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CANADA
DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
CENSUS OF INDUSTRY
MINING, METALLURGICAL & CHEMICAL BRANCH

THE
CLAY & CLAY PRODUCTS INDUSTRY
IN
CANADA
1935

(including: 1. Products from Domestic Clays
2. Products from Imported Clays)

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DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
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OTTAWA - CANADA

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CLAY AND CLAY PRODUCTS, 1935.

The Clay and Clay Products Industry in Canada is classified into two divisions: (1) production from domestic clays which includes the production of refractories, building brick, structural tile, floor tile, roofing tile, drain tile, sewer pipe and pottery, and (2) production from imported clays which includes the manufacture of porcelain insulators, refractories, earthenware, pottery and ceramic floor and wall tile.

The Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa reports that there were 159 plants representing a total capital investment of \$24,951,320 operating in the domestic and imported clay products industries in Canada during 1935. These two industries provided employment for 2,623 persons during the year; their earnings totalled \$2,252,136. The combined production in 1935 was valued at \$5,187,540 as compared with \$4,603,628 in 1934.

1. PRODUCTION FROM DOMESTIC CLAYS

Domestic clay and domestic clay products sold by Canadian producers totalled \$3,012,563 in 1935 as compared with \$2,680,410 in 1934. The value of the 1935 shipments representing a 12.4 per cent increase over the preceding year was the greatest since 1932 and indicates a definite revival in construction; this was particularly apparent in a 12.4 per cent increase over 1934 in the sales value of building brick.

Distinct increases as compared with 1934 were also recorded in the quantity and value of various other clay products of a structural nature including hollow blocks, roofing tile, and sewer pipe. It is also interesting to note a 118 per cent increase during 1935 in the tonnage of domestic fireclay produced.

Ontario continued to hold a predominant position among the provinces as a producer of clay products, the value of its output in 1935 totalling \$1,370,225, or 45.5 per cent of the entire Canadian production. The value of production in Quebec amounted to \$593,162 or 19.7 per cent, while Alberta ranked third in importance with a production valued at \$326,679. The other clay-producing provinces include Nova Scotia, New Brunswick, Saskatchewan and Manitoba, all of which in 1935 realized increases over 1934 in the value of their clay product shipments.

During 1935 the domestic clay products industry distributed \$1,387,924 salaries and wages to 1,728 employees as compared with \$1,262,977 to 1,572 employees in 1934. The industry consumed \$679,578 in fuel, electricity and process supplies during 1935, of which \$417,048 represented expenditures for coal, \$86,302 for wood, \$91,836 for electricity, \$60,583 for various process supplies and \$11,459 for natural gas.

Imports of clay and clay products into Canada during 1935 totalled \$6,438,042 as compared with \$5,935,805 in 1934 while exports of building brick, clay and other clay manufactures in 1935 amounted to \$363,164 as against \$186,359 in the preceding year.

Report No. 773 issued by the Mines Branch, Department of Mines, Ottawa, contains the following information:— "There is a steady demand for various grades of china clay in Canada for use in the manufacture of paper and rubber as well as in the ceramic industry. Ball clays are used in the ceramic industry as a bonding clay in the manufacture of porcelain and similar compounded bodies. While the market in Canada is not large, it is growing and there are also good prospects of developing a profitable export market in the United States. Ball clays of high bond strength occur in extensive deposits in Southern Saskatchewan. Deposits of high-grade, white-burning clays occur on Mattagami, Abitibi, and Missinaibi Rivers in Northern Ontario. Some of these clays may be classed as ball clays and others as china clays; recent developments at two points in this area will probably result in a small production of clay in the near future. The only place where china clay has been produced commercially in Canada is near St. Remi d'Amherst, Quebec. — There are numerous occurrences of clay of bentonitic type in the Prairie Provinces and several deposits are also known in British Columbia. The greater part of the small domestic production has come from deposits at Princeton, B. C. Production of bentonite has been expanding rapidly in the United States where a large proportion of the output is employed in the foundry industry as a core wash and to rejuvenate spent moulding sands; it is also used in emulsions of various types, asphalt and concrete, ceramic materials and a wide range of other products. Some bentonites on treatment with sulphuric acid acquire high bleaching power and in this form are extensively used in oil and gasoline refining, decolorizing animal and vegetable fats, etc."

The Canadian Government Purchasing Standards Committee tentatively approved in 1935 a specification for burned fireclay brick for stationary boiler service, details of which may be obtained from the Secretary, Canadian Purchasing Standards Committee, National Research Council, Ottawa.

The Canadian Engineering Standards Association circulated a questionnaire in 1933, the replies to which indicated an almost unanimous opinion in favour of adopting a standard size building brick and the majority opinion favoured the larger size recommended for all classes of building brick. It is believed that this represents the average size of the largest percentage of bricks now produced in the majority of plants throughout the country. This new standard (published April, 1935) covers common, rough face and smooth face brick and defines that such brick shall conform to the following dimensions:(approximate) length, 8 3/8; thickness, 2 3/8; width, 4 inches. More complete information relating to this standard, together with comment on tolerances, old stock, etc., is contained in the bulletin "Standard Dimensions for Building Brick" published by Canadian Engineers Standards Association, Ottawa. (Price, 25 cents.)

Table 1 - PRINCIPAL STATISTICS OF THE DOMESTIC CLAY PRODUCTS INDUSTRY IN CANADA, 1933, 1934 and 1935.

	1933	1934	1935
Number of plants	157	149	139
Capital employed	\$ 24,211,880	23,046,807	20,502,006
Number of employees - On salary ..	239	215	226
On wages ..	1,073	1,357	1,502
Total ..	1,312	1,572	1,728
Salaries and wages - Salaries ...	\$ 440,966	389,722	374,954
Wages	660,927	873,255	1,012,970
Total	\$ 1,101,893	1,262,977	1,387,924
Cost of fuel and electricity	\$ 377,321	558,732	618,995
Process supplies	(a)	(a)	60,583
Selling value of products	\$ 2,262,835	2,680,410	3,012,563

(a) Information not available.

Table 2 - NUMBER OF FIRMS, CAPITAL EMPLOYED, NUMBER OF EMPLOYEES, SALARIES AND WAGES PAID, AND FUEL AND ELECTRICITY USED, BY PROVINCES, 1934 and 1935.

Province	Year	Number of firms	Capital employed \$	Number of employees	Salaries and wages paid \$	Cost of fuel and electricity \$
Nova Scotia	1934	4	774,050	92	67,994	35,912
	1935	5	808,602	110	98,921	50,264
New Brunswick	1934	4	255,199	53	33,046	11,252
	1935	4	247,150	47	30,517	10,523
Quebec	1934	20	7,056,468	352	286,936	144,903
	1935	22	5,525,727	350	268,774	141,901
Ontario	1934	85	11,589,280	731	587,748	317,826
	1935	75	9,838,136	749	593,769	339,248
Manitoba	1934	4	190,129	7	9,977	...
	1935	4	223,515	70	50,634	17,700
Saskatchewan	1934	3	311,868	34	34,821	11,402
	1935	4	961,362	44	38,933	10,472
Alberta	1934	9	1,985,871	167	142,123	10,312
	1935	9	1,944,234	198	174,924	17,027
British Columbia	1934	10	883,942	136	100,332	27,125
	1935	9	953,280	160	131,452	31,860
CANADA	1934	139	23,046,807	1,572	1,262,977	558,732
	1935	132	20,502,006	1,728	1,387,924	618,995

Table 3 - AVERAGE NUMBER OF WAGE-EARNERS, BY MONTHS, 1933, 1934 and 1935.

Month	1933	1934	1935
January	644	773	657
February	554	792	571
March	576	734	638
April	669	980	1,126
May	980	1,639	1,759
June	1,274	1,978	2,193
July	1,571	1,991	2,320
August	1,611	2,038	2,324
September	1,604	1,713	1,950
October	1,242	1,463	1,755
November	1,083	1,038	1,366
December	780	833	1,048

Table 4 - FUEL AND ELECTRICITY USED, 1954 and 1955.

Kinds	Unit of measure	1954		1955	
		Quantity	Cost at works	Quantity	Cost at works
Bituminous coal - Canadian	short ton	10,706	60,073	16,812	99,020
Imported	short ton	49,791	517,697	48,006	511,220
Anthracite coal (for fuel only)	short ton	66	626	329	1,869
Lignite coal - Canadian	short ton	547	2,502	2,055	4,959
Coke	short ton	357	5,010	407	5,670
Gasoline (exclusive of vehicle fuel)	Imp gal.	25,735	5,723	24,181	6,200
Kerosene or coal oil	Imp gal.	650	106	1,825	403
Fuel oil.....	Imp gal.	16,116	1,990	15,998	1,985
Wood	cord	19,212	71,075	24,042	86,302
Gas - (a) Manufactured	M cu. ft.	212	997	17	62
(b) Natural	M cu. ft.	412,024	8,792	743,697	11,459
Electricity purchased	K. W. H.	4,679,491	86,284	6,628,367	91,956
Other fuel	xxx	...	57	...	30
TOTAL	xxx	...	558,732	...	618,395

Table 5 - POWER EQUIPMENT INCLUDING STAND-BY, 1955.

Description	1955	
	Number of units	Total horse power
Steam engines and steam turbines	97	5,179
Diesel engines	8	512
Gasoline, gas and oil engines, other than Diesel	44	1,078
Hydraulic turbines or water wheels .....	...	...
Electric motors - Operated by purchased power	526	18,130
Operated by power generated by establishments..	17	219
Boilers	68	6,257

Table 6 - PRODUCTION (SALES) OF DOMESTIC CLAY AND CLAY PRODUCTS IN CANADA, 1954 and 1955.

Products	Unit of measure	SALES		OR SHIPMENTS	
		Quantity	\$	Quantity	\$
Clay - Fullers earth	ton	...	...	...	...
Bentonite	ton	65	1,578	41	781
Fireclay	ton	1,043	12,598	2,272	15,574
Kaolin (china clay)	ton	48	504	170	1,520
Fireclay blocks and shapes	xxx	...	62,388	...	71,341
Firebrick	M	2,109	101,219	1,817	90,141
Brick - Soft mud process - Face	M	4,904	76,247	6,695	122,211
Common	M	14,256	188,585	21,197	259,501
Stiff mud process - Face	M	23,800	494,341	25,289	500,061
(wire cut) Common	M	30,517	424,131	32,354	437,121
Dry press - Face	M	6,005	130,592	8,454	175,041
Common	M	6,440	66,616	6,381	55,251
Fancy or ornamental brick (including special shapes, embossed and enamelled brick) ..	M	45	2,625	15	721
Sewer brick	M	307	5,992	175	5,231
Paving brick	M	10	382	15	621

Table 6 - PRODUCTION (SALES) OF DOMESTIC CLAY AND CLAY PRODUCTS IN CANADA, 1934 and 1935.
(concluded)

Products	Unit of measure	SALES		OR	SHIPMENTS	
		1934	1935		1934	1935
		Quantity	\$		Quantity	\$
Structural tile -						
Hollow blocks (including fireproofing, and load-bearing tile)	ton	51,136	244,122		47,195	344,606
Roofing tile	No.	44,115	1,852		82,015	3,669
Floor tile (quarries)	sq.ft.	80,356	17,491		51,765	7,629
Ceramic or glazed floor and wall tile	xx	..	..		..	615
Drain tile	M	7,325	180,553		7,124	205,336
Sewer pipe (including copings, flue linings, etc.)xx		..	436,433		..	481,559
Pottery, glazed or unglazed (including coarse earthenware, stoneware, and all other pottery)xx		..	223,733		..	220,711
Other products	x	..	13,628		..	13,274
TOTAL	xx	..	2,680,410		..	3,012,563

Table 7 - PRODUCTION (SALES) OF CLAY PRODUCTS IN CANADA FROM DOMESTIC CLAYS - DOMINION TOTALS, 1924 to 1929, and BY PROVINCES, 1931 - 1935.

	Value		Value		Value
	\$		\$		\$
CANADA - 1924	9,215,077	1926	10,357,323	1928	12,381,718
1925	9,529,691	1927	11,173,189	1929	13,904,643
<hr/>					
Province	1931	1932	1933	1934	1935
	\$	\$	\$	\$	\$
Nova Scotia	467,126	172,557	125,500	157,158	270,478
New Brunswick	143,348	68,151	46,917	59,897	62,478
Quebec	2,360,908	1,064,551	580,088	632,322	593,162
Ontario	3,552,800	1,639,508	1,024,579	1,261,006	1,370,225
Manitoba	122,628	49,773	20,966	37,916	74,755
Saskatchewan	166,267	109,739	92,207	90,997	98,150
Alberta	529,716	329,584	198,373	246,677	326,679
British Columbia	498,505	216,355	174,205	194,437	216,636
CANADA	7,841,288	3,650,218	2,262,835	2,680,410	3,012,563

Table 8 - PRODUCTION (SALES) OF BUILDING BRICK (a) IN CANADA - DOMINION TOTALS, 1924 - 1931, and BY PROVINCES, 1933, 1934 and 1935.

	M	\$		M	\$
CANADA - 1924	317,473	5,722,997	1928	421,301	7,281,777
1925	351,186	5,944,163	1929	458,630	8,003,358
1926	358,348	6,525,565	1930	319,838	5,581,501
1927	398,439	6,941,131	1931	237,143	4,289,119

Table 8 - PRODUCTION (SALES) OF BUILDING BRICK (a) IN CANADA - DOMINION TOTALS, 1924 - 1931, and BY PROVINCES, 1933, 1934 and 1935 (concluded)

Province	1924		1931		1933		1934		1935	
	M	\$	M	\$	M	\$	M	\$	M	\$
Nova Scotia	2,633	36,859	3,780	50,387	4,285	61,221				
New Brunswick	1,207	20,640	1,908	28,484	1,689	27,718				
Quebec	26,559	452,501	29,231	461,000	28,384	439,143				
Ontario	29,323	518,700	39,846	713,953	48,896	822,764				
Manitoba	1,161	17,718	2,144	33,563	3,763	56,207				
Saskatchewan	121	2,152	265	4,176	477	7,529				
Alberta	3,957	34,634	5,910	49,552	9,761	84,759				
British Columbia	2,739	41,313	2,988	42,814	3,283	55,826				
CANADA	67,700	1,124,517	86,072	1,383,929	100,538	1,555,167				

(a) Includes fancy and sewer brick.

Table 9 - VALUE(b) OF DRAIN TILE AND SEWER PIPE PRODUCED (SALES) IN CANADA, BY PROVINCES, 1929, 1933, 1934 and 1935.

Province	1929	1933	1934	1935
Nova Scotia	230,412	70,756	94,903	180,501
New Brunswick .....	...	64	142	160
Quebec	175,615	61,310	63,143	65,344
Ontario	1,796,785	364,063	363,704	322,240
Manitoba	15,565	2,716	2,412	3,546
Saskatchewan	1,000	...	...	...
Alberta	343,665	37,042	49,907	65,776
British Columbia	163,161	41,336	42,775	49,328
CANADA	2,726,203	577,287	616,986	686,895

Table 10 - PRODUCTION OF FIRECLAY, FIRECLAY BLOCKS AND SHAPES AND FIREBRICK (x) IN CANADA, 1929 - 1935.

Year	FIRECLAY		FIRECLAY BLOCKS AND SHAPES		FIREBRICK	
	Tons	\$	Tons	\$	M	\$
1929	5,041	35,226	130,411	130,411	5,196	251,043
1930	2,870	25,975	147,309	147,309	3,789	177,608
1931	1,233	14,857	83,039	83,039	2,248	107,597
1932	990	11,826	75,209	75,209	1,580	71,757
1933	1,421	11,273	80,625	80,625	1,547	73,226
1934	1,043	12,598	62,388	62,388	2,109	101,219
1935	2,272	15,574	71,344	71,344	1,817	90,149

(x) See also Table 28.

Table 11 - PRODUCTION OF POTTERY FROM DOMESTIC CLAYS IN CANADA, 1929 - 1935.

YEAR	VALUE
1929	\$ 323,194
1930	294,866
1931	257,125
1932	244,861
1933	202,500
1934	223,733
1935	220,711

(b) Includes value of copings, flue linings, etc.

Table 12 - PRODUCTION OF STRUCTURAL TILE IN CANADA, 1929 - 1935.

Year	HOLLOW BLOCKS (x)		ROOFING TILE		FLOOR TILE (QUARRIES)	
	Tons	\$	No.	\$	Sq. Ft.	\$
1929	221,800	2,214,384	35,075	4,628	307,400	70,188
1930	165,359	1,667,783	3,056	556	179,786	56,230
1931	105,635	1,046,634	6,935	720	107,499	31,415
1932	48,118	421,672	48,939	3,900	94,316	21,502
1933	26,747	160,059	20,469	1,156	91,495	14,297
1934	31,156	244,122	44,115	1,852	80,356	17,491
1935	47,195	344,608	82,015	3,669	51,765	7,629

(x) Including fireproofing and load bearing tile.

Table 13 - FULLERS' EARTH USED IN CANADA IN THE MANUFACTURE OF SOAPS AND WASHING COMPOUNDS AND IN THE PETROLEUM PRODUCTS INDUSTRY, 1930 - 1935.

Year	Petroleum Products Industry		Soaps and Washing Compounds	
	Pounds (x)	\$	Pounds	\$
1930	20,102,587	241,793	Data not available	
1931	16,157,582	201,361	492,174	6,264
1932	19,642,179	258,934	507,807	7,444
1933	22,811,655	314,515	588,434	8,501
1934	18,588,514	239,357	508,316	6,562
1935	18,487,148	260,885	660,018	13,694

(x) Includes all clay.

Table 14 - CLAY USED IN THE MANUFACTURE OF PAPER IN CANADA, 1930 - 1935.

Year	Tons	Value	Year	Tons	Value
		\$			\$
1930	13,024	218,423	1933	20,048	267,014
1931	11,484	173,660	1934	27,550	357,286
1932	14,432	205,068	1935	33,766	442,584

Table 15 - FIREBRICK AND FIRECLAY USED IN THE MANUFACTURE OF IRON AND STEEL AND THEIR PRODUCTS IN CANADA, 1931 - 1934.

Year	FIREBRICK		FIRECLAY		OTHER FIRECLAY, FIRE BRICK AND CUPOLA BLOCKS
	No.	Value	Tons	Value	
		\$		\$	
1931	4,326,000	197,684	7,631	64,300	45,393
1932	3,409,000	123,532	5,910	52,492	36,395
1933	1,846,016	141,784	7,615	62,602	...
1934	2,590,452	192,538	8,248	75,906	...

Table 16 - CLAYS AND EARTHS USED IN CANADIAN RUBBER INDUSTRY, 1933 - 1935.

Year	Tons	Value
		\$
1933	1,391	32,361
1934	2,391	54,368
1935 (x)	2,632	63,369

(x) Subject to revision.

Special surveys conducted by the Bureau of Statistics determined that refractories, including brick, cement, fireclay, etc., purchased during 1955 by the Canadian mining industry and including those made by smelters of domestic non-ferrous ores, totalled \$918,584 as compared with \$867,660 in 1954.

Table 17 - CONSTRUCTION CONTRACTS AWARDED IN CANADA(x), 1929 and 1951 - 1955.

Type	1929	1951	1952	1953	1954	1955
Residential ..	128,901,300	81,684,300	28,892,300	25,929,800	50,538,100	56,408,300
Business	190,161,700	81,174,300	39,399,200	26,276,500	37,460,300	48,442,300
Industrial ...	62,968,800	14,816,000	7,820,400	9,101,900	8,057,900	10,292,300
Engineering ..	194,620,000	137,807,400	56,760,200	37,981,600	49,705,200	65,162,300
TOTAL	576,651,800	315,482,000	132,872,400	97,239,800	125,811,500	160,305,000

(x) Compiled by MacLean Building Reports Ltd.

Table 18 - WORLD'S PRODUCTION OF CHINA CLAY, 1953, 1954 and 1955.

(Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries, 1953 - 1955")
(Long tons)

Producing Country and Description	1953	1954	1955
BRITISH EMPIRE			
United Kingdom	596,609	690,129	
Union of South Africa .....	...	369	
Canada .....	...	43	
India	21,935	20,562	
Unfederated Malay States	36	143	
Australia	8,477	8,786	
FOREIGN COUNTRIES			
Belgium (e)	13,651	(a)	
Bulgaria	2,617	(a)	
Czechoslovakia (estimated)	350,000	350,000	
Denmark - Crude	34,300	42,400	
Washed and pressed	8,600	11,200	
Dried	700	700	
France	(a)	(a)	
Germany			
Bavaria	467,455	677,287	
Prussia	11,961	61,793	
Saxony - Crude	42,002	35,940	
Washed	32,904	43,054	
Sand	(a)	10,114	
Italy - Crude	20,875	(a)	
Washed and ground (c)	4,009	(a)	
Kaolinic earth	1,600	(a)	

NOT YET AVAILABLE

(a) Information not available.
(c) Derived from crude and stocks.
(e) "Earite" and kaolin.

Table 18 - WORLD'S PRODUCTION OF CHINA CLAY, 1933, 1934 and 1935. (concluded)
 (Taken from the Imperial Institute's publication "The Mineral Industry of the British
 Empire and Foreign Countries, 1933 -1935")
 (Long tons)

Producing Country and Description	1933	1934	1935
<u>FOREIGN COUNTRIES (concluded)</u>			
Portugal	9,416	11,644	NOT YET AVAILABLE
Roumania (d)	10,212	(a)	
Spain (g)	1,545	1,548	
Sweden	1,878	2,537	
Algeria	(a)	(a)	
United States (f)	367,172	380,656	
Japan (estimated)	400,000	400,000	
Korea	24,536	(a)	
Netherlands East Indies	229	(a)	

China clay is also produced in Austria, U. S. S. R. (Russia) and China.

(a) Information not available

(d) Converted from cubic metres at the rate of 1 cubic metre = 2 long tons.

(f) Sales of china clay and paper clay.

(g) 4,540 cubic metres of kaolinic sand were also produced in quarries during 1934.

Table 19 - IMPORTS INTO CANADA AND EXPORTS OF CLAY AND CLAY PRODUCTS, 1934 and 1935.

	1934		1935		
	Quantity	\$	Quantity	\$	
<u>IMPORTS</u>					
Building brick	ton	1,514	16,673	570	8,519
Building blocks	xxx	...	1,794	...	3,209
Clays - China	cwt.	654,999	250,705	708,890	287,997
Fire	cwt.	909,972	139,317	993,947	156,361
Pipe	xxx	...	44	...	6,489
Other clays, n. o. p.	xxx	...	196,327	...	258,044
Zirconium silicate	xxx	...	2,029	...	2,307
Zirconium oxide	xxx	...	7,827	...	13,824
Drain tile, unglazed	xxx	...	251	...	11
Drain, sewer pipe and earthenware fittings therefor, chimney linings or vents, chimney tops or inverted blocks, glazed or unglazed	xxx	...	9,799	...	8,219
Tiles or blocks of earthenware or stone prepared for mosaic flooring	xxx	...	39,778	...	28,890
Tiles, earthenware, for roofing purposes	xxx	...	2,172	...	5,146
Tiles, earthenware, n. o. p.	xxx	...	92,835	...	97,779
Insulators, electric, porcelain	xxx	...	62,510	...	63,428
Pottery and chinaware	xxx	...	3,054,124	...	3,363,970
Brick, fire, other, valued at not less than \$100 per M, rectangular shaped; the dimensions of each not to exceed 125 cubic inches; for use exclusively in the construction or repair of a furnace, kiln, etc.	xxx	...	85,788	...	110,863
Brick, fire, n. o. p., for use exclusively in the construction or repair of a furnace, kiln, or other equipment of a manufacturing establishment	xxx	...	667,471	...	492,961

Table 19 - IMPORTS INTO CANADA AND EXPORTS OF CLAY AND CLAY PRODUCTS, 1934 and 1935.
(concluded)

	1	9	3	4	1	9	3	5	
	Quantity				\$	Quantity			
<u>IMPORTS - (concluded)</u>									
Firebrick, n. o. p.	xxx	...	47,517	...	224,735	...	...	...
Firebrick, chrome	xxx	...	39,184	...	46,882	...	...	...
Magnesite brick	xxx	...	396,915	...	384,141	...	...	...
Silica brick (containing not less than 90 per cent silica)	xxx	...	210,190	...	215,500	...	...	...
Paving brick	ton	1,775	12,035	2,505	18,787	...	...	...
Artificial teeth, not mounted ..	xxx	...	276,594	...	306,922	...	...	...
Baths, bathtubs, basins, laundry tubs, etc., of earthenware, cement or clay, n. o. p.	xxx	...	115,355	...	85,350	...	...	...
Ceramic insulator cores, not further manufactured than burned and glazed, printed or decorated or not, and without fittings, when imported by manufacturers of spark plugs for use exclusively in the manufacture of spark plugs, in their own factories	xxx	...	109,915	...	130,069	...	...	...
Crucibles, clay or sand	xxx	...	42,142	...	44,586	...	...	...
Other manufactures of clay	xxx	...	56,514	...	73,053	...	...	...
TOTAL	xxx	...	5,935,805	...	6,438,042	...	...	...
<u>EXPORTS -</u>									
Building brick	M	549	10,287	367	6,784	...	...	...
Clay - Unmanufactured	Cwt.	7,619	1,668	5,591	2,595	...	...	...
Manufactured	xxx	...	14,900	...	15,502	...	...	...
Earthenware	xxx	...	33,762	...	49,843	...	...	...
Porcelain insulators	xxx	...	125,742	...	288,440	...	...	...
TOTAL	xxx	...	186,359	...	363,164	...	...	...

LIST OF OPERATORS SHIPPING BRICK, TILE, SEWER PIPE, ETC. MADE FROM DOMESTIC CLAYS, 1935

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>NOVA SCOTIA -</u>		
Brooks, Stephen, & Sons (a)	Box 359, New Glasgow	New Glasgow
McIntyre, A. D. (a)	Sydney	Sydney
Miller, Jas. B.	Elmsdale, Hants Co.	Barney Brook
Shaw, L. E., Ltd.	137 Lower Water St., Halifax	Lantz Siding, Hants Co.
Standard Clay Products Ltd.	St. Johns, P. Q.	New Glasgow
<u>NEW BRUNSWICK -</u>		
Ryan, M., & Son, Ltd.	Fredericton	Fredericton
Shaw, L. E., Ltd.	137 Lower Water St., Halifax	Chipman
Tondreau, Jos., & Sons	Bathurst	Bathurst

LIST OF OPERATORS SHIPPING BRICK, TILE, SEWER PIPE, ETC., MADE FROM DOMESTIC CLAYS, 1955.
(continued)

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>QUEBEC -</u>		
Ascot Tile & Brick Co. Ltd.	Ascot Corner	Richmond Co.
Begin, Olivier	R. R. 1, Petite Riviere	R. R. 1, Petite Riviere
Bourbeau, Georges, & Fils	R. R. 1, Danville	Kingsey Falls
Brunelle, L. H.	Box 273, Victoriaville	Victoriaville
Canadian Kaolin Silica Products	660 St. Catherine St. W., Montreal	St. Remi d'Amherst
Champlain Brick Ltd.	56 Laliberté St., Quebec	Beauport East
Chicoutimi Brick Co. Ltd.	Chicoutimi	Chicoutimi
Citadel Brick Ltd.	14 St. Joseph St., Quebec	L'Islet Station Boischatel and Lauzon.
Desmarais, S. E., & Co.	Richmond	Richmond
Duquette, Isidore	Box 626, East Angus	Westbury Tp.
Hodgins, David T.	Shawville	Clarendon Tp.
Laprairie Co. Inc.	660 St. Catherine St. W., Montreal	Laprairie and Delson
Gaulin, Evangéliste	Princeville	Arthabasca
Montreal Terra Cotta Co. Ltd.	Dominion Square Bldg., Montreal	Lakeside
Panet Brick Co. Ltd.	L'Islet Station	L'Islet Station
Parrot, M. H.	Deschaillons	Deschaillons
Potvin, Alphonse	Deschaillons	Deschaillons
Richmond Brick Co.	Richmond	Richmond
Scott Brick and Tile Co. Ltd.	15 St. Joseph St., Quebec	Dorchester Co.
Standard Clay Products Ltd.	St. Johns	St. Johns
St. Lawrence Brick Co. Ltd.	1010 St. Catherine St. W., Montreal	Laprairie
St. Tite Industrial Ltd.	St. Tite	St. Tite
<u>ONTARIO -</u>		
Barnes, Wm. R., Co. Ltd.	243 Cumberland Ave., Hamilton	various
Barnhardt, W. H.	Stratford	Stratford
Brampton Pressed Brick Co. Ltd.	Brampton	Chingaucousy Tp.
Broadwell, B., & Son	Kingsville	Essex Co.
Canadian Pressed Brick Co. Ltd.	Kenilworth Ave., S., Hamilton	Hamilton
Casemore, R., & Son	Shallow Lake	Grey Co.
Chapman Bros.	145 Dawes Rd., Toronto	East York Tp.
Construction Materials Ltd.	New Toronto	York Co.
Cooksville Co. Ltd.	672 Dupont St., Toronto	Cooksville
Coultis, George, & Son	Theford	Lambton Co.
Curtin, F., Estate	R. R. 4, Lindsay	Victoria Co.
Curtis Bros.	Box 809, Peterboro	Otonabee Tp.
Deller, Albert, & Son	Brownsville	Oxford Co.
Deller Bros.	R. R. 2, Norwich	Oxford Co.
Deller, Wm. H.	Thorndale	W. Nissouri Tp.
Dochart Brick, Tile & Terra Cotta Works	Arnprior	Arnprior
Douglas & Douglas	Wilkesport	Lambton Co.
Dover Brick & Tile Works	Chatham	Dover Tp.
Donaldson, Thos. Geo.	R. R. 1, Greenock	Culross Tp.
Elliott, James, Jr.	Sault Ste. Marie	Korah Tp.
Elliott, Wm.	Glenannon	Bruce Co.
Fort William Brick Co.	Fort William	Fort William

LIST OF OPERATORS SHIPPING BRICK, TILE, SEWER PIPE, ETC., MADE FROM DOMESTIC CLAYS, 1935.
(continued)

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
ONTARIO - continued		
Frid Bros. Ltd.	Main W and Macklin Sts., Hamilton	Hamilton
Godfrey, Thos., & Co.	Carleton Place	Beckwith Tp.
Gomoll Brick and Tile Works	Powassan	Himsworth Tp.
Grimsby Brick & Tile Ltd.	Grimsby	Grimsby
Hallatt, Miss B. E.	17 King George's Road, Toronto	Tilbury
Hamilton Pressed Brick Co. Ltd.	Kensington Ave. S., Hamilton	Wentworth Co.
Harper Brick Works	348 Greenwood Ave., Toronto	York Co.
Hill, Aaron	Essex	Essex
Hill, A. W.	R. R. 1, Coatsworth	Tilbury E. Tp.
Hitch, D. A.	Box 236, Ridgetown	Ridgetown
Hitch, Thomas	Box 254, St. Thomas	Elgin Co.
Hodder, Mrs. J. H., & Sons	Dutton	Elgin Co.
Howlett, Fred W., & Sons, Ltd.	Box 3, Petrolia	Petrolia and Brigden
Huntsville Brick Works	Box 308, Huntsville	Muskoka
Interprovincial Brick Co. Ltd.	672 Dupont St., Toronto	Chinquacoucy Tp., Nassagaweya Tp.
Jackson, W. B.	Brantford	Brantford
Jamieson Lime Co.	Renfrew	Renfrew
Janes, D. A.	Mt. Brydges	Middlesex Co.
Jervis, W. J.	R. R. 3, Dorchester	N. Dorchester
Johnson, James, Estate	Pembroke	Stafford Tp.
Koebel Bros.	Box 3, St. Clements	Waterloo Co.
Lindsay, Earl, & Sons	R. R. 2, Wallaceburg	Chatham Gore Tp.
McComb, Chester	R. R. 2, London	Middlesex Co.
McCormick Bros.	R. R. 5, Watford	Lambton Co.
McEachran, N., & Son	Highgate	Orford Co.
McFarlane, W. J.	Forest	Forest
Milton Brick Ltd.	1158 Bay St., Toronto	Milton
Moulton, John	R. R. 2, Holyrood	Bruce Co.
Napanee Brick & Tile Works	R. R. 3, Napanee	N. Fredericksburg Tp.
National Fire Proofing Co. of Canada, Ltd.	96 Bloor St. W., Toronto	Aldershot
National Sewer Pipe Co. Ltd.	Aldershot	Hamilton, Swansea, E. Flamboro Tp.
New Liskeard Brick Works	Box 74, New Liskeard	New Liskeard
Ontario Brick & Tile Plant (Government)	Provincia' Secretary, Parliament Building Toronto	Mimico
O'Reilly, Thos.	320 Bay St., Ottawa	Prescott Highway
Ott Brick & Tile Manufacturing Co. Ltd.	Kitchener	Kitchener
Ottawa Brick & Terra Cotta Co. Ltd.	Billings Bridge	Gloucester Tp.
Owen Sound Brick Co. Ltd.	Owen Sound	Owen Sound
Parks Tile Yard	R. R. 2, Dresden	Camden Tp.
Paxton, Fred R.	70 Herrick Ave., St. Catharines	St. Catharines
Phinn, Geo. A.	Springbank Drive, London	Middlesex Co.
Phippen, H. W., & Son	Dawes Rd., Toronto	East York
Pougnnet, M. V.	Belle River	Essex Co.
Richardson, J., & Son	Kerwood	Kerwood
Rollins, D. W.	Belleville	Thurlow Tp.
Snelgrove, A.	Beaverton	Beaverto
Sproat and Sproat	R. R. 4, Seaforth	Tuckersmith Tp.

LIST OF OPERATORS SHIPPING BRICK, TILE, SEWER PIPE, ETC., MADE FROM DOMESTIC CLAYS, 1935.
(concluded)

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>ONTARIO - concluded</u>		
Standard Brick Co. Ltd.	500 Greenwood Ave., Toronto	Toronto
Superior Brick & Tile Co. Ltd.	426 Victoria Ave., Fort William	Paipoonge Tp.
Toronto Brick Co. Ltd.	897 Bay St., Toronto	Don Valley, Toronto, York Tp.
Wagstaff, Chas., Estate of Wallace, R., & Son	R. R. 4, Lindsay Toronto General Trust Corp., 253 Bay Street, Toronto	Ops Tp. Widdifield Tp.
Wein, Aaron	Crediton	Huron Co.
Weitzel, John E.	R. R. 1, Tavistock	Oxford Co.
Wright, Geo., & Sons	Comber	Comber
<u>MANITOBA</u>		
Alsip Brick, Tile & Lumber Co. Ltd.	537 Portage Ave., Winnipeg	Winnipeg
Marion Brick Co.	Box 30, St. Boniface	St. Boniface
Snyder Brick Yards, Ltd.	Portage la Prairie	Portage la Prairie
Wardrop, D. M.	Whitemouth	Whitemouth
<u>SASKATCHEWAN</u>		
Bruno Clay Works Ltd.	Bruno	Bruno
Dominion Fire Brick & Clay Products Ltd.	Box 99, Moose Jaw	Claybank
International Clay Products Ltd.	Estevan	Estevan and Prince Albert
Malloff & Son	Yorkton	Yorkton
<u>ALBERTA</u>		
Acme Brick Co. Ltd.	10526 Jasper Ave., Edmonton	Cannell
Alberta Clay Products Co. Ltd.	Box 672, Medicine Hat	Medicine Hat
Gunderson Brick and Coal Co. Ltd.	Redcliff	Redcliff
Johansen, K.	Box 1722, Grand Prairie	Grand Prairie
Little, J. B., & Sons Ltd.	9120 - 100 Ave., Edmonton	Edmonton
Medicine Hat Brick & Tile Co. Ltd.	Medicine Hat	Medicine Hat
Redcliff Premier Brick Co. Ltd.	Redcliff	Redcliff
Redcliff Pressed Brick Co. Ltd.	(a) Redcliff	Redcliff
<u>BRITISH COLUMBIA</u>		
Baker Brick & Tile Co. Ltd.	3191 Douglas St., Victoria	Victoria
B. C. Refractories Ltd. (a) (b)	660 Taylor St., Vancouver	Williams Lake, Princeton
Clayburn Co. Ltd. (a)	850 West Hastings St., Vancouver	Kilgard
Gabriola Shale Products Ltd.	1304 Broad St., Victoria	Gabriola Island
Gorse, Percy A.	Salmon Arm	Enderby
Haug, Wm., and Son	Box 166, Kelowna	Kelowna
Port Haney Brick Co. Ltd.	846 Howe St., Vancouver	Port Haney
Vancouver Brick & Tile Co. Ltd.	Columbia Ave., Vancouver	Sullivan
Bazan Bay Brick and Tile Co. Ltd.	Bazan Bay, Sidney	Bazan Bay

(a) Includes production of refractories.

(b) Includes production of bentonite.

CANADIAN PRODUCERS OF STONWARE AND POTTERY FROM DOMESTIC CLAYS, 1935.

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>NEW BRUNSWICK</u> - Foley Pottery Ltd. (a)	Loch Lomond Road, Saint John	Saint John
<u>ONTARIO</u> - Foster Pottery Co.	Main St. W., Hamilton	Hamilton
<u>ALBERTA</u> - Medalta Potteries Ltd.	Medicine Hat	Medicine Hat
<u>BRITISH COLUMBIA</u> - Baker Brick & Tile Co. Ltd.	3191 Douglas St., Victoria	Victoria

(a) Includes production of refractories.

2. PRODUCTS FROM IMPORTED CLAYS

A number of factories in Canada manufacture ceramic products from clays which they import chiefly from England and the United States. Firebrick, refractory cements, sanitary earthenware, porcelain insulators, floor and wall tile, pottery, tableware and sewer pipe were the principal products made in these works.

In 1935 there were 20 factories in operation in this industry as compared with 19 in 1934 and output advanced 13 per cent in value to \$2,174,977 from \$1,923,218 in the previous year. Capital employed amounted to \$4,449,314 and the average number of workers was 895. Salaries and wages amounted to \$864,212, materials for manufacturing cost \$530,735 and fuel and electricity cost \$187,180.

Table 20 - PRINCIPAL STATISTICS OF THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1934 and 1935.

	1934	1935
Number of plants	19	20
Capital employed	\$ 4,161,435	4,449,314
Average number of employees	713	895
Salaries and wages	\$ 672,754	864,212
Cost of fuel and electricity	\$ 184,735	187,180
Cost of materials at works	\$ 515,465	530,735
Selling value of products at works	\$ 1,923,218	2,174,977

Table 21 - CAPITAL EMPLOYED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, BY PROVINCES, 1934 and 1935.

Provinces	Present value of land, build- ings, machinery and tools	Inventory value of materials and finished products on hand and stocks in process	Operating capital (cash, bills and accounts re- ceivable, etc.	TOTAL CAPITAL EMPLOYED
	\$	\$	\$	\$
<u>1934</u>				
Quebec	1,388,555	299,385	103,547	1,791,487
Ontario	1,533,098	466,350	370,500	2,369,948
CANADA	2,921,653	765,735	474,047	4,161,435
<u>1935</u>				
Quebec	1,280,422	266,675	149,453	1,696,550
Ontario	1,736,744	629,137	386,883	2,752,764
CANADA	3,017,166	895,812	536,336	4,449,314

Table 22 - EMPLOYEES, SALARIES AND WAGES IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, BY PROVINCES, 1934 and 1935.

Provinces	AVERAGE NUMBER OF EMPLOYEES					Salaries	Wages	TOTAL SALARIES AND WAGES
	On salaries		On wages		TOTAL			
	Male	Female	Male	Female				
						\$	\$	\$
<u>1934</u>								
Quebec	28	6	179	6	219	61,709	158,609	220,318
Ontario	46	13	364	71	494	111,617	340,819	452,436
CANADA	74	19	543	77	713	173,326	499,428	672,754
<u>1935</u>								
Quebec	29	6	152	..	187	53,834	141,142	194,976
Ontario	76	22	484	126	708	152,935	516,301	669,236
CANADA	105	28	636	126	895	206,769	657,443	864,212

Table 23 - WAGE-EARNERS, BY MONTHS, IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1934 and 1935.
(On 15th of each month or nearest representative date)

Months	1934			1935		
	Male	Female	TOTAL	Male	Female	TOTAL
January	507	69	576	595	99	694
February	497	73	570	588	108	696
March	515	73	588	598	120	718
April	500	81	581	636	120	756
May	557	82	639	637	131	768
June	529	77	606	616	121	737
July	548	84	632	642	121	763
August	594	83	677	656	126	782
September	578	89	667	674	136	810
October	580	76	656	696	138	834
November	555	72	627	665	144	809
December	555	65	620	639	158	797
AVERAGE	543	77	620	636	126	762

Table 24 - FUEL AND ELECTRICITY USED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1934 and 1935.

Kinds	Unit of measure	1934		1935	
		Quantity	Cost at works	Quantity	Cost at works
Coal, anthracite	short ton	14	216	280	1,855
Coal, bituminous - Canadian	short ton	223	1,393	259	1,696
Coal, bituminous - Imported	short ton	15,770	103,012	16,903	109,625
Coke	short ton	650	5,200	665	5,674
Gasoline	Imp. gal.	60	15	100	24
Kerosene	Imp. gal.	735	127	871	132
Fuel oil	Imp. gal.	586,932	39,930	439,415	31,994
Wood	cord	43	203	43	218
Gas - Manufactured	M cu. ft.	17	15	2,064	853
Natural	M cu. ft.	11,498	5,628	4,970	2,723
Other fuel	xxx	...	47	...	...
Electricity purchased	K. W. H.	1,135,866	28,949	2,219,763	32,386
TOTAL	xxx	...	184,735	...	187,180

Table 25 - POWER EQUIPMENT IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1934 and 1935.

	1934		1935	
	Number of units	Total rated horse power	Number of units	Total rated horse power
Steam engines	2	325	3	450
Gasoline, gas and oil engines	1	23	1	23
Total Primary Equipment	3	348	4	473
Electric motors run by purchased power	232	1,695	256	1,758
TOTAL	235	2,043	260	2,231
Electric motors run by above primary units	23	242	26	249
Total Electric Motors	255	1,937	282	2,007
Boilers	15	968	12	833

Table 26 - MATERIALS USED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1934 and 1935.

Materials	1934		1935	
	Quantity	Cost at works	Quantity	Cost at works
Feldspar, ground	1,488	30,577	1,135	21,977
Fireclay, imported	16,556	113,277	11,475	66,698
Other clay, imported	8,069	132,916	14,907	129,484
Flint	1,366	21,084	1,448	20,212
Glazing materials, other	xxx	7,243	...	10,695
Hardware for insulators	xxx	41,129	...	135,325
Containers	xxx	35,558	...	34,215
All other materials	xxx	133,681	...	112,129
TOTAL	xxx	515,465	...	530,735

Table 27 - PRODUCTS MADE IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1934 and 1935.

Products	1 9 3 4	1 9 3 5
	Selling value at works	Selling value at works
Firebrick and stove linings - Rigid	266,809	291,059
Plastic	47,936	43,256
Porcelain insulators, sanitary ware, sewer pipe, floor and wall tile, tanks, pottery, etc.	1,608,473	1,840,662
TOTAL	1,923,218	2,174,977

NOTE - Firebrick, floor tile, sewer pipe and pottery are also made in Canada from domestic clays. See Table 6.

Table 28 - TOTAL PRODUCTION IN CANADA OF RIGID FIREBRICK(x) AND FIRECLAY BLOCKS AND SHAPES 1929 - 1935.

Years	From domestic clays		From imported-clays		TOTAL
	Fireclay blocks and shapes	Firebrick	Rigid firebrick and stove linings		
	\$	M	\$	\$	\$
1929	130,411	5,196	251,043	362,360	743,814
1930	147,309	3,789	177,608	298,945	623,862
1931	83,039	2,248	107,597	280,588	471,224
1932	75,209	1,580	71,757	212,838	359,804
1933	80,625	1,547	73,226	220,484	374,335
1934	62,388	2,109	101,219	275,472	439,079
1935	71,344	1,817	90,149	314,825	476,318

(x) Includes some firebrick made in the abrasives industry.

LIST OF FIRMS INCLUDED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1935.

Names of Firms	Location of Plants	Products Made, 1935
Bell Fire Brick Co. Ltd.	1347 Dufferin St., Toronto, Ont.	Firebrick
Canada Firebrick Company Ltd.	4741 St. Ambroise St., Montreal, P. Q.	Firebrick
Canada Vitriified Products Limited	675 Talbot St., St. Thomas, Ont.	Sewer pipe; flue linings
Canadian General Electric Co. Ltd.	Peterborough, Ont.	Porcelain sockets, plugs, etc; tex- toliet parts; cord sets; high tension insulators
Canadian Ohio Brass Company Ltd.	Niagara Falls, Ont.	High tension in- sulators
Canadian Porcelain Company Ltd.	Paradise Road, Hamilton, Ont.	High tension in- sulators
Canadian Potteries Limited	St. Johns, P. Q.	Enamelled sanitary earthenware; soda fountain fixtures; bathroom accesso- ries.
Dundas Clay Products Ltd.	Dundas, Ont.	porcelain teapots, etc.
Frontenac Floor and Wall Tile Co. Ltd.	Kingston, Ont.	Floor tile; wall tile; ground feldspar.

LIST OF FIRMS INCLUDED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1935. (concluded)

<u>Names of Firms</u>	<u>Location of Plants</u>	<u>Products Made, 1935.</u>
Green, A. P., Company of Canada, Limited	40 Hanna Ave., Toronto, Ont.	Plastic firebrick; high temperature cements.
Hamilton Potteries, Limited	100 Locke St. S., Hamilton, Ont.	Insulators; firebrick; pottery; miscellaneous products
National Refractories Limited	Port Robinson, Ont.	Firebrick
Ontario Refractories Limited	Fort Erie, Ont.	Firebrick
Plibrico Jointless Firebrick Ltd.	Lake Shore Rd., New Toronto, Ont.	Plastic firebrick; high temperature cements
Robinson Clay Products of Canada Ltd.	127 Shaftesbury Ave., Toronto, Ont.	High temperature cements
Sherwood Porcelain Co. Ltd.	282 Sherman St. N., Hamilton, Ont.	Porcelain plugs and insulators
Smith Potteries, The	375 King St. W., Oshawa, Ont.	Art pottery
Standard Clay Products Ltd.	St. Johns, P. Q.	Sewer pipes; firebrick
Turner, C. B., & Co. Reg'd.	Mimico, Ont.	Boiler lining; fire- brick
Sovereign Potters Ltd.	282 Sherman St. N., Hamilton, Ont.	Earthenware tableware.

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