

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

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CLAY AND CLAY PRODUCTS, 1934.

The Clay and Clay Products Industry in Canada is classified into two distinct 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 158 plants representing a total capital investment of \$27,208,242 operating in the domestic and imported clay products industries in Canada during 1934. These two industries provided employment for 2,285 persons during the year; their earnings totalled \$1,935,731 and the combined sales in 1934 totalled \$4,603,628 as compared with \$3,467,887 in 1933.

1. PRODUCTION FROM DOMESTIC CLAYS

The value of products made from domestic clay and sold in 1934 totalled \$2,680,410 as against a value of \$2,262,835 in 1933; the 1934 value represents an increase of 18.5 per cent over that for the preceding year and is consistent with an indicated uptrend in construction. Gains over 1933 were particularly pronounced for building brick and various structural tile, shipments of the former totalling 86,072 thousand evaluated at \$1,383,929 as compared with 67,700 thousand at \$1,124,517 in the preceding year and it is especially encouraging to note that increases in total sales of building brick were recorded for each of the various provinces within the Dominion.

Of the total value of the domestic clay products production in Canada in 1934, Ontario produced 47 per cent; Quebec, 23.6 per cent; Alberta, 9.2 per cent; British Columbia, 7.3 per cent, and the other provinces, in the order of the value of sales, were Nova Scotia, Saskatchewan, New Brunswick and Manitoba.

A recent Canadian development of considerable interest is the establishment of the fact that materials exist in Canada which will serve as bleaching clays. In the final stages of the production of oils, both mineral and vegetable, it is necessary to subject the oils to a bleaching process. This is accomplished by filtering the oil through earthy materials that have the power to remove the colouring matter present. In previous years it has been necessary for the Canadian oil refining industry to import bleaching materials Some years ago the Chemistry Division of the Mines Branch, Department of Mines, Ottawa, carried on considerable work to determine the bleaching power of a variety of Canadian clays and bentonites. During the course of the investigation it was found that an acid treatment of some of the materials under investigation produced a marked increase in their bleaching power. More recently the

National Research Council of Canada, and the Department of Ceramics of the University of Saskatchewan, launched upon an intensive investigation into the possibilities of Canadian materials for bleaching purposes. This work has now progressed to a point where it may confidently be stated that from sources in Canada materials may be supplied that are equal, if not superior, to the best imported materials for the bleaching of both mineral and vegetable oils. The sources of the best materials now known are in the Western Provinces (Abstract from "Outstanding Developments in Ceramics in 1934" - Journal of Canadian Ceramics Society, 1935).

"It is hardly necessary to point out that, since clay is cheaper than oil or fat, the use of colloidal clay in soap-making is a definite economy and at the same time improves the quality of the soap. It may therefore safely claim to be regarded more as a genuine constituent than as a mere filler, still less as an adulterant under which stigma it was placed by Watt in the old days. The colloidal clay of to-day, as prepared by the best methods, is quite a different material and is not only finding increased application in toilet and other soaps, but also cosmetics and toilet preparations generally...." (The Chemical Age, London).

"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. Ball clays of high bond strength occur in extensive deposits in Southern Saskatchewan, about 60 miles south of Moose Jaw ... There is a large 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. The only place where china clay has been produced commercially in Canada is near St. Remi d'Amherst, Quebec." (Abstracted from Report #760 - Mines Branch, Department of Mines, Ottawa).

Table 1 - PRINCIPAL STATISTICS OF THE DOMESTIC CLAY PRODUCTS INDUSTRY IN CANADA, 1932, 1933 and 1934.

	1932	1933	1934
Number of firms	164	146	139
Capital employed \$	25,347,582	24,211,880	23,046,807
Number of employees - On salary	304	239	215
On wages	1,436	1,073	1,357
Total	1,740	1,312	1,572
Salaries and wages - Salaries \$	565,675	440,966	389,722
Wages \$	1,010,911	660,927	873,255
Total \$	1,576,586	1,101,893	1,262,977
Cost of fuel and electricity \$	579,803	377,321	558,732
Selling value of products \$	3,650,218	2,262,835	2,680,410

Table 2 - NUMBER OF FIRMS, CAPITAL EMPLOYED, NUMBER OF EMPLOYEES, SALARIES AND WAGES PAID, AND FUEL AND ELECTRICITY USED, BY PROVINCES, 1933 and 1934.

Province	Year	Number of firms	Capital employed \$	Number of employees	Salaries and wages paid \$	Cost of fuel and electricity \$
Nova Scotia	1933 ...	4	779,772	76	47,536	18,187
	1934 ...	4	774,050	92	67,994	35,912
New Brunswick ..	1933 ...	4	238,287	32	23,572	4,163
	1934 ...	4	255,199	53	33,046	11,252
Quebec	1933 ...	18	7,025,252	289	244,835	97,096
	1934 ...	20	7,056,468	352	286,936	144,903
Ontario	1933 ...	93	11,952,942	626	521,132	216,952
	1934 ...	85	11,589,280	731	587,748	317,826
Manitoba	1933 ...	3	206,693	10	11,511	2,013
	1934 ...	4	190,129	7	9,977	...
Saskatchewan ...	1933 ...	4	982,821	31	31,035	7,182
	1934 ...	3	311,868	34	34,821	11,402
Alberta	1933 ...	9	2,088,482	125	131,445	6,934
	1934 ...	9	1,985,871	167	142,123	10,312
British Columbia	1933 ...	11	937,631	123	90,827	24,794
	1934 ...	10	883,942	136	100,332	27,125
CANADA	1933 ...	146	24,211,880	1,312	1,101,893	377,321
	1934 ...	139	23,046,807	1,572	1,262,977	558,732

Table 3 - AVERAGE NUMBER OF WAGE-EARNERS, BY MONTHS, 1932, 1933 and 1934.

Month	1932	1933	1934
January	1,217	644	773
February	1,144	554	792
March	1,180	576	734
April	1,246	669	980
May	1,634	980	1,639
June	1,876	1,274	1,978
July	1,766	1,571	1,991
August	1,764	1,611	2,038
September	1,684	1,604	1,713
October	1,586	1,242	1,463
November	1,057	1,083	1,038
December	806	780	833

Table 4 - FUEL AND ELECTRICITY USED, 1933 and 1934.

Kinds	Unit of measure	1 9 3 3		1 9 3 4	
		Quantity	Cost at works \$	Quantity	Cost at works \$
Bituminous coal - Canadian	short ton	6,887	39,891	10,706	60,073
Imported	short ton	33,943	200,269	49,791	317,697
Anthracite coal (for fuel only)	short ton	...	...	66	626
Lignite coal - Canadian	short ton	271	1,068	547	2,302
Coke	short ton	115	1,099	357	3,010
Gasoline (exclusive of vehicle fuel) imp. gal.	imp. gal.	19,424	4,451	25,735	5,723
Kerosene or coal oil	imp. gal.	130	27	650	106
Fuel oil	imp. gal.	12,622	1,320	16,116	1,990
Wood	cord	14,408	52,529	19,212	71,075
Gas - (a) Manufactured	M cu.ft.	...	...	212	997
(b) Natural	M cu.ft.	173,485	11,232	412,024	8,792
Electricity purchased	K.W.H.	3,749,105	65,435	4,679,491	86,284
Other fuel	xxx	...	...	...	57
TOTAL	xxx	...	377,321	...	558,732

Table 5 - POWER EQUIPMENT INCLUDING STAND-BY, 1934.

Description	1 9 3 4	
	Number of units	Total horse power
Steam engines and steam turbines	72	5,847
Diesel engines	3	232
Gasoline, gas and oil engines, other than diesel	46	1,081
Hydraulic turbines or water wheels .....	...	...
Electric motors -		
Operated by purchased power	523	18,010
Operated by power generated by establishment	22	768
Boilers	81	7,466

Table 6 - PRODUCTION (SALES) OF DOMESTIC CLAY AND CLAY PRODUCTS IN CANADA, 1933 and 1934.

Products	Unit of measure	SALES OR SHIPMENTS			
		1 9 3 3 Quantity	\$	1 9 3 4 Quantity	\$
Clay - Bentonite	tons	55	1,363	63	1,578
Fireclay	tons	1,421	11,273	1,043	12,598
Kaolin (china clay)	tons	...	...	48	504
Fireclay blocks and shapes	xx	...	80,625	...	62,388
Firebrick	M	1,547	73,226	2,109	101,219
Brick -					
Soft mud process - Face	M	2,482	41,737	4,904	76,247
Common	M	12,389	156,769	14,256	183,585
Stiff mud process - Face	M	19,602	412,367	23,800	494,341
(wire cut) Common	M	23,894	356,498	30,317	424,131
Dry press - Face	M	4,544	101,252	6,005	130,392
Common	M	3,916	44,377	6,440	66,616
Fancy or ornamental brick (including special shapes, embossed and enameled brick)	M	630	7,824	43	2,625
Sewer brick	M	243	3,693	307	5,992
Paving brick	M	1	42	10	382

Table 6 - PRODUCTION (SALES) OF DOMESTIC CLAY AND CLAY PRODUCTS IN CANADA, 1933 and 1934 (concluded)

Products	Unit of measure	SALES OR SHIPMENTS							
		1	9	3	3	1	9	3	4
		Quantity				Quantity			
Structural tile -									
Hollow blocks (including fireproofing, and load-bearing tile)	tons	26,747			160,059	31,136			244,122
Roofing tile	No.	20,469			1,136	44,115			1,852
Floor tile (quarries)	sq.ft.	91,495			14,297	80,356			17,491
Drain tile	M	10,057			222,829	7,325			180,553
Sewer pipe (including copings, flue linings, etc.)	xx	...			354,458	...			436,433
Pottery, glazed or unglazed (including coarse earthenware, stoneware, and all other pottery)	xx	...			202,500	...			223,733
Other products	xx	...			16,510	...			13,628
TOTAL	xx	...			2,262,835	...			2,680,410

Table 7 - PRODUCTION (SALES) OF CLAY PRODUCTS IN CANADA FROM DOMESTIC CLAYS - DOMINION TOTALS, 1924 to 1929, and BY PROVINCES, 1930 - 1934.

		Value	
		\$	
CANADA - 1924	.....	9,215,077	
1925	.....	9,529,691	
1926	.....	10,357,323	
1927	.....	11,173,189	
1928	.....	12,381,718	
1929	.....	13,904,643	

Province	1930	1931	1932	1933	1934
	\$	\$	\$	\$	\$
Nova Scotia	495,333	467,126	172,557	125,500	157,158
New Brunswick	162,536	143,348	68,151	46,917	59,897
Quebec	2,464,044	2,360,908	1,064,551	580,088	632,322
Ontario	5,221,214	3,552,800	1,639,508	1,024,579	1,261,006
Manitoba	215,967	122,628	49,773	20,966	37,916
Saskatchewan	349,283	166,257	109,739	92,207	90,997
Alberta	997,685	529,716	329,584	198,373	246,677
British Columbia	687,516	498,505	216,355	174,205	194,437
CANADA	10,593,578	7,841,288	3,650,218	2,262,835	2,680,410

Table 8 - PRODUCTION (SALES) OF BUILDING BRICK(a) IN CANADA - DOMINION TOTALS, 1924-1931, and BY PROVINCES, 1932, 1933 and 1934.

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

Table 8 - PRODUCTION (SALES) OF BUILDING BRICK(a) IN CANADA - DOMINION TOTALS 1924-1931, and BY PROVINCES, 1932, 1933 and 1934 (concluded)

Province	1 9 3 2		1 9 3 3		1 9 3 4	
	M	\$	M	\$	M	\$
Nova Scotia	3,276	46,748	2,633	36,859	3,780	50,387
New Brunswick	2,276	39,757	1,207	20,640	1,908	28,484
Quebec	41,969	767,041	26,559	452,501	29,231	461,000
Ontario	42,235	784,028	29,323	518,700	39,846	713,953
Manitoba	2,073	32,499	1,161	17,718	2,144	33,563
Saskatchewan	1,001	12,450	121	2,152	265	4,176
Alberta	4,999	52,947	3,957	34,634	5,910	49,552
British Columbia	2,648	43,864	2,739	41,313	2,988	42,814
CANADA	100,477	1,779,334	67,700	1,124,517	86,072	1,383,929

(a) Includes fancy and sewer brick.

Table 9 - VALUE(x) OF DRAIN TILE AND SEWER PIPE PRODUCED (SALES) IN CANADA, BY PROVINCES 1929, 1932, 1933 and 1934.

Province	1929	1932	1933	1934
	\$	\$	\$	\$
Nova Scotia	230,412	95,044	70,756	94,903
New Brunswick .....	...	120	64	142
Quebec	175,615	104,175	61,310	63,143
Ontario	1,796,785	601,375	364,063	363,704
Manitoba	15,565	5,309	2,716	2,412
Saskatchewan	1,000	...	...	...
Alberta	343,665	114,132	37,042	49,907
British Columbia	163,161	79,739	41,336	42,775
CANADA	2,726,203	999,894	577,287	616,986

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

Table 10 - PRODUCTION OF FIRECLAY, FIRECLAY BLOCKS AND SHAPES AND FIREBRICK(x) IN CANADA, 1929-1934.

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

(x) See also Table 26.

Table 11 - PRODUCTION OF POTTERY(x) FROM DOMESTIC CLAYS IN CANADA, 1929 - 1934.

Year	Value
	\$
1929	323,194
1930	294,866
1931	257,125
1932	244,861
1933	202,500
1934	223,733

(x) See also Table 27.

Table 12 - PRODUCTION OF STRUCTURAL TILE IN CANADA, 1929 - 1934.

Year	HOLLOW BLOCKS(x)		ROOFING TILE		FLOOR TILE (QUARRIES)	
	Tons	\$	No.	\$	Sq.ft.	\$
1929	221,800	2,214,384	35,075	4,628	507,400	70,186
1930	165,359	1,667,783	3,056	356	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	1,136	91,495	14,297
1934	31,136	244,122	44,115	1,852	80,356	17,491

(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 - 1934.

Year	Petroleum Products Industry		Soaps and Washing Compounds	
	Pounds (x)	\$	Pounds	\$
1930	20,102,387	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

(x) Includes all clay.

Table 14 - CLAY USED IN THE MANUFACTURE OF PAPER IN CANADA, 1930 - 1934.

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

In 1933 the Canadian rubber industry consumed 1,391 tons of clays and earths valued at \$32,361 and it is interesting to note that refractories, including brick, fireclay, etc., purchased in 1934 by operators engaged in the mining, smelting and refining in Canada of non-ferrous ores were evaluated at \$816,140.

Table 15 - CONSTRUCTION CONTRACTS AWARDED IN CANADA(x) 1929 - 1934.

Type	1929	1930	1931	1932	1933	1934
	\$	\$	\$	\$	\$	\$
Residential ..	128,901,300	93,291,500	81,684,300	28,892,600	23,929,800	30,588,100
Business	190,161,700	151,103,700	81,174,300	39,399,200	26,276,500	37,480,300
Industrial ...	62,968,800	31,520,000	14,816,000	7,820,400	9,101,900	8,037,900
Engineering ..	194,620,000	181,084,400	137,807,400	56,760,200	37,981,600	49,705,200
TOTAL	576,651,800	456,999,600	315,482,000	132,872,400	97,289,800	125,811,500

(x) Compiled by MacLean Building Reports Ltd.

Table 16 - WORLD'S PRODUCTION OF CHINA CLAY, 1932, 1933 and 1934.
(Taken from the Imperial Institute's publication "The Mineral Industry of the British
Empire and Foreign Countries, 1932-1934")
(Long tons)

Producing Country and Description	1 9 3 2	1 9 3 3	1 9 3 4
<u>BRITISH EMPIRE</u>			
United Kingdom	508,850	598,609	690,129
Union of South Africa .....	...	...	369
Canada .....	...	...	43
India	13,486	21,935	20,562
Unfederated Malay States	186	36	143
Australia	5,110	8,477	8,786
<u>FOREIGN COUNTRIES</u>			
Belgium (e)	9,566	13,651	(a)
Bulgaria	2,791	2,617	(a)
Czechoslovakia (estimated)	350,000	350,000	350,000
Denmark - Crude	29,300	34,300	42,400
Washed and pressed	8,500	8,600	11,200
Dried	800	700	700
France	98,800	(a)	(a)
Germany -			
Bavaria	373,720	467,455	677,287
Prussia	8,352	11,961	61,793
Saxony - Crude	106,706	42,002	35,940
Washed	27,640	32,904	43,054
Sand	(a)	(a)	10,114
Italy - Crude	30,203	20,873	(a)
Washed and ground (c)	8,206	4,009	(a)
Kaolinic earth	800	1,600	(a)
Portugal	6,763	9,416	11,644
Roumania (d)	8,128	10,212	(a)
Spain (g)	1,152	1,545	(a)
Sweden	1,389	1,878	(a)
Algeria	1,800	(a)	(a)
United States (f)	308,030	367,172	(a)
Japan (estimated)	400,000	400,000	400,000
Korea	11,821	24,536	(a)
Netherlands East Indies	120	229	(a)

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

(a) Information not available.

(c) Derived from crude and stocks.

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

(e) "Eurite" and kaolin.

(f) Sales of china clay and paper clay.

(g) 3,940 cubic metres of kaolinic sand were also produced in quarries during 1932.

Table 17 - IMPORTS INTO CANADA AND EXPORTS OF CLAY AND CLAY PRODUCTS, 1933 and 1934.

		1	9	3	3	1	9	3	4
		Quantity		\$		Quantity		\$	
IMPORTS -									
Building brick	ton	476		3,975		1,514		16,673	
Building blocks	xx	...		2,682		...		1,794	
Clays - China	cwt.	509,068		210,067		654,999		250,705	
Fire	cwt.	593,894		101,916		909,972		139,317	
Pipe	xx	...		1,222		...		77	
Other clays, n.o.p.	xx	...		192,401		...		196,294	
Zirconium silicate	xx	...		687		...		2,029	
Zirconium oxide	xx	...		6,751		...		7,827	
Drain tile, unglazed	xx	...		231		...		251	
Drain, sewer pipe and earthenware fittings therefor, chimney linings or vents, chimney tops or inverted blocks, glazed or unglazed	xx	...		10,294		...		9,799	
Tiles or blocks of earthenware or stone prepared for mosaic flooring	xx	...		17,943		...		39,778	
Tiles, earthenware, for roofing purposes ..	xx	...		5,360		...		2,172	
Tiles, earthenware, n.o.p.	xx	...		84,234		...		92,835	
Insulators, electric, porcelain	xx	...		55,960		...		62,510	
Pottery and chinaware	xx	...		2,858,562		...		3,054,124	
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.	xx	...		68,725		...		86,039	
Brick, fire, n.o.p., for use exclusively in the construction or repair of a furnace, kiln, or other equipment of a manufacturing establishment	xx	...		379,952		...		667,471	
Firebrick, n.o.p.	xx	...		34,489		...		47,517	
Firebrick, chrome	xx	...		38,431		...		39,184	
Magnesite brick	xx	...		246,855		...		396,664	
Silica brick (containing not less than 90 per cent silica)	xx	...		147,901		...		210,190	
Paving brick	ton	797		4,866		1,775		12,035	
Artificial teeth, not mounted	xx	...		285,274		...		276,594	
Baths, bathtubs, basins, laundry tubs, etc., of earthenware, cement or clay, n.o.p.	xx	...		114,057		...		115,355	
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 (From December 2, 1933)	xx	...		1,539		...		109,915	
Crucibles, clay or sand	xx	...		36,703		...		42,142	
Other manufactures of clay	xx	...		50,188		...		56,514	
TOTAL	xx	...		4,961,265		...		5,935,805	
EXPORTS -									
Building brick	M	383		6,789		549		10,287	
Clay - Unmanufactured	Cwt.	9,769		1,522		7,619		1,668	
Manufactured	xx	...		11,016		...		14,900	
Earthenware	xx	...		26,965		...		33,762	
Porcelain insulators	xx	...		95,260		...		125,742	
TOTAL	xx	...		141,552		...		186,359	

LIST OF OPERATORS SHIPPING BRICK, TILE AND SEWER PIPE MADE FROM DOMESTIC CLAYS,
1934.

<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
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>		
Little River Brick Co. Ltd.	Little River	Little River
Ryan, M., & Son, Ltd.	Fredericton	Fredericton
Shaw, L.E., Ltd.	137 Lower Water St., Halifax	Chipman
<u>QUEBEC -</u>		
Ascot Tile & Brick Co. Ltd.	Ascot Corner	Richmond Co.
Begin, Olivier	St. Sauveur de Quebec	R.R.1, St.Sauveur de Quebec.
Bourbeau, Georges, & Fils	R. R. 1, Danville	Kingsey Falls
Brunelle, L. H.	Box 273, Victoriaville	Ste. Victoire
Canadian Kaolin Silica Products	660 St. Catherine St. W., Montreal	St. Remi d'Amherst
Champlain Brick Ltd.	56 Laliberte St., Quebec	Beauport East
Chicoutimi Brick Ltd.	Chicoutimi	Chicoutimi
Citadel Brick Ltd.	14 St. Joseph St., Quebec	L'Islet Station, Boischatel and Lauzon.
Duquette, Isidore	Box 626, East Angus	Westbury Tp.
Hodgins, David T.	Box 114, Shawville	Clarendon Tp.
LaPrairie Co. Inc.	660 St. Catherine St. W., Montreal	Laprairie and Delson
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 Co. Ltd.	15 St. Joseph St., Quebec	Dorchester Co.
Standard Clay Products Ltd.	Box 189, 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>		
Barnhardt, W. H.	Stratford	Stratford
Brampton Pressed Brick Co. Ltd.	Brampton	Chingaucousy Tp.
Broadwell, B., & Son	Kingsville	Essex Co.
Campbell, N. F., & Son	West Lorne	Elgin Co.
Canadian Pressed Brick Co. Ltd.	195 Ottawa St. S., Hamilton	Hamilton
Casemore, R., & Son	Shallow Lake	Shallow Lake
Chapman Bros.	145 Dawes Rd., Toronto	East York Tp.
Construction Materials Ltd.	New Toronto	York Co.
Cooksville Co. Ltd.	120 St. James St. W., Montreal, P.Q.	Cooksville
Coultis, George, & Son	Thedford	Lambton Co.
Cowell, Geo. W.	Box 361, Tillsonburg	Oxford Co.
Crang, Booth Ltd.	New Toronto	N. York
Curtin, F., Estate	R. R. 4, Lindsay	Victoria Co.
Curtis Bros.	Box 809, Peterboro	Otonabee and Douro Tns.

LIST OF OPERATORS SHIPPING BRICK, TILE AND SEWER PIPE MADE FROM DOMESTIC CLAYS, 1934.
(continued)

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>ONTARIO - continued</u>		
Deller, Albert, & Son	Brownsville	Oxford Co.
Deller Bros.	R. R. 2, Norwich	Oxford Co.
Deller, Wm. H.	R. R. 4, Thorndale	W. Nissouri Tp.
Denison Tile Co. Ltd.	Windsor	Fletcher, Tilbury East Tp., Rochester Tp.
Dochart Brick, Tile & Terra Cotta Works	Arnprior	Arnprior
Dolan, John, & Sons	R. R. 2, Watford	Lambton Co.
Douglas & Douglas	Wilkesport	Lambton Co.
Dover Brick & Tile Works	Chatham	Dover Tp.
Donaldson, Thos. Geo.	R. R. 1, Greenock	Culross Tp.
Elliott, Chas.	Bluevale	Turnberry Tp.
Elliott, James, Jr.	Sault Ste. Marie	Korah Tp.
Elliott, Wm.	Glenannon	Bruce Co.
Fort William Brick Co.	Fort William	Fort William
Frid Bros. Ltd.	Main W. and Macklin Sts., Hamilton	Hamilton
Gardiner, Wm.	Box 83, Blenheim	Kent Co.
Godfrey, Thos., & Co.	Carleton Place	Beckwith Tp.
Gomall Brick and Tile Works	Powassan	Himsworth Tp.
Grimsby Brick & Tile Ltd.	Grimsby	Grimsby
Hamilton Pressed Brick Co. Ltd.	Kensington Ave. S., Hamilton	Wentworth Co.
Harper Brick Works	348 Greenwood Ave., Toronto	York Co.
Hill, A. W.	R. R. 1, Coatsworth	Tilbury E. Tp.
Hitch, D. A.	Ridgetown	Ridgetown
Hitch, Thomas	Box 254, St. Thomas	Elgin Co.
Hodder, Mrs. J. H., & Sons	Dutton	Dunwich
Howlett, Fred W., & Sons, Ltd.	Box 3, Petrolia	Petrolia and Brigden
Huntsville Brick Works	Box 308, Huntsville	Muskoka
Interprovincial Brick Co. Ltd.	120 St. James St.W., Montreal, P.Q.	Chinquacoucy Tp., Nassagaweya Tp.
Jamieson Lime Co.	Renfrew	Renfrew
Janes, D. A.	Mt. Brydges	Caradoc Tp.
Jasperson Brick & Tile Co.	Kingsville	Coatsworth
Jervis, W. J.	R. R. 3, Dorchester	N. Dorchester
Johnson, James, Estate	R. R. 3, 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 Tp.
McFarlane, W. J.	Forest	Forest
Milton Brick Ltd.	1158 Bay St., Toronto	Milton and Streetsville
Moulton, John	R. R. 2, Holyrood	Bruce Co.
Napanee Brick & Tile Works	R. R. 3, Napanee	N. Fredericksburg Tp.
National Fire Proofing Co. of of Canada, Ltd.	211 Dominion Bank Bldg., Toronto, 2	Aldershot
National Sewer Pipe Co. Ltd.	Aldershot	Hamilton, Swansea, E. Flamboro Tp.

LIST OF OPERATORS SHIPPING BRICK, TILE AND SEWER PIPE MADE FROM DOMESTIC CLAYS, 1934.
(continued)

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>ONTARIO - concluded</u>		
New Liskeard Brick Works	Box 74, New Liskeard	New Liskeard
Ontario Brick & Tile Plant (Government)	Provincial Secretary, Parliament Bldg., Toronto	Mimico
O'Reilly, Thos.	320 Bay St., Ottawa	Prescott Highway
Ott Bricks & 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, H.W., Estate	R. R. 2, Dresden	Camden Tp.
Paxton, Fred R.	70 Herrick Ave., St. Catharines	St. Catharines
Phinn, Geo. A.	St. James Park P.O., London	Middlesex Co.
Phippen, H. W., & Son	Dawes Rd., Toronto	East York
Port Rowan Brick & Tile Co.	Port Rowan	Port Rowan
Richardson, J., & Son	Kerwood	Kerwood
Rollins, D. W.	Belleville	Thurlow Tp.
Snelgrove, A.	Beaverton	Ontario Co.
Sproat and Sproat	R. R. 4, Seaforth	Tuckersmith Tp.
Standard Brick Co. Ltd.	500, Greenwood Ave., Toronto	Toronto
Sun Brick & Tile Co. Ltd.	1104 Bay St., Toronto	Don Valley
Superior Brick & Tile Co. Ltd.	426 Victoria Ave., Fort William	Paipponge Tp.
Thompson, Ralph	Henfryn	Huron Co.
Tope, Richard, Brick Works	677 Main St. W., Hamilton	Hamilton
Toronto Brick Co. Ltd.	897 Bay St., Toronto	Milton, Toronto, York Tp.
Wagstaff, Chas.	R. R. 4, Lindsay	Lindsay
Wallace, R., & Son	Toronto General Trust Corp., 253 Bay St., Toronto	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>		
Dominion Fire Brick & Clay Products Ltd.(a)	Moose Jaw	Claybank
International Clay Products Ltd.(a)	Box 399, Estevan	Estevan and Prince Albert
Shand Coal & Brick Co.	Shand	Shand
<u>ALBERTA -</u>		
Acme Brick Co. Ltd.	125 Alberta Block, Edmonton	Cannell Siding
Alberta Clay Products Co.Ltd.(a)	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.	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

LIST OF OPERATORS SHIPPING BRICK, TILE AND SEWER PIPE MADE FROM DOMESTIC CLAYS, 1934.
(concluded)

<u>Name of Firm</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<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
Christian Community of U.B. Ltd.	Brilliant	Grand Forks
Clayburn Co. Ltd. (a)	850 West Hastings St., Vancouver	Kilgard
Gabriola Shale Products Ltd.	1304 Broad St., Victoria	Gabriola Island
Glover, Frank (b)	Princeton	Princeton
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.	2521 Maple St., Vancouver	Sullivan

CANADIAN PRODUCERS OF STONEWARE AND POTTERY FROM DOMESTIC CLAYS, 1934.

<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
London Pottery Mfg. Co.	95 Rectory St., London	London
<u>ALBERTA -</u>		
Medalta Potteries Ltd.	Medicine Hat	Medicine Hat
<u>BRITISH COLUMBIA -</u>		
B. C. Clay Products Co.	3439 Euclid Ave., Vancouver	Vancouver

(a) Includes production of refractories.

(b) Includes production of bentonite.

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. Refractories, sanitary earthenware, porcelain insulators, floor and wall tile and pottery are the principal commodities made in these works. The refractories include rigid fire brick stove linings, special shapes, plastic firebrick and high-temperature cements; sanitary earthenware includes bathtubs, water closets, etc.; and pottery includes Rockinghamware such as teapots, bowls, etc., and art pottery such as lampstands, small vases and novelties. A new plant at Hamilton, Ont., started to make porcelain tableware towards the end of 1934 but no report was submitted by this company for the period in which they were in operation.

In 1934 there were 19 factories in operation in this industry as compared with 18 in 1933 and output advanced 59 per cent to \$1,923,218 from \$1,205,052 in the previous year. Capital employed was about the same at \$4,161,435 but the number of workers increased to 713 from 536 and salaries and wages rose correspondingly to \$672,754 from \$471,742. Materials for manufacturing cost \$515,465 in 1934 as against \$288,379 in 1933.

Table 18 - PRINCIPAL STATISTICS OF THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1933 and 1934.

Years	No. of plants	Capital employed	Average number of employees	Salaries and wages	Cost of materials at works	Selling value of products at works	Value added by manufacturing
		\$		\$	\$	\$	\$
1929	15	3,472,052	872	1,112,881	992,150	3,373,038	2,380,888
1930	15	4,099,965	841	1,052,286	834,181	2,978,143	2,143,962
1931	14	4,320,382	832	958,900	695,706	2,455,738	1,760,032
1932	16	4,207,767	715	707,269	406,441	1,590,411	1,183,970
1933	18	4,220,768	536	471,742	288,379	1,205,052	916,673
1934 -							
Quebec ..	4	1,791,487	219	220,318	111,355	611,509	500,154
Ontario .	15	2,369,948	494	452,436	404,110	1,311,709	907,599
CANADA.	19	4,161,435	713	672,754	515,465	1,923,218	1,407,753

Table 19 - CAPITAL EMPLOYED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, BY CLASSES AND BY PROVINCES, 1933 and 1934.

Provinces	Present value of lands, buildings, fixtures, machinery and tools and other equipment	Inventory value of materials on hand, stocks in process, fuel and miscellaneous supplies on hand	Inventory value of finished products on hand	Operating capital (cash, bills and accounts receivable, prepaid expenses, etc.)	TOTAL CAPITAL EMPLOYED
	\$	\$	\$	\$	\$
1933					
Quebec	1,443,722	115,079	107,187	191,068	1,857,056
Ontario	1,538,559	210,811	251,216	363,126	2,363,712
CANADA ...	2,982,281	325,890	358,403	554,194	4,220,768
1934					
Quebec	1,388,555	87,163	212,222	103,547	1,791,487
Ontario	1,533,098	199,258	267,092	370,500	2,369,948
CANADA ...	2,921,653	286,421	479,314	474,047	4,161,435

Table 20 - EMPLOYEES, SALARIES AND WAGES IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, BY PROVINCES, 1933 and 1934.

PROVINCES, 1933 and 1934.

Provinces	AVERAGE NUMBER OF EMPLOYEES					Salaries	Wages	TOTAL SALARIES AND WAGES
	On salaries		On wages		TOTAL			
	Male	Female	Male	Female				
						\$	\$	\$
1933								
Quebec	24	3	136	3	166	63,420	110,225	173,645
Ontario	42	10	251	67	370	94,389	203,708	298,097
CANADA	66	13	387	70	536	157,809	313,933	471,742
1934								
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

Table 21 - WAGE-EARNERS, BY MONTHS, IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1933 and 1934. (On 15th of each month or nearest representative date)

Months	1933			1934		
	Male	Female	TOTAL	Male	Female	TOTAL
January	308	67	375	507	69	576
February	269	57	326	497	73	570
March	295	66	361	515	73	588
April	315	60	375	500	81	581
May	374	59	433	557	82	639
June	387	67	454	529	77	606
July	416	69	485	548	84	632
August	418	69	487	594	83	677
September	462	81	543	578	89	667
October	456	78	534	580	76	656
November	463	80	543	555	72	627
December	489	77	566	555	65	620
AVERAGE	387	70	457	543	77	620

Table 22 - FUEL AND ELECTRICITY USED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1933 and 1934.

Kinds	Unit of measure	1933		1934	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Coal, anthracite	short ton	15	218	14	216
Coal, bituminous - Canadian ...	short ton	401	2,452	223	1,393
Coal, bituminous - Imported ...	short ton	9,529	62,052	15,770	103,012
Coke	short ton	643	4,830	650	5,200
Gasoline	Imp. gal.	100	24	60	15
Kerosene	Imp. gal.	580	105	735	127
Fuel oil	Imp. gal.	302,907	19,277	586,932	39,930
Wood	cord	39	270	43	203
Gas - Manufactured	M cu.ft.	...	...	17	15
Natural	M cu.ft.	2,199	1,201	11,498	5,628
Other fuel	xxx	...	16	...	47
Electricity purchased	K.W.H.	1,175,176	20,699	1,135,866	28,949
TOTAL	xx	...	111,144	...	184,735

Table 23 - POWER EQUIPMENT IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1933 and 1934.

	1	9	3	3	1	9	3	4
	Number of		Total rated		Number of		Total rated	
	units		horse power		units		horse power	
Steam engines	3		465		2		325	
Gasoline, gas and oil engines	1		4		1		23	
Total Primary Equipment	4		469		3		348	
Electric motors run by purchased power ...	159		1,087		232		1,695	
TOTAL	163		1,556		235		2,043	
Electric motors run by above primary units	23		242		23		242	
Total Electric Motors	186		1,798		255		1,937	
Boilers	14		863		15		968	

Table 24 - MATERIALS USED IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1933 and 1934.

	1	9	3	3	1	9	3	4
	Quantity		Cost at		Quantity		Cost at	
			works				works	
			\$				\$	
Feldspar	ton	861	16,297		4,847	50,191		
Fireclay, imported	ton	11,834	74,530		16,556	113,277		
Other clay, imported	ton	4,367	82,890		8,069	132,916		
Flint	ton	752	10,457		1,366	21,084		
Glazing materials, other	xx	...	4,472		...	7,243		
Hardware for insulators	xx	...	38,109		...	41,129		
Containers	xx	...	20,410		...	35,558		
All other materials	xx	...	41,214		...	114,067		
TOTAL	xx	...	288,379		...	515,465		

Table 25 - PRODUCTS MADE IN THE IMPORTED-CLAY PRODUCTS INDUSTRY, 1933 and 1934.

	1	9	3	3	1	9	3	4
	Selling value		Selling value		Selling value		Selling value	
	at works		at works		at works		at works	
			\$				\$	
Firebrick and stove linings - Rigid			220,484			266,809		
Plastic			19,215			47,936		
Porcelain insulators, sanitary ware, sewer pipe, floor and wall tile, tanks, pottery, etc.			965,353			1,608,473		
TOTAL			1,205,052			1,923,218		

NOTE - Firebrick, floor tile, sewer pipe and pottery are also made in Canada from domestic clays. See Tables 26 and 27.

Table 26 - TOTAL PRODUCTION IN CANADA OF RIGID FIREBRICK AND FIRECLAY BLOCKS AND SHAPES, 1929 - 1934.

	From domestic clays		From imported-clays		
	Fireclay blocks		Rigid firebrick and		TOTAL
	and shapes		stove linings		
Years	\$	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	266,809	430,416

Table 27 - TOTAL PRODUCTION OF POTTERY(x) IN CANADA, 1929 - 1934.

Years	From domestic clay	From imported-clay	TOTAL
	\$	\$	\$
1929	323,194	69,140	392,334
1930	294,866	41,800	336,666
1931	257,125	43,014	300,139
1932	244,861	8,365	253,226
1933	202,500	6,446	208,946
1934	223,733	4,268	228,001

(x) Includes flower pots, stoneware, Rockinghamware, and artware, but not china sanitaryware.

LIST OF FIRMS WHICH MADE PRODUCTS FROM IMPORTED-CLAYS, 1934.

<u>Names of Firms</u>	<u>Location of Plants</u>	<u>Products Made</u>
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.
Canadian General Electric Co. Limited	Peterborough, Ont.	Porcelain sockets, plugs, etc.; textile parts; cord sets; insulators.
Canadian Ohio Brass Company Limited	Niagara Falls, Ont.	High tension insulators.
Canadian Porcelain Company Limited	Paradise Road, Hamilton, Ont.	High tension insulators.
Canadian Potteries Limited	St. Johns, P.Q.	Enamelled sanitary-earthenware; soda fountain fixtures; bathroom accessories.
Dominion Sanitary Pottery Co. Limited	St. Johns, P.Q.	Enamelled sanitary-earthenware; soda fountain fixtures.
Frontenac Floor and Wall Tile Co. Limited	Kingston, Ont.	Floor tile; wall tile; ground field-spar.
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.
Robinson Clay Products of Can. Ltd.	127 Shaftesbury Ave., Toronto, Ont.	High temperature cements.
Smith & Stone, Ltd.	Georgetown, Ont.	Porcelain sockets, plugs, etc.; insulators.
Smith Potteries, The	373 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; firebrick.

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