year. | Tons. | Value. | Calendar Year. | Tons. | Value. |
|----------------|-------|--------|-----------------------------|-------|---------|
| | | \$ | | | \$ |
| 1886..... | 501 | 9,900 | 1895..... | 200 | 2,000 |
| 1887..... | 242 | 6,224 | 1896..... | 224 | 2,405 |
| 1888..... | 191 | 3,100 | 1897 to 1907 inclusive..... | Nil | Nil |
| 1889..... | 83 | 980 | 1908..... | | 125,000 |
| 1890..... | 780 | 10,776 | 1909..... | | 158,441 |
| 1891..... | 240 | 1,752 | 1910..... | | 158,779 |
| 1892..... | 340 | 3,600 | 1911..... | | 162,783 |
| 1893..... | 590 | 5,100 | 1912..... | | 260,764 |
| 1894..... | Nil | Nil | 1913..... | | 249,975 |

The imports of marble during the calendar year 1913 were valued at \$577,028 as compared with \$475,976 in 1912, and \$384,252 in 1911.

The annual imports of marble since 1880 are shown in the general table of imports covering the fiscal years, page 57.

SANDSTONE.

The value of the production of sandstone in 1913 is reported as \$396,782 as compared with a value of \$329,352, reported for 1912. The greater part of the sandstone is quarried for building purposes, though some quantities are used for rubble and paving purposes.

Of the production in 1913, building and ornamental stone was sold to the value of \$324,020, or 82 per cent of the total value of production. There was included in this amount, rough stone valued at \$142,895 and dressed stone valued at \$181,125

Of the 1912 production the value of \$260,229 was credited to building and ornamental stone, and included \$96,877 in rough stone, and \$163,352 in dressed stone.

Value of Sandstone Production by Provinces, 1913.

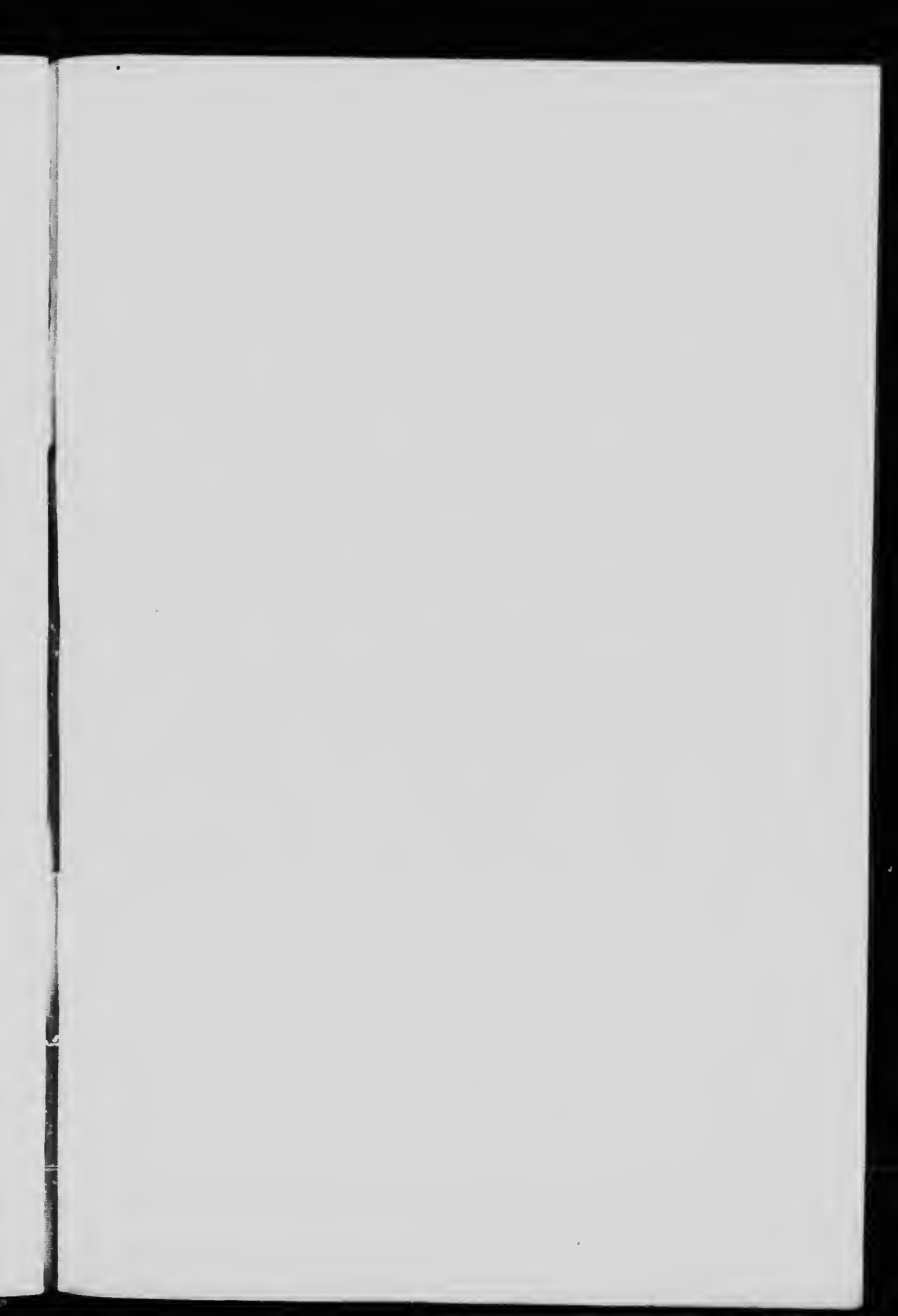
| Province. | Building and ornamental. | Crushed. | Paving. | Rubble. | Total. |
|-----------------------|--------------------------|----------|---------|---------|---------|
| | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 57,240 | | | 5,250 | 62,490 |
| New Brunswick..... | 46,671 | 2,713 | | 21,403 | 70,787 |
| Ontario..... | 14,910 | 25,053 | 4,950 | 9,825 | 54,738 |
| Alberta..... | 133,416 | | | 3,568 | 136,984 |
| British Columbia..... | 71,783 | | | | 71,783 |
| Total..... | 324,020 | 27,766 | 4,950 | 40,046 | 396,782 |

Value of Sandstone Production by Provinces, 1912.

| Province | Building and ornamental. | Crushed. | Paving. | Rubble. | Total. |
|-----------------------|--------------------------|----------|---------|---------|---------|
| | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 20,645 | | | | 20,645 |
| New Brunswick..... | 64,972 | | | 3,288 | 68,260 |
| Ontario..... | 8,611 | 10,651 | 16,078 | 23,900 | 59,240 |
| Alberta..... | 66,185 | | 5,145 | 10,061 | 81,391 |
| British Columbia..... | 99,816 | | | | 99,816 |
| Total..... | 260,229 | 10,651 | 21,223 | 37,249 | 329,352 |

Value of Sandstone Production by Provinces, 1911.

| Province. | Building and ornamental. | Crushed. | Paving. | Rubble. | Total. |
|-----------------------|--------------------------|----------|---------|---------|---------|
| | \$ | \$ | \$ | \$ | \$ |
| Nova Scotia..... | 21,140 | 300 | | 2,000 | 23,440 |
| New Brunswick..... | 30,260 | | | 5,077 | 35,337 |
| Quebec..... | 450 | | | | 450 |
| Ontario..... | 8,567 | | 24,575 | 20,890 | 54,032 |
| Alberta..... | 151,787 | | | 6,557 | 158,344 |
| British Columbia..... | 179,580 | | | | 179,580 |
| Total..... | 391,784 | 300 | 24,575 | 34,524 | 451,183 |



the 1990s, the number of people in the world who are poor has increased.

There are two reasons for this. First, the world population has increased. Second, the number of people who are poor has increased in many of the world's poorest countries. This is because the economies of these countries are not growing fast enough to create enough jobs for the growing population.

There are many reasons why the economies of these countries are not growing fast enough. One reason is that they do not have enough infrastructure, such as roads and bridges, to support their economies. Another reason is that they do not have enough skilled workers to run their businesses.

There are many things that can be done to help these countries. One thing is to build more infrastructure. Another thing is to provide more education and training for their workers. These things can help these countries grow their economies and create more jobs for their people.

It is important that we all work together to help these countries. We can help by donating money to organizations that are working to help these countries. We can also help by volunteering our time and skills to these organizations.

There is a lot we can do to help these countries. Let's all do our part to make the world a better place for everyone.

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