

26-220
C.1
Historical File Copy

Published by Authority of the Hon. James A. MacKINNON, M.P.,
Minister of Trade and Commerce.

LIBRARY OF THE
STATISTICS
SEP 22 1940
PROPERTY OF THE
LIBRARY

CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

CENSUS OF INDUSTRY

MINING, METALLURGICAL & CHEMICAL BRANCH

Report

on

THE MISCELLANEOUS NON-METALLIC MINERALS

IN CANADA, 1939

including

Barytes
Diamonds
Diatomite
Fluorspar
Garnet
Graphite
Grindstones
Kyanite
Lithium Minerals
Magnesitic Dolomite

Magnesium Sulphate
Natural Mineral Waters
Peat
Phosphate
Silica Brick
Sodium Carbonate
Sodium Sulphate
Strontium Minerals
Sulphur (Pyrites)



OTTAWA
1940

Price 25 cents

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

Dominion Statistician: R. H. Coats, LL.D., F.R.S.C., F.S.S. (Hon.)
Chief - Mining, Metallurgical and Chemical Branch: W. H. Loebe, B.Sc.
Mining Statistician: R. J. McDowell, B.Sc.

MISCELLANEOUS INDUSTRIAL OR NON-METALLIC MINERALS IN CANADA, 1939.

Canadian operators producing certain industrial minerals, and who are usually relatively few in number, have been segregated for statistical purposes into a single group designated as the Miscellaneous Non-Metal Mining Industry. Minerals or primary mineral products produced (or deposits developed) by this industry during 1939 included: barytes, diatomite, fluorepar, garnets, graphite, grindstones, lithium minerals, magnesitic-dolomite (crude and refined), magnesium sulphate, mineral waters, phosphate, silica brick, sodium carbonate, and sodium sulphate. For convenience, the sulphur content of pyrites shipped, sulphur recovered from smelter gas, and peat are recorded with the various miscellaneous minerals listed above; the value of sulphur production, however, is not included in the total for the miscellaneous non-metallic or industrial minerals as the value of this element is credited to the copper-gold-silver mining and non-ferrous smelting industries.

The number of firms reported as active in the industry during 1939 was 46; capital employed totalled \$3,128,035; employees numbered 465 and salaries and wages paid amounted to \$539,143. The cost of fuel, purchased electricity and process supplies used during the year was reported at \$394,357 and the gross value of production totalled \$1,358,922 compared with \$1,188,322 in 1938.

BARYTES - Barytes was mined and shipped by two Canadian operators in 1939. The value of mine shipments totalled \$3,639. The mineral was obtained from a deposit located in Lawson township in the Elk Lake district, Ontario, and from the property of Canada Baryte Mines, Ltd., Langmuir township, Porcupine area, northern Ontario. Shipments from Lawson township represented crude material, while those made by Canada Baryte Mines Ltd. included both crude and milled grades.

Barite production in Canada during past years came largely from deposits in Nova Scotia, Quebec and Ontario and in recent years more particularly from deposits in the Lake Ainslie district, Nova Scotia. Prior to 1939 the last commercial shipments from Canadian deposits were made in 1933 in which year 20 tons valued at \$60 were produced and shipped at the Tionaga mine, Penhorwood township, Ontario. The mineral also occurs in British Columbia. Renewed interest in the deposits of the Lake Ainslie district was exhibited in 1939 and plans were reported for re-opening the old mines.

Ground barite is used as a heavy, white, inert filler in many products, such as paint, paper, rubber, oilcloth, linoleum, plastics, resins, and cloth. It is also used in the manufacture of glass and as a heavy medium in mud in the drilling of deep oil wells where high gas pressures are encountered. The most important single chemical product made from barite is lithopone, an intimate mixture of zinc sulphide and barium sulphate prepared by co-precipitation by double decomposition of solutions of barium sulphide and zinc sulphate; its chief use is as a white pigment.

Germany is the largest world producer of barite and consumption of the mineral in that country has increased during recent years owing to the demand for barite and its derivatives in the manufacture of paints, pigments, ceramics, explosives, rubber goods, etc. The German use of barite in pigments has expanded recently on account of official requirements for mixing barite with red lead in order to extend the supplies of red lead. The United States and Great Britain are also large producers of barite.

Production of barite in Canada from 1885 to 1933, inclusive, totalled 41,027 short tons valued at \$300,610.

Table 1 - PRODUCTION OF BARYTES IN CANADA, 1913 - 1939.

Year	Short tons	\$	Year	Short tons	\$
1913	641	5,410	1924	151	3,308
1914	612	6,169	1925	95	2,259
1915	550	6,875	1926	100	2,307
1916	1,368	19,393	1927	56	1,268
1917	3,490	54,027	1928	127	2,847
1918	640	10,165	1929	105	2,341
1919	468	8,154	1930	66	1,484
1920	751	22,983	1931	16	363
1921	270	9,567	1932 .....	...	...
1922	289	9,537	1933	20	60
1923	409	8,548	1939	(a)	3,639

(a) Data not available for publication.

During 1918 the only barytes deposits worked in Canada were located at Lake Ainslie, Inverness County, Nova Scotia and in Langmuir township Ontario; commercial shipments were made from both properties in 1918. The Department of Mines of Nova Scotia reported in 1939 that work was carried on on barite deposits located at East Lake Ainslie but no shipments were reported.

Table 2 - BARITE AND BLANC FIXE USED BY THE CANADIAN PAINTS, PIGMENTS AND VARNISHES INDUSTRY IN CANADA, 1931 - 1938.

Year	BARITE		BLANC FIXE (x)	
	Pounds	\$	Pounds	\$
1931	2,304,119	39,361	146,025	12,915
1932	2,064,303	35,138	23,353	817
1933	2,062,957	33,578	47,793	1,471
1934	2,393,330	44,690	93,918	2,481
1935	2,308,628	43,702	141,975	4,223
1936	2,533,275	41,687	97,016	3,148
1937	2,630,366	42,821	125,743	4,136
1938	2,729,212	46,288	116,545	3,287

(x) Artificial barium sulphate.

NOTE: Not complete for 1939.

Table 3 - IMPORTS OF BLANC FIXE AND BARITE INTO CANADA, 1931 - 1939.

Year	BARITE		BLANC FIXE	
	Pounds	\$	Pounds	\$
1931	3,372,600	32,712	1,596,173	34,483
1932	2,583,400	22,989	932,168	20,932
1933	3,174,700	28,255	552,801	11,390
1934	3,113,800	26,397	968,201	21,638
1935	4,278,400	33,739	1,139,106	25,759
1936	3,316,000	26,554	1,064,032	21,480
1937	4,156,600(x)	32,869	1,068,199	21,162
1938	4,373,100 /	38,012	629,258	13,779
1939	4,350,300(a)	38,607	1,097,959	27,325

(x) 2,637,700 pounds from Germany, 852,700 pounds from the United States, and 492,900 pounds from the United Kingdom.

/ 325,900 pounds from United Kingdom, 2,532,800 from Germany and 1,124,600 from United States.

(a) 2,784,200 pounds from United States and 1,215,000 pounds from Germany.

"Metal and Mineral Markets" - New York - quoted barite F.O.B. mines May, 1940 - Georgia: barite ore, crude, \$7 per long ton. Missouri: per long ton, water ground and floated, bleached, \$22.85 carlots, F.O.B. works. Crude ore, minimum 95 per cent BaSO₄, less than 1 per cent iron, \$6.50 to \$7.00; 93 per cent BaSO₄, \$6.00 to \$6.50 F.O.B. mines.

In 1939 lithopone imported into Canada totalled 21,252,814 pounds valued at \$765,522 compared with 17,731,708 pounds worth \$632,273 in 1938. Of the 1938 imports 9,276,970 pounds came from the United Kingdom; 3,882,900 pounds from the Netherlands and 2,584,971 pounds from the United States.

Table 4 - WORLD'S PRODUCTION OF BARIUM MINERALS, 1936, 1937, and 1938. (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries) (Long tons)

Producing Country and Description	1936	1937	1938
<u>BRITISH EMPIRE</u>			
United Kingdom - Barytes, unground	37,250	36,875	47,568
Witherite, unground	8,751	11,882	9,914
Barytes - Ground, bleached	5,731	5,427	4,011
Ground, unbleached	21,338	19,124	14,825
Southern Rhodesia .....	...	...	89
Union of South Africa	574	561	483
India	5,114	15,689	8,075
Australia	2,157	3,103	2,863
<u>FOREIGN COUNTRIES</u>			
Austria	1,637	841	(a)
France	21,850	19,550	(a)
Germany - Baden	17,519	21,311)	
Bavaria	10,999	11,645)	
Prussia	385,910	404,149)	470,000
Saxony	460	425)	
Thuringia	443	6,683)	
Wurtemberg	1,000	189)	
Greece	30,841	38,722	(a)
Italy	36,092	44,488	47,408
Norway	402	69	(a)
Portugal	10	99	22
Egypt	30	50	20
Cuba	(b) 256	3,788	(a)
United States	244,698	322,212	299,494
French Indo-China	39	44	49
Japan	3,776	(a)	(a)
Korea	5,032	(b) 10,872	(b) 15,481

NOTE: Barytes is also produced in Czecho-Slovakia, Spain, U.S.S.R. and China.

(a) Information not available.

(b) Exports.

CORUNDUM - Corundum is found in an area embracing several townships in Renfrew and Hastings counties in the Province of Ontario. Corundum mining as an industry made its appearance there in 1900 and production reached a maximum in 1906. Shipments of the mineral in Canada during the period 1900 - 1921 totalled 19,524 short tons valued at \$2,104,251. No commercial shipments have been reported since 1921. No imports of corundum into Canada were shown in Customs reports for either 1937 or 1938. United States demand for crude corundum in 1938 was met by the importation of 2,098 tons valued at \$138,629, chiefly from the Union of South Africa. Virtually all corundum and emery is imported into the United States in the crude state and crushed and graded in that country for the domestic market. Production of corundum in the Union of South Africa in 1938 totalled 1,540 short tons valued at \$12,454 and the Department of Mines of that country reports that with the depletion of the known eluvial deposits it has become increasingly difficult to maintain supplies of crystal corundum and during 1938 activity on the fields fell off considerably. Negotiations were proceeding with a view to persuading the American market, which absorbs practically all the crystals being produced at present, to take the corundum in the form of concentrates.

Imports into Canada in 1939 of manufactures of emery or of artificial abrasives n.o.p. were valued at \$43,301 of which those appraised at \$40,308 came from the United States. Imports of emery in bulk, crushed or ground were valued at \$55,967 in 1939.

Artificial corundum or "fused alumina" (Al_2O_3) is produced from calcined bauxite in steel-lined, water-cooled furnaces of the arc type. Canadian production of crude fused alumina in 1938 totalled 50,515 short tons valued at \$5,165,920.

DIAMONDS - "Mineral Trade Notes" of the United States Bureau of Mines contained the following information relating to industrial diamonds:- "In the popular mind the diamond is a gem stone, but in 1938 only about one-fourth of the diamonds mined throughout the world were so classed. The other three-fourths were designated industrial diamonds, that is, they were used as tools in industries. Because of its superior hardness, far exceeding that of any other known substance, the diamond is unsurpassed as a cutting agent. For many years the carbonado or black diamond, found in Brazil, was the leading abrasive diamond used for rock drills and for certain other grinding and cutting purposes, but during recent years there has been a decided drift toward wider use of borts, a name applied to diamonds of the gem variety that are unsuitable for ornamental purposes.

"Recently there has been a strong movement toward the use of smaller and smaller diamonds, even to those so small that they are classed as diamond dust. Drill heads are now made by adding as much as 20 per cent diamond dust or small diamonds to powdered metal, and the mixture is then sintered to a solid mass. Small diamonds are also being employed in drill bits of a cast beryllium-copper alloy.

"Another important use for industrial diamonds is in the manufacture of diamond tools for truing abrasive wheels, shaping automobile and airplane engine parts and similar uses. A new use for industrial diamonds is in the manufacture of abrasive wheels, in which small borts or diamond dust are imbedded in tungsten carbide or other powdered metal or in bonded compositions. Other important uses include glass cutting, diamond dies for wire-drawing, diamond-set teeth on circular saws for cutting stone, etc. etc."

Diamond dust or bort and black diamonds for borers imported into Canada in 1939 were valued at \$4,129,532. Imports into Canada of unset diamonds during the same period were appraised at \$1,405,792. It is, however, worthy of note that diamonds imported for abrasive or industrial purposes are often brought in by salesmen and may later, in part, be taken out (unreported) of the country as unaltd stock and in such cases the annual value of imports does not represent or reflect a true consumption figure.

Diamonds are not commercially produced or mined in Canada. World production of diamonds in 1938 totalled 11,455,000 carats valued at £7,680,000; of this output the British Empire contributed 3,417,000 carats worth £5,750,000, chiefly from the Union of South Africa, Sierra Leone, South West Africa and the Gold Coast. Among foreign countries the Belgian Congo, Angola and Brazil were the principal producers.

In 1939 the Canadian diamond drilling industry drilled 2,063,292 feet of rock and paid \$1,615,615 in salaries and wages to 2,920 employees; income from drilling operations totalled \$3,013,249 and the value of stones and ready set bits purchased amounted to \$607,806.

DIATOMITE - Producers' sales of diatomite in Canada during 1939 totalled 301 short tons valued at \$10,388. Of these 279 tons at \$9,661 came from deposits located near Little River and Tatamagouche, Nova Scotia. Five tons worth \$280 were shipped from the property of Muskoka Diatomite Limited, Muskoka district, Ontario, while in British Columbia the output of 17 tons at \$447 was obtained from deposits on Gabriola Island and in the Cariboo District.

A report issued by the Bureau of Mines, Ottawa, states - "Approximately 80 per cent of the diatomite now being consumed in Canada is in the form of filter-pads, about 15 per cent is used for insulation and the remainder is absorbed as a filler, concrete admixture, silver polish base, and in chemicals. Amongst the recent applications, the use of diatomite in the paint and varnish industry has demonstrated its advantages as a flattening agent and as an extender. Deposits containing medium quality diatomite are very common in some parts of Canada. Owing, however, to foreign competition and to the, at present, comparatively small Canadian demand, only the properly prepared diatomite of the highest quality can now be successfully marketed on a scale sufficiently large to warrant the operations of a property and the erection of a plant. Several interesting developments took place during 1939. G. Wightman calcined diatomite in a small kiln erected on the Digby Neck deposit, Nova Scotia, and shipped a few tons. A small tonnage of crude diatomite was shipped from the Pocologan area, New Brunswick, to be tested to determine its suitability as a filter pad. The West Coast Silica Products Company erected a mill near the north end of Gabriola Island; the air dried material is calcined in eight small, flat kilns, after which it is pulverized and separated, and a number of different products are bagged.

Table 5 - PRODUCTION OF DIATOMITE IN CANADA, 1913 - 1939.

Year	short tons	\$	Year	short tons	\$
1913	620	12,138	1927	266	6,650
1914	650	13,000	1928	368	8,960
1915	317	12,119	1929	429	10,330
1916	620	12,139	1930	554	13,247
1917	600	18,000	1931	1,610	32,789
1918	500	12,500	1932	1,496	29,509
1919	565	11,300	1933	1,789	36,648
1920	260	8,600	1934	1,372	54,910
1921	341	11,268	1935	823	33,140
1922	219	5,781	1936	615	13,650
1923	130	3,250	1937	643	18,606
1924	33	838	1938	398	13,842
1925 .....	...	...	1939	301	10,388
1926 .....	...	...	

The total Canadian output of diatomite since 1896 when it was first produced in the Dominion, to the end of 1939, totalled 22,028 short tons valued at \$506,698.

Imports into Canada of diatomaceous earth or infusorial earth (Kieselguhr), ground or unground in 1938 totalled 2,565 short tons valued at \$73,900 compared with \$4,307 tons at \$128,808 in 1939. Of the 1939 imports, 4,302 tons worth \$128,574 came from the United States.

"Metal and Mineral Markets" - New York - quoted diatomite May, 1940:- per ton, F.O.B. Nevada, dried crude, in bulk, \$7 and in bags \$12; 40 mesh, \$18; 200 mesh \$22.50; low temperature insulation, \$19; high temperature \$40.

Table 6 - WORLD'S PRODUCTION OF DIATOMACEOUS EARTH, 1936 - 1938. (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries)
(Long tons)

Producing Country	1 9 3 6	1 9 3 7	1 9 3 8
<u>BRITISH EMPIRE</u>			
Great Britain	1,086	1,141	2,159
Northern Ireland	7,466	7,168	5,281
Union of South Africa	96	148	153
Canada	549	574	355
Barbados	10	10	10
Australia	2,778	3,190	3,380
<u>FOREIGN COUNTRIES</u>			
Bulgaria	62	138	231
Denmark (moler)	61,000	80,000	(a)
Estonia .....	...	573	1,113
Finland	1,378	1,771	1,574
France	9,600	10,600	(a)
Germany (d)	6,112	7,407	(a)
Italy	3,701	4,586	5,010
Norway (exports)	229	106	48
Portugal	64	109	(a)
Roumania (c)	3,748	2,972	(a)
Sweden	1,095	1,736	1,816
Algeria	11,922	12,659	17,800
United States (b)	83,228	83,228	83,228
Chile	40	340	(a)
Peru (exports) .....	...	...	7
Japan	12,800	16,700	21,650
Korea	742	2,480	4,500
Netherlands East Indies	124	39	140

See footnotes on next page.

Table 6 - footnotes

NOTE: Diatomaceous earth is also produced in Hungary, Spain, and U.S.S.R. and during 1938 there was a small output in New Zealand valued at £70 (N.Z.)

(a) Information not available.

(b) Annual average production 1936-1938.

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

(d) Production of Hessen only.

Table 7 - CONSUMPTION OF INFUSORIAL EARTH BY THE CANADIAN SUGAR REFINING INDUSTRY, 1932 - 1939.

Year	Pounds	Value \$	Year	Pounds	Value \$
1932	2,577,585	73,309	1936	4,375,999	98,954
1933	2,507,469	70,191	1937	4,586,786	95,532
1934	2,562,552	69,116	1938	4,908,597	101,473
1935	4,307,142	96,560	1939	(a)	(a)

(a) Not yet available.

FLUORSPAR - Fluorspar production in Canada during 1939 totalled 240 short tons valued at \$4,995 compared with 217 tons at \$3,906 in 1938. Production of the mineral in Canada since 1929 has been confined to the Madoc area, Hastings county, Ontario. Fluorspar was formerly produced at the Rock Candy mine, in British Columbia, by the Consolidated Mining and Smelting Company of Canada, Limited; production in 1929 from this mine totalled 17,800 short tons valued at \$267,000. Following the erection of a large fertilizer plant at Trail, the recovery of by-product fluorine from phosphate rock has obviated the necessity of employing fluorspar as a source of fluorine by the Consolidated Mining and Smelting Company of Canada, Ltd.

Late in 1939, the Moira Fluorspar Mining Syndicate took over the Noyes property, one of the larger of the old producers in the Madoc district; small shipments from the upper levels of the mine were reported and a mill was being built for recovery by jigging, tabling and flotation.

The Department of Public Works and Mines, Nova Scotia states in its annual report for 1938 that fluorite is associated with barite in veins occurring at East Lake Ainslie, Nova Scotia; a sample from one vein was reported to show a very high fluorite content.

Germany is second only to the United States as a producer of fluorspar, but it has been the chief exporting country. In 1937 according to the United States Bureau of Mines, German production was 144,459 metric tons; and exports were 46,009 metric tons, of which 12,699 metric tons went to the United States.

Shipments of fluorspar from Newfoundland in 1938 were 9,859 short tons, of which 2,539 tons of fluxing grade, 1,116 tons of acid grade, and 1,237 tons of special grade lump (93 to 95 per cent CaF_2) went to Canada. The fluorspar veins in Newfoundland are described as varying in width from 6 inches to 14 feet of solid fluorspar, and in places a width of fluorspar and granite breccia up to 35 feet is to be found.

Under the Anglo-American trade treaty, the duty on fluorspar containing more than 97 per cent calcium fluoride was decreased from \$5 a short ton to \$3.75 a ton, effective January 1st, 1939.

Quotations May, 1940, for fluorspar, New York, were:- per net ton, 85 per cent CaF_2 , and not over 5 per cent SiO_2 , Kentucky and Illinois, in bulk F.O.B. mines, washed gravel \$20 for all rail movement; \$20 for barge movement, No. 2 lump \$21 F.O.B. mines.

Ground fluorspar, F.O.B. Illinois mines, 95 to 98 per cent CaF_2 and not over $2\frac{1}{2}$ per cent SiO_2 , \$31 in bulk. Foreign fluorspar, gravel, 85-5 \$25.50 per ton, duty paid, Baltimore or Philadelphia.

Table 8 - PRODUCTION OF FLUORSPAR IN CANADA, 1905 - 1939.

Year	short tons	\$	Year	short tons	\$
1905	12	84	1924	76	1,343
1906-1909 .....	...	...	1925	3,886	19,234
1910	2	15	1926-1928 .....	...	...
1911	34	238	1929	17,870	268,120
1912	40	240	1930	80	1,240
1913-1915 .....	...	...	1931	40	620
1916	1,284	10,238	1932	32	464
1917	4,249	68,756	1933	73	1,064
1918	7,362	156,029	1934	150	2,100
1919	5,063	97,837	1935	75	900
1920	11,235	240,446	1936	75	900
1921	5,519	136,267	1937	150	2,550
1922	4,503	102,138	1938	217	3,906
1923	139	1,732	1939	240	4,995

Table 9 - IMPORTS OF FLUORSPAR INTO CANADA, 1929 - 1939.

Year	Tons	\$	Year	Tons	\$
1929	12,092	159,798	1935	11,591	92,775
1930	12,651	160,995	1936	11,194	95,268
1931	3,216	31,257	1937	11,444	158,082
1932	1,009	22,965	1938	15,057	212,131
1933	2,219	21,165	1939	16,322 /	258,796
1934	7,220	56,628			

/ 5,640 tons at \$82,805 from Newfoundland and 6,502 tons at \$130,885 from United States.

NOTE: Imports of fluorspar into Canada during the war years 1914-1918 cannot be stated accurately as they were not shown separately in the reports of the Customs Department; in 1918 it was reported that Canadian steel companies used from 10,000 to 15,000 tons of fluorspar per annum.

Table 10 - FLUORSPAR USED IN THE CANADIAN GLASS INDUSTRY, 1931 - 1938.

Year	Short tons	Value \$	Year	Short tons	Value \$
1931	96	4,815	1935	98	3,357
1932	125	4,989	1935	71	2,360
1933	115	7,803	1937	91	3,008
1934	119	4,472	1938	112	4,507

Table 11 - FLUORSPAR USED IN CANADIAN STEEL FURNACES, 1930 - 1938.

Year	Short tons	Value \$	Year	Short tons	Value \$
1930	6,486	92,743	1935	5,859	73,047
1931	4,969	66,471	1936	7,942	88,403
1932	2,253	27,939	1937	9,039	139,181
1933	2,949	31,657	1938	7,128	119,301
1934	4,555	55,643			

According to the United States Bureau of Mines the quantity of fluorspar used by individual plants per ton of basic open-hearth steel produced ranges from 1 to 50 pounds. The steel industry is the chief consumer of fluorspar followed in order by hydrofluoric acid, glass and enamel industries; smaller quantities are used in the production of iron castings, nickel and monel metal, cement, ferro-alloys, etc., also in smelting refractory ores of gold, silver and copper.

Table 12 - WORLD'S PRODUCTION OF FLUORSPAR, 1936, 1937 and 1938. (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries)
(Long tons)

Producing Country	1 9 3 6	1 9 3 7	1 9 3 8
<u>BRITISH EMPIRE</u>			
United Kingdom	32,962	42,160	33,331
Southern Rhodesia .....	...	...	154
South West Africa .....	...	...	576
Union of South Africa	3,074	3,558	4,661
Canada	67	134	194
Australia	816	1,442	3,231
Newfoundland	10,424	12,000	14,000
<u>FOREIGN COUNTRIES</u>			
France	30,100	50,650	(a)
Germany - Anhalt	11,048	13,446	(a)
Baden	7,242	13,422	(a)
Bavaria	48,377	61,469	(a)
Prussia	35,698	30,032	(a)
Saxony	7,864	7,946	(a)
Thuringia	18,495	15,862	(a)
Italy	11,256	13,174	11,994
Norway	998	1,665	(a)
U.S.S.R.	64,000	(a)	(a)
Tunis .....	...	1,676	2,011
Mexico (estimated)	1,000	1,000	1,000
United States	150,000	163,000	88,000
Argentina	443	344	(a)
Korea	8,602	(b) 9,532	(b) 33,667

NOTE: Fluorspar is also produced in Spain and China.

(a) Information not available.

(b) Exports.

GARNETS - No commercial production of garnets has been reported in Canada for several years. In 1938 prospecting and exploratory work were conducted by Garnet Concentrates Inc., on a garnet deposit located in Beaudin township, Abitibi district, Quebec. The total recorded production of garnets in Canada during past years totalled 1,612 tons valued at \$107,350 and was confined to the years 1923, 1924 and 1927. In 1923 a deposit of garnets in Ashby township, Ontario, was operated by the Bancroft mines syndicate; the total production of garnet concentrates and crude garnets amounting to 1,250 tons valued at \$100,000 was shipped to the Carborundum Company Limited, Niagara Falls, N.Y., for use as an abrasive material; the production of garnets in 1924, amounting to 360 tons, valued at \$7,200 also originated in Ontario and was shipped to the same company at Niagara Falls, N.Y. In 1927 development work was conducted on a garnet deposit in Joly township, Labelle county, Quebec and a shipment of 2 tons was made. Garnet Canada Limited reported that considerable construction work was carried out at its property in Joly township, Labelle County, Quebec, during 1939. Machinery was installed but no garnet shipments reported.

Garnet is employed chiefly in the manufacture of abrasive papers and cloths while small amounts are utilized in the grinding of plate glass and other products.

No imports of garnet, described as such, were recorded in Canada during 1938 or 1939; the mineral, however, may enter in the form of abrasive paper or combined with other abrasive imports, n.o.p. It has been reported that approximately 175 tons of graded garnet grains are imported annually into Canada. In 1938 the Canadian artificial abrasives industry used 98 short tons of garnets valued at \$17,219 compared with 164 tons at \$28,951 in 1937.

Imports of sandpaper during 1913 were valued at \$171,516 compared with \$331,776 in 1917 and \$317,048 in 1918. Imports in 1939 of sandpaper and emery cloth were appraised at \$60,797.

Engineering and Mining Journal's "Metal and Mineral Markets" - New York - October, 1939, quotations for garnet were - per ton, f.o.b. New Hampshire mines; concentrate, \$30; grain, \$80 to \$140. New York: Adirondack garnet concentrates, \$85. Spanish grades, \$60, c.i.f. port of entry. Nominal.

GRAPHITE - Canadian mine production of graphite during 1939 was valued at \$61,684 compared with \$41,590 in 1938. The output in 1939 as in the preceding year came solely from the Black Donald mine, Renfrew county, Ontario. Relatively small and intermittent shipments of graphite were also made from Quebec properties prior to 1935. No ore was mined at the Black Donald mine in 1939 and milling operations during the year represented the retreatment of some 2,700 tons of tailings. The mill was in operation from June 5 to December 23 and finished products included flake, dust and amorphous grades. Flotation is employed in the treatment of Black Donald ore.

A half dozen or more countries are fairly large graphite producers but, according to the United States Bureau of Mines, none in recent years has challenged the supremacy of Ceylon and Madagascar as producers of high grade graphite; although the tonnage mined in Ceylon and Madagascar seldom exceeds 15 per cent of the world total, the value of their products is probably at least half the world total.

"Metal and Mineral Markets" - New York - quoted graphite October 1939 as follows: per pound f.o.b. New York, Ceylon lump, 7 to 7½ cents; carbon lump 6 to 6½ cents; chip, 5 1/4 to 5 3/4 cents; dust 3 to 4 cents; Madagascar flake 6 to 8 cents; no. 1 flake, 9 to 16 cents; no. 2, 7 cents upwards; fine ground, 55 to 70 per cent carbon, 3 cents upward; amorphous, 3 cents upward. Crude amorphous graphite, f.o.b. New York \$12 to \$23 per ton, according to grade.

Table 13 - MINE PRODUCTION (SALES) OF GRAPHITE IN CANADA, 1913 - 1939.

Year	Short tons	\$	Year	Short tons	\$
1913	2,162	90,282	1927	1,829	111,656
1914	1,647	107,203	1928	1,097	57,041
1915	2,635	124,223	1929	1,461	103,174
1916	3,955	325,362	1930	1,535	96,392
1917	3,714	402,892	1931	548	32,149
1918	3,114	248,870	1932	346	18,483
1919	1,360	100,221	1933	405	18,367
1920	2,190	165,617	1934	1,518	71,424
1921	937	65,862	1935	1,782	79,781
1922	597	31,353	1936	(a)	88,812
1923	1,113	67,873	1937	(a)	125,343
1924	1,334	76,117	1938	(a)	41,590
1925	2,569	158,763	1939	(a)	61,684
1926	2,727	194,860			

The value of mine graphite produced in Canada from 1886 to the end of 1939 totalled \$3,668,609.

(a) Not published.

Table 14 - IMPORTS OF GRAPHITE INTO CANADA, 1937, 1938 and 1939.

	1937	1938	1939
	\$	\$	\$
Plumbago, not ground or otherwise manufactured	9,545	18,546	13,384
Plumbago crucibles	62,433	60,616	60,091
Plumbago, ground, and manufactures of, n.o.p.	105,188	69,342	86,944
TOTAL GRAPHITE and ITS PRODUCTS	177,166	148,504	160,419

/\$ \$58,838 from United Kingdom and \$95,516 from United States.

Table 15 - EXPORTS OF GRAPHITE FROM CANADA, 1937, 1938 and 1939.

	1937		1938		1939	
	Cwt.	\$	Cwt.	\$	Cwt.	\$
Graphite or plumbago, crude and refined	58,966	133,262	23,006	54,366	26,429	56,614
Carbon and graphite electrodes .....	...	721,727	...	614,925	...	762,334

/\$ \$191,587 to British South Africa; \$194,387 to Norway and \$164,214 to Australia.

Table 16 - CONSUMPTION OF GRAPHITE OR PLUMBAGO IN CANADA, BY INDUSTRIES, AS REPORTED TO THE CENSUS OF INDUSTRY, 1937 and 1938.

Industry	1 9 3 7		1 9 3 8	
	Quantity	Cost at works	Quantity	Cost at works
	Short tons	\$	Short tons	\$
Paints and varnishes	48	4,112	47	4,057
Polishes	54	5,769	46	5,231
Foundries	159	19,788	134	15,789
Acids and salts (x)	58	17,192	75	21,890
Prepared foundry facings	157	7,120	177	8,387
Total Accounted for	476	53,981	479	55,354

(x) In addition, electrodes valued at \$301,378 were used in 1937.

Table 17 - WORLD'S PRODUCTION OF GRAPHITE, 1936, 1937 and 1938. (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries) (Long tons)

Producing Country	1 9 3 6	1 9 3 7	1 9 3 8
<u>BRITISH EMPIRE</u>			
Union of South Africa	58	61	53
Canada (sales)	(b)	(b)	(b)
Ceylon (exports)	13,515	17,381	11,783
India	388	558	458
Australia	23	14	10
<u>FOREIGN COUNTRIES</u>			
Austria (crude)	21,367	17,871	(a)
Czecho-Slovakia	2,880	5,063	(a)
Germany (crude)	23,906	23,172	(a)
Italy	5,118	5,326	5,396
Norway (exports)	3,344	3,684	3,781
Sweden	62	25	47
Madagascar - Flake	6,124	7,877	10,305
Powder	1,117	2,583	4,011
Morocco (French)	400	331	193
Argentina	18	25	(a)
Mexico	10,092	11,032	9,459
Brazil .....	...	8	(a)
Japan	1,551	(a)	(a)
Korea - Flake	5,757	(c) 5,182	(c) 7,742
Other	34,511	(c) 37,698	(c) 41,811

NOTE: Graphite is also produced in the U.S.S.R. and the United States.

(a) Information not available.

(b) Recorded by value only (1936 £17,859
 (1937 £25,373
 (1938 £ 8,440

(c) Exports.

GRINDSTONES - Quarry sales of grindstones and other natural abrasive stones (sandstone) in Canada during 1939 totalled 304 short tons valued at \$15,278 compared with 306 tons worth \$16,198 in 1938. The shipments in 1939 comprised 20 tons of sharpening stones valued at \$3,088 and 284 tons of grindstones worth \$12,190. No pulpstones were produced during the year under review and the sharpening stones came entirely from a plant in New Brunswick. The output of grindstones in 1939 originated at the Woodburn quarry, Pictou county, Nova Scotia, and at Stonehaven, New Brunswick.

The Department of Mines, Nova Scotia, describes the products of the Woodburn quarry of the Stanley Rule and Level Company as yellow and blue fine grained sandstones, the former being used for grindstones, while the latter is suitable for scythestones and whetstones. The sandstone bed is 25 to 30 feet thick. The rough blocks are quarried by the usual method of drilling and wedging. The blocks are then cut to

rough dimensions by hand and holes drilled in the centre. These are then placed in lathes and turned to the required dimensions. The finished stones vary in size from 1 to 6 feet in diameter and from 2 to 10 inches in thickness. The quarry is capable of furnishing grindstones 24 inches in width if desired.

The Bureau of Mines, Ottawa, reported in 1938 that there was a demand for good pulpstones, particularly for use in the large magazine grinders, but as deposits containing thick beds of the proper quality sandstone are very scarce in Canada, only about 1 per cent of the stones used recently in Canadian pulpmills was produced in the Dominion. The artificial pulpstones made of silicon carbide segments and also more recently of fused alumina segments are gradually but surely replacing the natural stone.

Imports of grindstones etc., into Canada in 1939 were as follows:- Grinding wheels, manufactured by the bonding together of either natural or artificial abrasives, value \$100,977 (\$98,881 from United States); Grinding stones or blocks, manufactured by the bonding together of either natural or artificial abrasives, value \$22,586 (\$19,711 from United States); Grindstones not mounted and not less than 36 inches in diameter number 849 value \$126,260 (152 at \$3,066 from United Kingdom and 697 at \$123,194 from United States); Grindstones n.o.p. number 1,502 value \$7,013.

Exports of manufactured grindstones from Canada in 1939 were valued at \$6,312.

Table 18 - PRODUCTION OF GRINDSTONES, PULPSTONES and SCYTHESTONES IN CANADA, FOR YEARS SPECIFIED.

Year	Tons	\$	Year	Tons	\$
1886	4,020	46,545	1930	830	62,021
1900	5,539	53,450	1931	621	38,103
1905	5,540	62,375	1932	328	15,735
1913	4,837	51,325	1933	498	21,919
1914	3,976	54,504	1934	987	46,478
1915	2,580	35,768	1935	708	34,010
1916	3,478	52,782	1936	569	24,724
1917	2,523	45,754	1937	412	21,429
1918	3,072	83,005	1938	306	16,198
1928	1,855	100,960	1939	304	15,278
1929	1,947	106,354			

Table 19 - PRODUCTION OF NATURAL ABRASIVE STONES, BY KINDS, 1939.

	PULPSTONES		SHARPENING STONES		GRINDSTONES	
	Tons	\$	Tons	\$	Tons	\$
Nova Scotia	152	5,616
New Brunswick	20	3,088	132	6,574
British Columbia
CANADA	20	3,088	284	12,190

Table 20 - CONSUMPTION OF PULPSTONES BY THE CANADIAN PULP AND PAPER INDUSTRY, 1931 - 1939

Year	Number for 2 ft. wood		Number for 2.5 ft. wood		Number for 4 ft. wood	
		Value		Value		Value
		\$		\$		\$
1931	226	72,588	225	71,760	285	337,580
1932	210	65,450	139	46,436	222	249,373
1933	321	98,475	95	31,945	199	223,655
1934	378	103,811	84	29,680	268	292,359
1935	417	116,501	52	20,297	237	243,805
1936	463	120,227	61	19,478	253	281,265
1937	392	123,598	84	21,700	280	332,084
1938	306	92,822	37	13,351	186	238,488
1939	242	60,622	60	22,443	203	238,620

Table 21 - PRODUCTS MANUFACTURED BY CANADIAN ARTIFICIAL ABRASIVES INDUSTRY, 1937 and 1938

Product	1 9 3 7		1 9 3 8	
	Short tons	Selling value at works \$	Short tons	Selling value at works \$
Crude silicon carbide	25,644	2,808,016	19,094	2,002,041
Crude fused alumina	86,604	8,435,371	50,515	5,165,920
Silicon carbide firesand, etc.	703	11,192	321	5,147
Abrasive wheels and segments .....	...	1,165,406	...	916,695
Sharpening stones and files .....	...	95,317	...	91,467
Ferrosilicon	7,396	94,824	6,819	79,369
Other products (x) .....	...	1,564,225	...	1,319,066
TOTAL .....	...	14,174,351	...	9,579,705

(x) Includes abrasive cloth, abrasive paper, tiles, artificial pulpstones, artificial graphite, boron carbide, boron carbide shapes, calcium boride, fused magnesia, refractory cements, firebrick, etc., each of which was reported by only one or two companies.

KYANITE - The following information is from a recent bulletin of the "Imperial Institute", London (Vol. XXXVI - No. 4). Kyanite, a natural silicate of alumina (Al_2SiO_5 or $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$) is finding a steadily growing market for the preparation of refractories. It is not used in the raw state, but is first fired at $1,450^\circ$ to $1,500^\circ$ C., and then ground ready to mix with the bond. The product of calcination, however, is known in the trade as "Sillimanite", a misnomer which often leads to confusion. Sillimanite and andalusite are other natural minerals of exactly the same chemical composition as Kyanite (but different in physical properties), and both are likewise converted on heating into mullite and silica. The conversion of andalusite into mullite is not accompanied by any change in volume and this mineral can therefore be used in the raw state as a refractory. Mullite made from Kyanite is used in the construction of numerous types of furnaces, including electric furnaces and those for the enamelling and glass industries. When added to ceramic compositions containing clay and kaolin, it is claimed to reduce shrinkage, lower the coefficient of expansion, increase breaking strength, resistance to abrasion and electrical resistance, and extend the sintering range. It is also a constituent of certain spark-plug porcelains.

Kyanite is usually a rock-forming mineral, and only rarely does it occur in large monomineralic masses as segregations in quartz-kyanite gneiss or schist. Indian kyanite is the most popular at the present time, the production in India commenced in 1924 and amounted to 24,787 tons in 1936. The mineral also occurs in Nyasaland, British East Africa and Western Australia.

The leading andalusite mine in the world is operated by Champion Sillimanite, Inc., in the White Mountains, California; this company is a subsidiary of the Champion Spark Plug Co., Detroit, Mich. Imports of kyanite and sillimanite into the United States in 1938 totalled 3,964 short tons valued at \$32,458 compared with 7,674 short tons at \$79,410 in 1937.

None of the minerals, kyanite, sillimanite or andalusite are commercially mined in Canada at the present time and any imports of these minerals into Canada are not shown separately in the Canadian Customs classification. "Metal and mineral markets" - New York, October 1939 quoted kyanite - per ton f.o.b. North Carolina and Georgia \$17.50 to \$25 nominal.

LITHIUM MINERALS - Commercial production of Canadian lithium minerals was first recorded in 1937. These were made by the Lithium Corporation of Canada, Limited, from deposits located at Bernic Lake, near Pointe du Bois, Eastern Manitoba. The material was valued at \$1,694 and was consigned to a United States chemical plant. The Bureau of Mines, Ottawa, reports that the present supply of lithium minerals is drawn from deposits in the United States, Southwest Africa, and France. The newly discovered spodumene deposits in North Carolina are regarded as one of the world's largest potential sources of supply of lithium. The principal commercial lithium ores are amblygonite, a fluophosphate of lithium and aluminium; spodumene, a silicate of these two elements; and lepidolite or lithia mica, also a silicate. All of the above minerals occur in Canada, but there has, as yet, been only a small production, mainly of lepidolite and spodumene; the important deposits are all in Manitoba. No commercial mine shipments of lithium minerals were reported in Canada during 1939, however, the Lithium Corporation of Canada Limited reported that operations were resumed at its Bernic Lake property in December 1939 and that commercial shipments of lithium minerals might be made from the mine in 1940.

South West Africa and France are the largest producers of lithium ores outside the United States. In 1938 the total production of lithium compounds in the United States as given by producers to the United States Bureau of Mines, aggregated 892 short tons valued at \$329,088.

Spodumene expands in whiteware bodies, and if properly controlled this expansion may offset shrinkage and other production troubles in ceramic work. Lepidolite hardens and toughens clear glass and lowers the expansion coefficient.

"Metal and Mineral Markets" New York quoted lepidolite (Oct. 1939), per ton, \$20 to \$25 for ordinary grades, lump f.o.b. mines. Amblygonite - per ton f.o.b. mines 8 to 9 per cent LiO_2 \$40. Spodumene - per unit LiO_2 contained \$5 on 6 per cent grade carload lots, North Carolina.

Statistics relating to possible imports of lithium minerals or chemicals into Canada are not shown separately in the Canadian Customs classification.

MAGNESITIC-DOLOMITE - Production of magnesitic-dolomite (sales and producers' consumption of calcined and dead burned) in Canada during 1939 was valued at \$474,418.

Magnesitic dolomite, an intimate mixture of magnesite and dolomite, is quarried and processed at Kilmer and Harrington East, in Argenteuil county, Quebec. It is marketed in the caustic and dead-burned states; in the form of bricks; as finely ground refractory cement; and also in combination with chrome as an ingredient in certain types of refractories. Caustic-calcined magnesia is used for fettling the bottoms of basic open hearth furnaces and for the construction of floors and floor tiles. The deposits of magnesitic dolomite in Argenteuil county, Quebec, are ample to supply magnesia products for domestic requirements for many years, and also to support a large export trade. An interesting and recent development was the discovery by one of the officers of the Federal Bureau of Mines, at Rutherglen, Ontario and at Bryson, Quebec, of brucite-bearing limestone. Brucite, a hydrated magnesium oxide contains a higher percentage of magnesium than magnesite and can be utilized for the manufacture of refractory material for lining metallurgical furnaces. It has value also as a potential source of magnesium metal. The mineral also occurs at Farm Point in the Gatineau River Valley, Quebec. The brucite occurs as granules thickly disseminated through a matrix of crystalline limestone and by a process developed in the Bureau of Mines laboratories it is possible to recover these brucite granules in the form of magnesia of a high degree of purity.

Large deposits of magnesite, containing much silica and alumina, occur in British Columbia near Marysville and have been acquired by Consolidated Mining & Smelting Company of Canada, Limited; no commercial production from these deposits has yet been reported.

The United States Bureau of Mines reported on brucite in its 1939 minerals Year Book as follows:- "After sundry set-backs, brucite mining has just become established on a moderately extensive scale. The deposits near Luning, Nevada, are of enormous extent and high purity. Small quantities of this natural hydrate of magnesia $\text{Mg}(\text{OH})_2$, have been employed in petroleum refineries and for making magnesium compounds but the important outlet at present is in the manufacture of furnace refractories, largely to increase the slag resistance of dolomite." The extraction of magnesia from sea water has now reached the commercial stage in California and England.

Table 22 - PRODUCTION OF MAGNESITIC-DOLOMITE (CALCINED) IN CANADA, 1908 - 1939.

Year	Tons	Value \$	Year	Tons	Value \$
1908	120	840	1925	5,576	122,325
1909	330	2,508	1926	4,571	137,431
1910	323	2,160	1927	7,337	230,309
1911	991	5,531	1928	13,195	346,990
1912	1,714	9,645	1929	18,809	491,170
1913	515	3,335	1930	13,336	336,162
1914	358	2,240	1931	11,411	295,579
1915	14,779	126,584	1932	(a)	262,860
1916	55,413(b)	562,829	1933	(a)	360,128
1917	58,090	728,275	1934	(a)	382,927
1918	39,365	1,016,765	1935	(a)	486,084
1919	11,273	328,465	1936	(a)	768,742
1920	18,378	512,756	1937	(a)	677,207
1921	3,720	81,320	1938	(a)	420,261
1922	2,849	76,294	1939	(a)	474,418
1923	4,801	134,382	Grand Total \$ .....	...	9,488,878
1924	3,873	101,356			

See footnotes on next page.

Table 22 - footnotes

/ represents value of magnesite (dead-burned etc.) only, whereas the values for years immediately preceding include the value of some end products containing imported material; for this reason the 1938 value is not entirely comparable with those for recent years.

(a) not published.

(b) includes shipments of 635 tons of hydromagnesite valued at \$9,525 from Atlin, B.C.

Table 23 - MAGNESITE AND DOLOMITE USED IN THE CANADIAN PRIMARY IRON AND STEEL INDUSTRY, 1931 - 1938.

	DOLOMITE		MAGNESITE	
	Short tons	Value \$	Short tons	Value \$
1931	15,773	76,317	(a)	(a)
1932	6,725	32,523	420	14,500
1933	6,874	30,557	399	14,798
1934	14,748	69,104	2,733	105,072
1935	18,394	79,914	3,891	149,987
1936	43,562	145,502	6,432	230,656
1937	53,066	181,146	8,994	326,091
1938	40,540	137,127	9,219	336,811

(a) Information not available.

Relatively large quantities of magnesite or magnesium refractories are also used in the smelting of non-ferrous ores but complete data relating to this consumption are not yet available.

Table 24 - CALCINED MAGNESITE USED BY THE ARTIFICIAL ABRASIVES AND ABRASIVE PRODUCTS INDUSTRY IN CANADA, 1933 - 1938.

Year	Tons	Value \$	Year	Tons	Value \$
1933	(a)	16,430	1936	418	25,256
1934	104	6,370	1937	484	29,242
1935	40	2,448	1938 .....	...	...

(a) Information not available.

Table 25 - IMPORTS OF MAGNESITE AND MAGNESITE FIRE BRICK INTO CANADA, 1931 - 1939.

Year	Magnesite, dead burned, sintered caustic calcined or plastic magnesia		Magnesite fire brick
	Cwt.	\$	\$
1931	35,741	40,628	152,435
1932	21,302	28,626	71,077
1933	28,053	43,229	246,855
1934	9,439	26,740	396,915
1935	15,296	42,644	384,141
1936	23,254	56,515	568,565
1937 (a)	20,383	55,360	653,507
1938	13,962	43,956	571,910 (b)
1939	11,928	37,366	677,011 (b)

(a) In addition, 8,222 cwt. of calcined magnesite were imported for the manufacture of insulating materials for use exclusively in the manufacture of such insulating materials; in 1938 corresponding imports totalled 5,966 cwt. valued at \$9,307, and 8,654 cwt. at \$16,745 in 1939.

(b) \$568,165 from the United States in 1938 and \$676,785 in 1939.

Imports into Canada in 1939 of magnesium carbonate, basic or otherwise, excepting crude rock, and magnesium carbonate, for use in compounding or manufacture of rubber products totalled 1,034,641 pounds valued at \$51,864; of these imports 918,178 pounds at \$41,424 came from the United Kingdom.

Table 26 - EXPORTS OF MAGNESITE, CALCINED, DEAD-BURNED, ETC., FROM CANADA, 1931 - 1939.

Year	Cwt.	\$	Year	Cwt.	\$
1931	32,214	45,257	1936	58,554	71,183
1932	23,885	33,103	1937	40,554	49,401
1933	46,396	63,056	1938	79,415/	95,607
1934	39,933	56,670	1939	147,973/	183,034
1935	31,531	43,338			

/ Practically all to the United Kingdom.

"Metal and Mineral Markets" New York October 1939 quotations for magnssits were: - per ton
f.o.b. California, dead burned, \$25. Artificial periclase, 94 per cent MgO, \$65; 90 per cent \$35. Caustic
95 per cent MgO, white color, \$40; 85 per cent MgO, no color standard \$37.50. Washington: Dead-burned
grain magnesite, \$22.

The 21st annual report of the National Research Council of Canada for the fiscal year 1937-1938 refers to metallic magnesium as follows:- "During the year under review research has been initiated on production of metallic magnesium. Being the lightest metal (its specific gravity 1.74, may be compared with that of aluminium 2.71) which is reasonably stable under atmospheric conditions, its use is expanding rapidly in aircraft construction. Canada possesses abundant supplies of magnesium-bearing minerals, and with cheap electric power, this country should be in a position to enter the field when demand increases. Research has been undertaken to examine the Canadian raw materials and to develop suitable methods for winning the metal therefrom...experiments are under way on various methods for producing the oxide in reasonably pure form from magnesite, dolomite-magnesite, and serpentine, extensive deposits of all of which occur in Canada.... Up to the present practically all the commercial metallic magnesium has been produced by electrolysis of the fused chloride. Electrothermic reduction with carbon or other suitable reducing agent is very attractive and future developments are likely to be on these lines..."

It is also interesting to note that the Consolidated Mining and Smelting Company of Canada, Limited reported that in 1939 the development of an improved process on a semi-commercial scale for the production of magnesium was successfully concluded by its Research Department.

Table 27 - WORLD'S PRODUCTION OF MAGNESITE, 1936, 1937 and 1938. (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries) (Long tons)

Producing Country and Description	1 9 3 6	1 9 3 7	1 9 3 8
<u>BRITISH EMPIRE</u>			
Union of South Africa - Crude	1,667	1,724	2,574
Canada - Crude	(d)	(d)	(d)
India - Crude	15,468	26,166	25,611
Australia - Crude	17,615	19,705	19,516
<u>FOREIGN COUNTRIES</u>			
Austria - Crude	391,494	451,980	(a)
Caustic (c)	57,621	(a)	(a)
Dead-burnt (c)	97,025	(a)	(a)
Bricks (c)	42,015	(a)	(a)
Czecho-Slovakia - Crude (b)	8,545	12,010	12,789
Calcined (b)	34,957	37,465	28,923
Bricks (b)	1,612	3,256	902
Germany (Prussia) - Crude	14,789	20,758	(a)
Greece - Crude	114,272	159,123	(a)
Caustic (c)	22,762	44,548	(a)
Dead-burnt (c)	6,552	5,404	(a)
Italy - Crude	3,105	5,307	6,060
Calcined (c) .....	...	...	650

Table 27 - WORLD'S PRODUCTION OF MAGNESITE, 1936, 1937 and 1938. (Concluded) (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries) (Long tons)

Producing Country and Description	1936	1937	1938
<u>FOREIGN COUNTRIES</u> (concluded)			
Norway - Crude	3,067	2,063	(a)
Calcined (c)	544	601	(a)
Bricks (c)	607	587	(a)
Yugoslavia (Serbia only) - Crude	38,392	40,531	38,693
Calcined	13,910	19,464	15,146
United States - Crude	184,928	181,640	86,600
Caustic (sales) (c)	7,141	8,956	6,607
Dead-burnt (sales) (c)	80,338	74,289	34,588
Korea - Crude	14,033	(b) 14,188	(b) 15,820
Manchuria - Crude	227,000	(b) 163,797	(b) 168,996
Turkey - Crude	2,247	316	850

NOTE: Magnesite is also produced in the U.S.S.R.

(a) Information not available.

(b) Exports less imports.

(c) Derived from crude shown, and not additional.

(d) Production recorded by value only:-

1936	£154,583.
1937	£137,086.
1938	£ 85,280.

For 1936 and 1937 the values represent the calcined magnesite sold plus the value of manufactured products, whereas the 1938 figure represents the value of calcined magnesite sold plus the value of the magnesite used for further manufacture.

MAGNESIUM SULPHATE - Production (sales) of natural magnesium sulphate or crude epsom salts in Canada during 1939 totalled 550 short tons valued at \$9,900 compared with 470 short tons worth \$9,400 in 1938. Production during the year under review represents refined material shipped from the plant of Epsom Refineries Limited located at Ashcroft, British Columbia. The refinery operated until May 31 and treated crude salts obtained from the Basque deposits located in the Kamloops Mining Division. No mining operations were conducted in 1939. The properties of Epsom Refineries Limited were purchased in 1939 by Winnipeg interests and the refinery was later dismantled. It was suggested by the new owners that if operations were resumed a new refinery might be constructed at the deposits in order to reduce the haulage costs on raw material.

The stoppage of imports of magnesium sulphate owing to war conditions and the appreciable rise in price of the high grade material offers a good opportunity for the western Canadian deposits again to become steady producers.

In 1918 crude magnesium sulphate was mined at Spotted Lake in the Osoyoos division, British Columbia, the crude material was refined at Oroville, Wash., U.S.A.; shipments in 1916 were reported at 250 tons and in 1915 about 300 tons; the same operator also made shipments during 1918 from a deposit near Clinton, in Lillooet, British Columbia.

Table 28 - TOTAL RECORDED PRODUCTION OF NATURAL MAGNESIUM SULPHATE IN CANADA (x).

Year	Tons	Value \$	Year	Tons	Value \$
1917	929	4,645	1933	120	3,360
1918	1,949	14,565	1934	42	1,100
1919	738	9,115	1935	340	7,965
1920	1,947	39,886	1936	654	13,712
1921	2,029	39,506	1937	727	14,456
1922	1,021	24,017	1938	470	9,400
1923	121	6,580	1939	550	9,900
1924 - 1932 .....	...	...	GRAND TOTAL	11,637	198,207

(x) Produced entirely in British Columbia.

Table 29 - MAGNESIUM SULPHATE USED IN CANADIAN PHARMACEUTICAL PREPARATIONS AND TANNING, 1932 - 1938.

Year	Pharmaceutical preparations		Tanning(x)	
	Pounds	Value \$	Pounds	Value \$
1932	622,459	28,073	181,811	2,418
1933	851,355	24,629	396,424	4,467
1934	816,830	33,793	228,281	4,789
1935	826,082	22,647	759,744	12,254
1936	878,120	23,162	1,115,965	15,120
1937	919,825	23,881	992,203	16,165
1938	855,547	23,687	1,272,549	14,153

(x) Data not entirely complete for years prior to 1935.
Data not complete for 1939.

Table 30 - IMPORTS INTO CANADA OF MAGNESIUM SULPHATE (EPSOM SALTS), 1931 - 1939.

Year	Pounds	\$	Year	Pounds	\$
1931	4,120,086	43,807	1936	3,579,069	37,928
1932	4,383,115	47,679	1937	3,355,147(x)	33,116
1933	4,269,852	49,868	1938	3,606,167(a)	33,018
1934	4,599,518	48,459	1939	3,901,383	56,648
1935	3,684,390	40,407			

(x) 2,553,069 pounds valued at \$17,030 from Germany and 693,204 pounds at \$14,058 from United States.

(a) 2,883,622 pounds valued at \$18,659 from Germany and 604,205 pounds valued at \$12,312 from the United States in 1938 and 1,375,626 pounds at \$9,901 from Germany and 2,353,269 pounds at \$43,513 from United States in 1939.

Canadian trade publications quoted (September, 1939) magnesium sulphate, B.P. bbls. 2½ to 3 cents per pound. Technical, bags, \$35 to \$40 per ton.

MINERAL WATERS - Shipments of natural mineral waters from Canadian springs totalled 123,769 imperial gallons valued at \$19,105 in 1939 compared with 188,309 imperial gallons worth \$21,619 in the preceding year. Production during both years originated in Ontario and Quebec. Some of the more prominent Canadian mineral waters possessing special therapeutic or hygienic properties include the following: in Quebec, the Abenakis springs on the St. Francois river in Yamaska county; Potton Springs in Brome county and the Coulombia spring at L'Epiphanie. In Ontario, saline, sulphur and gas springs occur at Caledonia Springs and at Carlsbad Springs, near Ottawa; the waters range from alkaline to strongly saline. St. Catharines, near Niagara, is one of the oldest Canadian mineral water resorts and sulphur waters are found at the Preston mineral springs in Waterloo county. The most famous of all Canadian springs is undoubtedly the group of hot sulphur springs at Banff, Alberta. In British Columbia the Harrison Hot Springs in the Fraser Valley and the Halcyon Hot Springs on Arrow Lake are noted for their curative properties.

The total number of firms reporting production of natural mineral waters in the Dominion totalled 13 in 1939, of which 10 were located in the province of Quebec and 3 in Ontario.

It is interesting to note that natural mineral waters from springs in the county of Lac St. Jean, Quebec, were utilized during both 1936 and 1937 in highway maintenance.

Table 31 - SHIPMENTS OF NATURAL MINERAL WATERS FROM CANADIAN SPRINGS, 1930 - 1939.

	QUEBEC		ONTARIO		CANADA	
	Imp. gal.	\$	Imp. gal.	\$	Imp. gal.	\$
1930	12,941	3,727	214,200	20,754	227,141	24,481
1931	19,868	4,746	197,540	8,578	217,408	13,324
1932	15,506	4,697	61,208	2,473	76,714	7,170
1933	9,024	3,094	29,794	2,347	38,818	5,441
1934	75,665	16,116	21,775	1,622	97,440	17,738
1935	126,616	15,113	19,900	1,477	146,516	16,590
1936	131,186	17,399	23,100	1,117	154,286	18,516
1937	198,319	19,697	26,700	889	225,019	20,586
1938	159,893	19,033	28,416	2,586	188,309	21,619
1939	104,629	17,503	19,140	1,602	123,769	19,105

Imports into Canada of natural mineral waters, not in bottles, totalled 60 imperial gallons valued at \$23 in 1939 compared with 90 gallons worth \$20 in 1938. Mineral and aerated waters, n.o.p., imported during 1939 were valued at \$69,525 against \$61,928 in the preceding year.

Exports of mineral and aerated waters during 1939 were valued at \$1,842 while in 1938 similar exports amounted to \$6,177.

Table 32 - SALES OF NATURAL MINERAL WATERS(x) BY THE CANADIAN AERATED WATERS INDUSTRY, 1930 - 1939.

Years	\$	Years	\$
1930	178,348	1935	45,100
1931	140,730	1936	63,687
1932	92,066	1937	102,648
1933	77,125	1938	105,872
1934	52,113	1939	(a)

(x) Whether fortified or not.

(a) Not complete.

PEAT - Production of peat (fuel) in Canada during recent years came entirely from the provinces of Ontario and Quebec. Output in both 1938 and 1939 originated in Ontario only and in 1939 amounted to 445 short tons valued at \$2,445 compared with 620 tons at \$3,500 in 1938. In 1939 there were 2 firms reporting operations compared with 3 in 1938.

In addition to the production of peat as a fuel there is now produced in Canada a peat moss for use as a litter and insulator. Imports of peat moss into Canada in 1939 totalled 354 tons valued at \$6,508 compared with 433 tons worth \$8,746 in 1938; the greater part of this material came from the United States.

PHOSPHATE - Production of phosphate in 1939 amounted to only 157 tons valued at \$1,712. The mineral during the year under review was obtained entirely from deposits located in the Hull-Buckingham district of the province of Quebec and was utilized in the manufacture of chemicals. The mineral as produced in Canada usually represents a by-product in the mining of mica.

The Department of Mines and Resources, Ottawa, reports that the only important recorded occurrences of phosphate rock in Canada are the Precambrian apatite deposits of the Ottawa-Kingston region in Ontario and Quebec, and the rather low-grade sedimentary phosphate of the Crowsnest district just west of the boundary between southern Alberta and British Columbia.

The Quebec and Ontario apatite deposits were once of considerable importance and were actively mined as a source of fertilizer phosphate, but the industry became unprofitable upon the discovery of the immense sedimentary phosphate deposits of the Southern United States about 1890. Enormous tonnages of apatite are now being produced by concentration from low-grade ores of the Murmansk region in Russia.

Although fertilizers will always continue to consume the great bulk of the world's phosphate produced, a growing future for phosphorous and its compounds appears to be assured. One of such chemicals that is rapidly coming into extensive use is tri-sodium phosphate, employed as a detergent in laundry work and as a general cleanser, as well as for preventing scale or scum in boiler-feed and washing waters, and in the tanning, photographic, sugar, and other industries.

The largest annual output of phosphate to be recorded in Canada was for 1890 in which year production was reported at 31,753 tons valued at \$361,045. The total production of the mineral in the Dominion from 1870 to the end of 1939 totalled 342,342 short tons valued at \$4,658,048.

Table 33 - PRODUCTION OF PHOSPHATE IN CANADA, 1918 and 1928 - 1939.

Year	Short tons	\$	Year	Short tons	\$
1918	140	1,200	1934	81	683
1928	641	8,276	1935	186	1,103
1929	1,185	5,380	1936	525	4,927
1930	40	760	1937	100	900
1931 .....	...	...	1938	208	1,886
1932	1,316	12,333	1939	157	1,712
1933	2,214	5,475			

Table 34 - IMPORTS OF PHOSPHATE ROCK INTO CANADA, 1914, 1918 and 1931 - 1939.

Year	Cwt.	\$	Year	Cwt.	\$
1914	(a)	20,220	1935	1,270,284	234,480
1918	(a)	90,363	1936	1,669,478	298,179(x)
1931	2,834,458	619,079	1937	2,279,410	453,599(x)
1932	1,428,657	346,907	1938	2,568,172	455,697(x)
1933	367,020	74,527	1939	2,498,006	477,317(x)
1934	635,494	165,240			

(x) Came entirely from the United States.

(a) Not recorded.

Imports of acid phosphate, not medicinal, totalled 863,893 pounds valued at \$52,618 in 1939, while those of soda phosphates in the same year totalled 2,370,841 pounds valued at \$87,087.

In 1933 imports into Canada of fertilizers, superphosphate or acid phosphate of lime totalled 2,082,519 cwt. valued at \$979,052 of which 1,656,947 cwt. worth \$771,471 came from the United States. Imports of phosphoric acid in 1939 totalled 288,787 pounds appraised at \$15,909.

Imports of phosphorous and compounds thereof n.o.p. in 1939 totalled 172,829 pounds valued at \$44,857. Phosphate chemicals and ferro-phosphate are now manufactured in Canada at Buckingham, Quebec, from phosphate rock. The Consolidated Mining and Smelting Company of Canada Limited treat imported phosphate rock, (at Trail, B.C.) with sulphuric acid, producing "triple" superphosphate; the Company also makes ammonium phosphete and mixtures of ammonium phosphate and ammonium sulphate.

Table 35 - PHOSPHATE ROCK AND SUPERPHOSPHATE USED IN THE MANUFACTURE OF CANADIAN FERTILIZERS, 1931 - 1938.

Year	SUPERPHOSPHATE		PHOSPHATE ROCK	
	Short tons	\$	Short tons	\$
1931	51,639	595,789	48,373	395,547
1932	36,005	366,462	41,114	316,518
1933	59,443	657,123	21,961	164,614
1934	73,182	839,980	48,007	396,133
1935	86,701	986,674	74,507	610,118
1936	97,515	1,103,222	60,924	438,948
1937	137,801	1,661,243	101,704	726,572
1938	168,519	2,047,206	102,125	765,816

"Metal and Mineral Markets" - New York - October, 1939 - phosphate quotations - were - per long ton, f.o.b. mines: Florida pebble, domestic: 77 to 76 per cent, \$3.65; 75 per cent, \$2.90. Tennessee, ground lime phosphate, 85 per cent, through 300 mesh, 34.30 per cent P_2O_5 , \$7.00 per short ton, bags extra.

Table 36 - WORLD'S PRODUCTION OF PHOSPHATE ROCK, 1936, 1937 and 1938. (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries)
(Long tons)

Producing Country	1936	1937	1938
BRITISH EMPIRE			
Tanganika .....	...	102	104
Seychelles (exports)	23,564	9,442	21,360
Canada	469	89	186
India	128	166	23
Christmas Island	161,440	162,568	159,859
Australia	175	16	(a)
Nauru Island	547,400	688,900	841,050
Ocean Island	403,100	398,800	299,550
TOTAL	1,136,000	1,260,000	1,322,000

Table 36 - WORLD'S PRODUCTION OF PHOSPHATE ROCK, 1936, 1937 and 1938. (Concluded) (Taken from the Imperial Institute's publication - The Mineral Industry of the British Empire and Foreign Countries)
(Long tons)

Producing Country	1936	1937	1938
<u>FOREIGN COUNTRIES</u>			
Belgium (b)	15,836	...	(a)
Estonia	11,228	9,952	12,806
France	54,100	101,747	(a)
Germany	1,043	3,262	(a)
Italy .....	...	197	...
Poland	12,300	(a)	(a)
Roumania (c)	1,023	935	(a)
Sweden	6,043	4,839	6,094
U.S.S.R. (d)	2,178,900	(a)	(a)
Algeria	523,000	621,180	575,221
Egypt	522,644	508,837	451,164
Madagascar	5,265	4,222	5,602
Morocco (French)	1,314,303	1,455,156	1,464,021
Tunis	1,464,000	1,757,100	1,906,300
Netherlands West Indies	78,787	96,288	97,715
United States	3,462,837	4,261,416	3,860,476
Formosa	210	(a)	(a)
French Indo-China	9,200	19,932	36,751
China (estimated)	8,000	8,000	8,000
Japan	111,315	(a)	(a)
Netherlands East Indies	11,238	25,754	32,590
Philippine Islands	444	738	(a)
Angaur Island (exports)	87,817	89,220	103,910
French Oceania	144,900	160,000	111,000
New Caledonia	4,800	302	1,730
TOTAL	10,000,000	(a)	(a)
WORLD'S TOTAL	11,100,000	(a)	(a)

(a) Information not available.

(b) In addition phosphatic chalk was produced as follows:-

1936 58,737 long tons.

1937 51,444 " "

(c) Phosphatic guano, converted from cubic metres at the rate of 1 cubic metre = 2 long tons.

(d) Figures refer to concentrates of apatite and phosphate rock plus the ground phosphate used directly as a fertilizer. The production of phosphate rock before concentration was:-

1936.

Phosphate rock (excluding apatite) 1,764,400 long tons.

SILICA BRICK - The production of silica brick in Canada during 1939 totalled 2,493 M valued at \$124,807 compared with 1,788 M worth \$100,403 in 1938. The manufacture of these refractories was confined, in both years, to the plants of the Dominion Steel and Coal Company, Ltd., at Sydney, Nova Scotia, and the Algoma Steel Corporation Ltd., Sault Ste. Marie, Ontario. The brick manufactured by both of these companies are processed from crushed silica rock and are utilized in furnace construction and repairs.

Table 37 - PRODUCTION OF SILICA BRICK IN CANADA, 1928 - 1939.

Year	M	\$	Year	M	\$
1928	3,224	155,502	1934	2,528	85,945
1929	3,951 [/]	173,581	1935	2,461	96,194
1930	2,418	97,379	1936	2,393	97,285
1931	900	35,746	1937	3,744	181,126(a)
1932	93	4,304	1938	1,788	100,403
1933	636	23,185	1939	2,493	124,807

[/] largest annual output.

(a) largest annual value.

Table 38 - IMPORTS OF SILICA BRICK(x) INTO CANADA, 1931 - 1939.

Year	\$	Year	\$
1931	234,909	1936	261,974(a)
1932	122,952	1937	539,253(b)
1933	147,901	1938	240,184(c)
1934	210,190	1939	312,413(d)
1935	215,500		

(x) Containing not less than 90 per cent silica.

(a) \$261,952 from the United States.

(b) \$527,444 from the United States.

(c) All from United States.

(d) \$294,228 from the United States.

SODIUM CARBONATE (NATURAL) - Production of natural sodium carbonate in Canada during 1939 totalled 300 short tons valued at \$2,400 compared with 252 tons at \$2,268 in 1938. Deposits of this material in the form of "natron" (sodium carbonate with 10 molecules of water) and also as brine, occur in a number of "lakes" throughout the central part of the province of British Columbia, chiefly in the Clinton mining division, around 70 Mile House, and in the neighbourhood of Kamloops. Production in Canada during recent years has come entirely from deposits in British Columbia and in 1939 all commercial shipments of primary or mine material were made from 70 Mile and Chasm on the line of the Pacific Great Eastern Railway. The first commercial shipments of natural sodium carbonate from Canadian deposits were recorded for 1921 in which year 197 short tons valued at \$14,775 were reported as sold. The total Canadian production of the material to the end of 1939 totalled 8,459 short tons valued at \$99,870.

Table 39 - PRODUCTION OF SODIUM CARBONATE (NATURAL) IN CANADA, 1929 - 1939.

Year	Tons	\$	Year	Tons	\$
1929	600	8,100	1935	242	2,430
1930	364	4,550	1936	192	1,677
1931	712	7,351	1937	286	2,574
1932	495	5,450	1938	252	2,268
1933	559	5,773	1939	300	2,400
1934	244	1,920			

Table 40 - IMPORTS OF SODA ASH OR BARILLA INTO CANADA, 1931 - 1939.

Year	Pounds	\$	Year	Pounds	\$
1931	1,647,304	25,771	1936	(a) 3,184,692	43,503
1932	1,803,951	27,751	1937	(b) 10,103,477	113,219
1933	1,616,483	23,256	1938	(c) 2,908,364	41,831
1934	2,311,498	32,258	1939	(d) 3,145,499	45,377
1935	2,647,572	37,995			

(a) 2,600,080 pounds from the United States and 584,612 pounds from the United Kingdom.

(b) 10,101,867 pounds from the United States and 1,610 pounds from the United Kingdom.

(c) 2,907,264 pounds from the United States.

(d) 3,123,883 pounds from the United States.

Table 41 - SODIUM CARBONATE (SODA ASH) USED IN THE CANADIAN CHEMICALS AND ALLIED PRODUCTS INDUSTRIES, 1931 - 1938.

Year	Pounds	\$	Year	Pounds	\$
1931	12,439,458	201,654	1935	24,971,934	372,286
1932	11,421,879	193,422	1936	27,352,622	424,729
1933	12,221,928	191,639	1937	29,511,323	430,657
1934	21,879,170	327,214	1938	30,034,048	437,833

Table 42 - SODA ASH USED IN CANADIAN INDUSTRIES, AS SPECIFIED, 1931 - 1938.

Year	Pulp and Paper		Non-metallic minerals(x)		Dyeing, cleaning and laundry		Dyeing and finishing of textiles		Sugar refineries	
	Tons	\$	Pounds	\$	Pounds	\$	Pounds	\$	Pounds	\$
1931	3,707	120,461	47,764,713	694,806	(not available)		...	...	...	...
1932	2,556	86,996	43,545,840	598,884	502,459	16,322	424,340	8,122	278,152	7,078
1933	2,628	92,818	38,336,000	505,152	556,599	17,220	310,073	6,197	173,066	4,364
1934	1,863	67,276	49,259,418	644,655	761,515	19,274	497,328	10,255	192,241	4,635
1935	2,074	74,568	47,847,466	632,715	682,033	16,282	419,909	8,014	193,966	4,578
1936	2,692	93,418	52,222,000	673,232	617,432	16,343	339,812	5,922	173,203	4,095
1937	2,696	91,989	62,582,000	817,455	795,312	25,534	324,247	5,827	190,320	4,134
1938	2,166	73,236	59,092,431	757,283	860,315	22,073	299,601	5,575	189,171	4,118

(x) Includes coke and gas, glass, and petroleum refining.

"Canadian Chemistry and Metallurgy" - Toronto - quoted soda ash (September, 1939) - bags of 100 pounds, \$2.00.

SODIUM SULPHATE - NATURAL - (Glauber's Salt and Salt Cake) - Producers' shipments of natural sodium sulphate in Canada totalled 71,485 short tons valued at \$628,151 in 1939 compared with 63,009 tons at \$553,307 in 1938.

Sodium sulphate is recovered in Canada almost entirely in the province of Saskatchewan and is produced either as hydrated sodium sulphate, known as Glauber's salt, or anhydrous sodium sulphate, known to the trade as "salt cake". It occurs as crystals (Glauber's salt) or in the form of partially saturated or saturated brines in many lakes throughout western Canada. Some of the Saskatchewan properties are equipped with plants for the purification and dehydration of the crude salt. It is interesting to note that a relatively small commercial output of the mineral has been reported in the province of Alberta since 1937. The increased demand for sodium sulphate from the pulp mills and the nickel-copper smelting industry was largely responsible for the large increase in output of sodium sulphate in recent years.

The International Nickel Company of Canada Limited reported that in 1939 the sodium sulphate works of the Horseshoe Lake Mining Company, Limited, at Ormiston, Saskatchewan, were operated to capacity from January to April, inclusive, and from April to September at the rate of five and a half days per week, when operations were suspended. Ample stocks of sodium sulphate, an important flux for use in the Copper Cliff smelter, have been accumulated.

The total commercial shipments of Canadian natural sodium sulphate since the commencement of production in 1920 to the close of 1939 totalled 581,786 short tons valued at \$4,999,697.

During 1939 seven firms, five in Saskatchewan and two in Alberta, reported production of natural sodium sulphate; capital employed by the industry was reported at \$896,818; fuel, purchased electricity and process supplies consumed totalled \$179,609 and \$136,416 were distributed as salaries and wages to 102 employees.

"Canadian Chemistry and Metallurgy" - Toronto - (September, 1939) - quoted sodium sulphate (Glauber's salt), crystals, in bags, cwt., to \$1.25; carlots, bulk - \$16.00 per ton; anhydrous, bags \$25.00 to \$35.00 per ton.

Table 43 - PRODUCTION OF NATURAL SODIUM SULPHATE(x) IN CANADA, 1929 - 1939.

Year	Short tons		Year	Short tons	
		\$			\$
1929	5,018	64,112	1935	44,817	343,764
1930	31,571	293,847	1936	75,598	552,681
1931	44,957	421,097	1937	79,804	617,548
1932	22,466	271,736	1938	63,009	553,307
1933	50,080	485,416	1939	71,485	628,151
1934	66,821	587,986			

(x) Produced in the province of Saskatchewan, with the exception of 80 tons valued at \$480 produced in Alberta during 1937, 89 tons worth \$1,127 produced in the same province in 1938 and 30 tons at \$186 in 1939.

Table 44 - IMPORTS INTO CANADA OF SALT CAKE (SULPHATE OF SODA), 1931 - 1939.

Year	Pounds	\$	Year	Pounds	\$
1931	17,321,652	97,215	1936	23,494,805	110,676
1932	8,865,730	51,925	1937	(a) 28,234,278	132,352
1933	5,191,036	34,371	1938	(b) 11,572,628	61,122
1934	21,154,815	123,980	1939	(x) 13,083,040	73,575
1935	10,352,070	49,354			

(x) Of the 1939 imports, 4,788,768 pounds came from the United States and 8,294,272 pounds from the United Kingdom.

(a) 17,755,034 pounds from the United States and 10,479,244 pounds from the United Kingdom.

(b) 9,537,472 pounds from the United Kingdom and 2,035,156 pounds from the United States. Exports of soda and sodium compounds from Canada, totalled 825,413 cwt. valued at \$4,000,307 in 1938. Exports of natural sodium sulphate are not shown separately in the customs classification.

Table 45 - IMPORTS INTO CANADA OF GLAUBER'S SALT, 1931 - 1939.

Year	Pounds	\$	Year	Pounds	\$
1931	1,999,042	10,838	1936	2,510,103	27,521
1932	1,806,882	11,027	1937	(a) 3,512,363	25,090
1933	1,791,011	13,237	1938	(b) 4,532,986	30,288
1934	1,266,665	8,853	1939	(x) 2,660,372	20,102
1935	3,167,715	26,591			

(x) 1,881,068 pounds from Germany, 761,832 pounds from the United States, and 17,472 pounds from the United Kingdom.

(a) 3,307,638 pounds from Germany.

(b) 4,344,748 pounds from Germany.

Imports of bisulphate of soda, or nitre cake, during 1939 totalled 1,153,752 pounds valued at \$16,900, all from the United States.

Table 46 - SALT CAKE USED IN THE MANUFACTURE OF CANADIAN WOOD PULP, 1930 - 1938.

Year	Tons	\$	Year	Tons	\$
1930	33,119	676,597	1935	35,350	642,801
1931	24,756	503,560	1936	41,524	711,635
1932	24,301	489,343	1937	50,584	884,437
1933	29,563	580,251	1938	33,213	588,217
1934	34,559	655,905			

In the Southern States, some of the pulp mills are employing a synthetic material made from soda-ash and sulphur, as a substitute for salt cake in the manufacture of kraft paper.

It was reported in 1939 that another drill hole in the Weldon district, New Brunswick, encountered the glauberite-salt beds, thus extending the area of the basin already known to be underlain by these salts. The Bureau of Mines, Ottawa, reported that the operating plants in Western Canada are now capable of producing over 900 tons of dried salts per day, and, if occasion warranted, the tonnage could be greatly increased.

Table 47 - SODIUM SULPHATE USED IN THE CANADIAN ACIDS, ALKALIES AND SALTS, and MEDICINAL AND PHARMACEUTICAL INDUSTRIES, 1932 - 1938.

Year	Acids, Alkalies and Salts Industry		Medicinal and Pharmaceutical Industry	
	Tons	\$	Tons	\$
1932	94	1,811(x)	...	...
1933	9,929	141,322	39	4,879
1934	26,075	368,576	51	7,278
1935	22,485	316,734	59	4,617
1936	7,220	102,176(x)	27	2,546
1937	8,006	113,054(x)	29	2,234
1938	3,412	48,486(x)	21	1,593

(x) Does not include sodium sulphate consumed direct in the smelting of nickel-copper ores.

In 1938 there were 645,306 pounds of Glauber's salt valued at \$8,419 used in Canada in the dyeing and finishing of textiles.

STRONTIUM MINERALS - Four celestite (Sr SO_4) deposits of economic interest occur in eastern Ontario but there has been no commercial production of the mineral in Canada for several years. A special report prepared by the Imperial Institute, London, refers to strontium minerals, as follows - "The reserves of strontium minerals, however, in both England and Germany appear to be limited, and it is possible that the known deposits in Canada, United States, France, Tunis, and the U.S.S.R. will be opened up and exploited to an increasing extent in the future ... Strontium minerals are used principally in the beet-sugar industry; in pyrotechnics; as fillers; as "cleansers" for removing sulphur and phosphorus from special steels; as precipitants in the purification of caustic soda; in the chemical, pharmaceutical and ceramic industries; and in certain refrigerators". Strontium nitrate is used in Canada in the manufacture of pyrotechnics but the amount is not available for publication. No production of strontium ore in the United States has been reported since 1918 and domestic needs in that country are supplied by imports which in 1938 comprised 552,868 pounds of strontionite and celestite valued at \$2,824; strontium nitrate 364,362 pounds at \$23,921 and precipitated carbonate (and oxide) 82,859 pounds worth \$8,502. Data relating to Canadian imports of strontium minerals and chemicals are not shown separately in the Canadian customs classification.

"Metal and Mineral Markets" New York, October, 1939, quoted - per ton in carload lots, 90 per cent Sr SO_4 , finely powdered, \$37. Strontionite - per ton, lump in carload lots, minimum 84 - 86 per cent Sr CO_3 \$55 - nominal.

SULPHUR - The sulphur content of iron pyrites shipped and sulphur recovered from non-ferrous smelter gas in 1939 totalled 211,278 short tons valued at \$1,668,025 compared with 112,395 tons at \$1,044,817 in 1938. The quantity and value of Canadian sulphur output in 1939 were the greatest ever attained in Canadian mining history. Production in 1939, as in immediate preceding years, came from the provinces of Quebec, Ontario and British Columbia.

No iron pyrites deposits, known as such, have been mined in Canada for some years and statistics published regarding recent pyrites production refer to by-product iron pyrites recovered in the mining and concentrating of copper-gold-silver ores. The Matachewan Hub Pioneer Mines Ltd., with a pyrites deposit in Cairo township, District of Matachewan, Ontario, reported that research work was carried on during 1938 and a pilot plant was established in Toronto for the purpose of working out a process of sulphur and iron recovery. No mining development work was reported at the deposit during 1938 or 1939. This company stated that "Allied Iron and Sulphur Mines Limited", an associated company, planned to commence commercial shipments from the property in 1940.

Westario Sulphur Mines Limited, Hudson, Ontario, also reported that they expected to have iron pyrites ore ready for shipment early in 1940.

During 1939 iron pyrites was concentrated and shipped in the province of Quebec by the Aldermac Copper Corporation Limited, Beauchastel township; Noranda Mines Limited, Noranda, and by the Consolidated Copper and Sulphur Company Limited, Eustis; the last named company discontinued mining operations in 1939.

During 1939 Northern Pyrites Limited conducted development work on an iron pyrites deposit located on the east side of the Estall River, about 45 miles from Port Essington, British Columbia; no shipments of ore were reported.

Sulphur employed in the manufacture of sulphuric acid during 1939 was recovered from salvaged smelter gas in Ontario and British Columbia. In Ontario, Canadian Industries Limited continued the operation of its acid plant at Copper Cliff, using sulphur dioxide obtained from the smelter of the International Nickel Company, while in British Columbia the Consolidated Mining and Smelting Company of Canada, Limited, manufactured sulphuric acid and other chemical products at Trail, using the by-product gases of its metallurgical plants. The Consolidated Mining and Smelting Company reported that the percentage of sulphur dioxide removed from flue gases from metallurgical operations and utilized mainly in the production of sulphuric acid and fertilizers, increased to 70.3 per cent compared with 53.3 per cent in 1937.

"Mining and metallurgy, of the A. I. of M. & M.E. (July, 1939) states:- "Pyrites, largely used for the manufacture of sulphuric acid, is consumed in the United States to the extent of about a million long tons a year, half of which is normally produced there and half imported, mostly from Spain ... Germany produces only a quarter of her requirements. Buyers of pyrites in the Eastern United States include the General Chemical Co.; the Baugh Chemical Co.; the Davison Chemical Co.; and the F.S. Royster Guano Co., all of Baltimore; and to some extent the American Sheet and Tin Plate Co., Vandergrift, Pa., the Reliance Phosphate Co., of Savannah, the Monsanto Chemical Co., and the Maybank Fertilizer Co. Some of these have stocks sufficient for some months to come, but it would appear that some of them may soon be looking for new sources of supply."

"Metal and Mineral Markets" - New York - October, 1939, quotation for iron pyrites was per long ton unit of sulphur, c.i.f. United States ports, guaranteed 48 per cent sulphur, Spanish 12 cents. Sulphur-per long ton for domestic market \$16 f.o.b. Texas Mines. "Canadian chemistry and process Industries", Toronto, quoted sulphur September, 1939:- sulphur, crude, contracts, f.o.b. cars at mines, long ton \$18.00 to \$20.00; crude, contracts, ex vessel, St. Lawrence and Maritime ports long ton \$23.50 - \$25.50. United States quotations for pyrites and sulphur May, 1940, were the same as for October, 1939.

Table 48 - PRODUCTION OF SULPHUR IN CANADA FOR YEARS SPECIFIED.

Year	Tons	\$	Year	Tons	\$
1886	(a)42,906	193,077	1925	7,587	58,899
1896	13,823	101,155	1926	8,975	63,899
1906	17,525	169,990	1937	25,229	198,388
1913	65,012	521,181	1928	(b)38,589	321,033
1914	93,609	744,508	1929	42,781	350,843
1915	116,157	985,190	1930	37,730	314,835
1916	116,975	1,084,095	1931	50,107	429,457
1917	155,453	1,610,762	1932	53,172	470,014
1918	154,269	1,705,219	1933	57,373	510,299
1919	65,674	522,704	1934	51,537	515,502
1920	67,608	719,110	1935	67,446	634,235
1921	12,213	116,326	1936	122,132	1,033,055
1922	6,900	74,303	1937	130,913	1,154,992
1923	11,073	113,020	1938	112,395	1,044,817
1924	9,742	95,620	1939	211,278	1,668,025

/ Sulphur in iron pyrites shipped plus sulphur recovered from non-ferrous smelter gases.

(a) Tonnage of pyrites shipped.

(b) 1928-1939 includes sulphur recovered from smelter gas.

Table 49 - PRODUCTION IN CANADA OF PYRITES WITH SULPHUR CONTENT, including SULPHUR CONTAINED IN SULPHURIC ACID, ETC., MADE FROM SMELTER GASES, 1937, 1938 and 1939.

	PYRITES (x)			SMELTER GAS		TOTAL SULPHUR	
	Sales	Sulphur content		Sulphur content			
	Tons	Tons	Value	Tons	Value	Tons	Value
			\$		\$		\$
1 9 3 7							
Quebec	56,760	28,534	194,496	...	...	28,534	194,496
Ontario .....	...	...	...	14,009	140,090	14,009	140,090
British Columbia	62,698	31,647	253,176	(a)56,723	567,230	88,370	820,406
CANADA	119,458	60,181	447,672	70,732	707,320	130,913	1,154,992
1 9 3 8							
Quebec	33,179	16,580	98,261	...	...	16,580	98,261
Ontario .....	...	...	...	16,897	168,970	16,897	168,970
British Columbia	11,425	5,797	46,376	(a)73,121	731,210	78,918	777,586
CANADA	44,604	22,377	144,637	90,018	900,180	112,395	1,044,817
1 9 3 9							
Quebec	122,218	61,476	275,951	...	...	61,476	275,951
Ontario .....	...	...	...	16,126	161,260	16,126	161,260
British Columbia	105,418	52,973	423,784	(a)80,703	807,030	133,676	1,230,814
CANADA	227,636	114,449	699,735	96,829	968,290	211,278	1,668,025

(x) Recovered from copper ore deposits.

(a) Includes elemental sulphur and sulphur in sulphuric acid and direct ammonium sulphate.

Table 50 - IMPORTS INTO CANADA OF BRIMSTONE AND SULPHUR, 1931 - 1939.

Year	Cwt.	\$	Year	Cwt.	\$
1931	2,483,842	2,281,654	1936	3,375,484	2,802,282
1932	2,099,895	2,023,085	1937	(a)4,513,683	3,669,082
1933	2,816,202	2,529,920	1938	(b)1,873,938	1,471,741
1934	3,153,943	2,589,311	1939	(c)3,044,329	2,453,836
1935	2,733,499	2,297,650			

(a) 4,511,961 cwt. from United States. (b) 1,872,536 cwt. from United States. (c) 3,043,850 from United States.

Table 51 - EXPORTS OF SULPHUR CONTAINED IN IRON PYRITES, 1931 - 1939.

Year	Tons	\$	Year	Tons	\$
1931	26,613	139,814	1936	52,192	284,718
1932	17,455	89,568	1937	46,317	251,834
1933	15,347	121,280	1938	22,109	145,189
1934	9,821	94,623	1939	110,142	793,466
1935	7,610	48,446			

16,551 tons valued at \$115,881 to United States in 1938 and 93,957 tons at \$636,938 in 1939.

The principal shipments of iron pyrites in 1918 were obtained as usual from the same source as in previous years. In Quebec, practically the same tonnage of cupriferous ores was shipped from the Eustis and Weedon mines, in the Eastern Townships. In Ontario the largest shippers for export in 1918 were the mines at Goudreau, on the Algoma central railway, in Michipicoten district, and at North Pines, on the Canadian National railway, northwest of Port Arthur. Mines shipping in 1918 for domestic consumption were the Helen, in Michipicoten, the Sulphide, Queensboro, Craig, Clyde Lake, and Bannockburn, in central Ontario; additional trial shipments of carlots were made from three other properties. In British Columbia shipments were made from the Sullivan mine at Kimberley to the sulphuric acid plant at Trail, and from Anyox to the acid plant at Barnett, B.C.

In 1917 sulphuric acid was made in Canada by the following firms:- Dominion Iron and Steel Co. Ltd., Sydney, N.S.; Cons. M. & S. Co., Trail B.C.; Algoma Steel Corp. Ltd.; Sault Ste. Marie, Ontario. Grasselli Chemical Co. Ltd., Hamilton, Ontario; Nichols Chemical Corp. Can. Ltd. Capelon Quebec, Sulphide, Ontario and Barnett, B.C.; Victoria Chemical Co. Ltd., Victoria, B.C.; British Chemical Co., Trenton, Ontario and Aetna Chemical Corp. Can. Ltd., Drummondville, Quebec.

Production of sulphuric acid in Canada totalled 249,558 tons (66°Bé) in 1939 compared with 268,339 tons in 1938. Canadian plants manufacturing sulphuric acid in 1939 were located at Copper Cliff, Sulphide, and Hamilton in Ontario; New Westminster, Barnett and Trail in British Columbia and Sydney, Nova Scotia.

Table 52 - AVAILABLE DATA ON THE CONSUMPTION OF SULPHURIC ACID, 66° Bé, IN CANADA BY INDUSTRIES, 1937 and 1938

Industry	1937		1938	
	Short tons	Cost at works	Short tons	Cost at works
		\$		\$
Acids, alkalies and salts	3,500	58,310	4,290	76,393
Explosives	16,342	298,229	18,203	318,061
Fertilizers	172,570	1,601,144	161,829	1,579,949
Adhesives	655	11,312	554	10,075
Cellulose products	2,960	56,326	2,119	38,272
Paints, pigments and varnishes	427	7,744	326	5,478
Soaps	64	2,622	77	3,435
Insecticides	3	348	1	56
Miscellaneous chemicals	419	12,542	304	10,937
Wire and wire goods	6,598	105,122	3,935	71,733
Sheet metal products	2,359	49,185	1,549	34,803
Castings and forgings	621	12,336	545	11,663
Heating and cooking apparatus	15	1,064	12	651
Boilers, tanks and engines	36	1,368	44	1,528
Miscellaneous iron and steel	8	514	...	...
Electrical apparatus	2,223	65,288	2,062	60,279
Coke and gas	23,179	328,521	21,857	317,195
Petroleum refining	11,543	204,255	9,937	194,046
Leather tanning	1,741	43,307	1,488	38,499
TOTAL ACCOUNTED FOR	245,263	2,859,537	229,132	2,773,053

NOTE - This information was not asked for on all questionnaires which were sent out under the annual Census of Industry, consequently complete data are not available.

Table 53 - CONSUMPTION OF SULPHUR BY SPECIFIED CANADIAN INDUSTRIES, 1936, 1937 and 1938.

Industry	1 9 3 6		1 9 3 7		1 9 3 8	
	Tons	\$	Tons	\$	Tons	\$
Wood-pulp	143,317	3,310,932	165,559	3,827,991	106,255	2,433,161
Petroleum refining	66	4,631	80	6,776	140	8,128
Acids, alkalies and salts ...	11,738	222,053	21,329	403,511	12,103	246,774
Matches	28	1,344	63	3,043	67	3,130
Explosives	1,902	49,427	2,377	62,075	2,284	60,712
Insecticides	1,038	42,920	1,023	35,077	1,163	40,463
Adhesives	59	1,963	70	2,336	71	2,487
Chemicals, miscellaneous	7	259	32	994	3	136
Rubber	1,190	51,059	1,393	60,370	1,115	49,262
Sugar	179	8,568	157	7,104	133	6,280
Fruit and vegetable preparations	38	3,054	33	2,343	20	1,525
Other industries (x)	193	6,235	224	7,895	195	7,177

(x) Starch and glucose, dyeing and finishing of textiles.

Table 54 - PRODUCTION OF MISCELLANEOUS NON-METALLIC MINERALS IN CANADA, 1938 and 1939.

Item	Unit of measure	1 9 3 8		1 9 3 9	
		Quantity	Value	Quantity	Value
Barytes	Ton	...	...	(d)	3,639
Diatomite (c)	Ton	398	13,842	301	10,388
Fluor spar	Ton	217	3,906	240	4,995
Graphite .....	\$	...	41,590	...	61,684
Grindstones (b) (c)	Ton	306	16,198	304	15,278
Lithium minerals .....	\$	...	...	...	...
Magnesium sulphate	Ton	470	9,400	550	9,900
Magnesian dolomite .....	\$	...	420,261	...	474,418
Mineral waters	Imp. gal.	188,309	21,619	123,769	19,105
Peat production	Ton	620	3,500	445	2,445
Phosphate (a)	Ton	208	1,886	157	1,712
Silica brick	M	1,788	100,403	2,493	124,807
Sodium carbonate	Ton	252	2,268	300	2,400
Sodium sulphate	Ton	63,009	553,307	71,485	628,151
TOTAL (Gross) .....	\$	...	1,188,180	...	1,358,922
Sulphur production (x)	Ton	112,395	1,044,817	211,278	1,668,025

(a) Represents apatite mined in Quebec, usually a by-product in mica production.

(b) Includes pulpstones, etc.

(c) In preceding years included under the natural abrasives industry.

(d) Not available for publication.

(x) Includes sulphur content of pyrites at its sales value and estimated figures for quantity and value of sulphur in smelter gases used for acid making or recovered as elemental sulphur, or in ammonium sulphate (direct). General statistics relating to production of sulphur included with those of the copper-gold mining and non-ferrous smelting industries.

Table 55 - PRINCIPAL STATISTICS RELATING TO MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1938 and 1939 (a)

	1 9 3 8	1 9 3 9
Number of plants	50	47
Capital employed	\$ 2,787,671	3,128,035
Number of employees - On salary	71	68
On wages	323	397
Total	394	465
Salaries and wages - Salaries	\$ 134,727	140,202
Wages	\$ 340,840	398,941
Total	\$ 475,567	539,143
Selling value of products (gross)	\$ 1,188,322	1,358,922
Cost of fuel and electricity	\$ 274,670	260,652
Cost of process supplies used	\$ 134,559	133,705
Selling value of products (net)	\$ 779,093	964,565

(a) Statistics since 1937 are not entirely comparable with those for preceding years in that data relating to production of natural abrasives were included with "miscellaneous non-metallic minerals" for the first time in 1937.

Table 56 - WAGE-EARNERS, BY MONTHS, IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1937 - 1939.

Month	1937	1938	1939		
			Surface	Underground	Mill
January	320	282	102	21	93
February	335	304	105	21	112
March	343	287	126	19	103
April	396	288	138	19	113
May	447	328	261	41	123
June	555	377	299	50	136
July	562	282	313	40	98
August	519	346	301	37	136
September	520	389	243	41	169
October	491	347	261	51	176
November	512	350	261	45	175
December	384	263	260	31	182
AVERAGE	452	323	222	35	135

Table 57 - FUEL AND ELECTRICITY USED IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1938 and 1939.

Kind	Unit of measure	1938		1939	
		Quantity	Cost	Quantity	Cost
			\$		\$
Bituminous coal - Canadian	ton	2,321	10,623	4,998	21,327
Imported	ton	11,850	75,553	1,928	9,189
Anthracite - From the United States	ton	15	221	4	56
Other	ton	96	775	7,666	51,759
Lignite coal	ton	13,151	33,649	13,596	34,321
Coke	ton	...	...	...	...
Gasoline	Imp. gal.	51,688	10,739	61,890	13,276
Kerosene or coal oil	Imp. gal.	574	115	883	166
Fuel oil and diesel oil	Imp. gal.	2,125,709	91,407	1,704,199	76,787
Wood (cords of 128 cubic feet)	cord	3,007	9,143	2,433	6,883
Gas - Manufactured	M cu. ft.	118,555	9,992	146,854	18,063
Natural	M cu. ft.	...	...	...	...
Other .....	\$	...	16	...	4
Electricity purchased	K.W.H.	3,289,219	32,437	2,862,866	28,821
TOTAL .....	\$	...	274,670	...	260,652
Electricity generated for own use	K.W.H.	1,038,578	...	1,088,712	...

Table 58 - POWER EQUIPMENT EMPLOYED IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES, 1938 and 1939.

Kind	1938		1939	
	Number of units	Total rated horse power	Number of units	Total rated horse power
Steam engines and steam turbines	4	465	3	200
Diesel engines	11	1,607	13	1,984
Gasoline, gas and oil engines	16	465	14	410
Hydraulic turbines or water wheels	2	150	2	150
Electric motors	164	3,674	173	3,717
Boilers	6	500	8	757

DIRECTORY OF FIRMS IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1939.

<u>Name of Operator and Province</u>	<u>Head Office Address</u>	<u>Plant Location</u>
x Active but not producing.		
<u>BARYTES</u>		
<u>ONTARIO</u> Canada Baryte Mines, Ltd. Eby, H. D.	Room 305, 156 Yonge St., Toronto 15 Wellington St. E., Toronto	Langmuir Tp. Lawson Tp.
<u>BERYL</u>		
<u>ONTARIO</u> Canadian Beryllium Mines & Alloys Ltd.	901 Royal Bank Bldg., Toronto	Lyndoch & Brudenell Tps.
<u>DIATOMITE</u>		
<u>NOVA SCOTIA</u> International Diatomite Industries Ltd. Wightman, E. W.	Tatamagouche Smith's Cove	New Annan Digby Co.
<u>ONTARIO</u> Robson, F. E.	169 Yonge St., Toronto	Muskoka
<u>BRITISH COLUMBIA</u> Fairley & Company West Coast Silica Products Ltd.	661 Taylor St., Vancouver Gabriola	Cariboo District Gabriola Island
<u>FLUORSPAR</u>		
<u>ONTARIO</u> Clark, William E. Moira Fluorspar Mining Synd. Ltd. Stocklosar, Chas. A.	312 Metropolitan Bldg., Toronto Madoc Box 198, Madoc	Cardiff Tp. Huntington Tp. Madoc Tp.
<u>GARNETS</u>		
<u>QUEBEC</u> Grenat Canada Ltd. x	4203 rue Brébeuf, Montreal	Joly Tp.
<u>GRAPHITE</u>		
<u>ONTARIO</u> Black Donald Graphite Co. Ltd.	Calabogie	Brougham Tp.
<u>LITHIUM ORE</u>		
<u>MANITOBA</u> The Lithium Corp. of Canada, Ltd. x	403 Avenue Bldg., Winnipeg	Bernic Lake
<u>MAGNESITIC DOLOMITE</u>		
<u>QUEBEC</u> Canadian Refractories Ltd. International Magnesite Co. Ltd.	1050 Canada Cement Bldg., Montreal Calumet	Kilmar Harrington Tp.
<u>MAGNESIUM SULPHATE</u>		
<u>BRITISH COLUMBIA</u> Riley, W. P.	116 Market Ave., Winnipeg, Man.	Ashcroft

DIRECTORY OF FIRMS IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1939. (continued)

<u>Name of Operator and Province</u>	<u>Head Office Address</u> x Active but not producing.	<u>Plant Location</u>
<u>MINERAL WATERS</u>		
<u>QUEBEC</u> Abenakis Springs Co. Eau Minérale Etoile	Blondin Ste. Genevieve de Batiscan	Yamaska Co. Ste. Genevieve de Batiscan
Gurd, Chas. & Co. Ltd. La Cie d'Eau Minerale La Cie d'Embouteillage St. Laurent Lafrance, Noël Maski Bottling Works Pellerin, Albert & Sons Radnor Mineral Water Springs Source Coulombe	1016 Bleury St., Montreal 148 Concorde St., St. Hyacinthe 65 rue St. Pierre, St. Hyacinthe 3 rue St. Germain, St. Hyacinthe St. Justin St. Barnabé Nord St. Maurice L'Epiphanie	Varenes St. Hyacinthe St. Hyacinthe Co. Yamaska Co. Maskinonge Co. St. Barnabé Nord St. Maurice Co. L'Epiphanie
<u>ONTARIO</u> Belleville Aqua Vitae Co. Ltd. Boyd, T. Russell Gurd, Chas. & Co. Ltd.	201 McDonald Ave., Belleville Carlsbad Springs 1016 Bleury St., Montreal	Thurlo w Tp. Carlsbad Springs Caledonia Springs
<u>NATURAL ABRASIVES</u>		
<u>NOVA SCOTIA</u> The Stanley Works	New Britain, Conn.	Merigomish Harbour
<u>NEW BRUNSWICK</u> Read Stone Co. Ltd.	c/o A. Perry, 3726 St. Ambroise St., Montreal, Que.	Stonehaven
<u>PHOSPHATE</u>		
<u>QUEBEC</u> Hart, R. Poirier, H.	Notre Dame de la Salette Wilsons Corners	Notre Dame de la Salette Gatineau Co.
<u>SILICA BRICK</u>		
<u>NOVA SCOTIA</u> Dominion Steel and Coal Corp. Ltd.	Sydney	Sydney
<u>ONTARIO</u> Algoma Steel Corp. Ltd.	Sault Ste. Marie	Sault Ste. Marie
<u>SODIUM CARBONATE</u>		
<u>BRITISH COLUMBIA</u> Bishop, J. A. Jr. / Davison, E. E. / Engman, F. W. / Engman, J. C. / McTavish, B. /	Clinton 70 Mile P.C.E.R.R. 70 Mile P.G.E.R.R. 70 Mile P.G.E.R.R. Chasm P.G.E.R.R.	Chasm 70 Mile 70 Mile 70 Mile Chasm
/ Reported as shippers by P.C.E.R.R.		
<u>SODIUM SULPHATE</u>		
<u>SASKATCHEWAN</u> Alexander, W. R. Horseshoe Lake Mining Co. Ltd. Mellor, John F. Midwest Chemicals Ltd. Natural Sodium Products, Ltd.	Viscount Ormiston Alsask Palo Bishopric	Viscount Ormiston Alsask Whiteshore Lake Frederick Lake

DIRECTORY OF FIRMS IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1939. (concluded)

<u>Name of Operator and Province</u>	<u>Head Office Address</u>	<u>Plant Location</u>
	x Active but not producing.	
<u>SODIUM SULPHATE (con.)</u>		
<u>ALBERTA</u>		
Bohannon, D. W.	Garfield	Oyen
Buschert, J.	Cereal	Cereal
<u>SULPHUR</u>		
<u>QUEBEC</u>		
Aldermac Mines Ltd. (a)	941 Dominion Square Bldg., Montreal	Rouyn Dist.
Consolidated Copper and Sulphur Co. Ltd. (a)	Eustis	Eustis
Noranda Mines Ltd. (a)	Royal Bank Bldg., Toronto	Noranda
<u>ONTARIO</u>		
International Nickel Co. of Canada, Ltd. (b)	Copper Cliff	Copper Cliff
<u>BRITISH COLUMBIA</u>		
Consolidated Mining & Smelting Co. of Canada, Ltd. (b)	Trail	Trail
Britannia Mining & Smelting Co. Ltd. (a)	Britannia Beach	Britannia Beach.
(a) Produce by-product iron pyrites.		
(b) Salvage sulphur from smelter gases.		

NOTE - Unless otherwise specified in this report 1 cwt. = 100 pounds and 1 ton = 2,000 pounds.

STATISTICS CANADA LIBRARY
BIBLIOTHÈQUE STATISTIQUE CANADA



1010739367