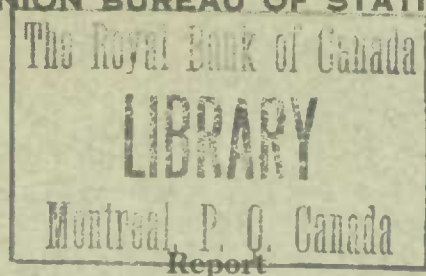


53.
1932
26-220
c.2
NOV 28 1933

CANADA
DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS



on
THE MISCELLANEOUS NON-METALLIC MINERALS
IN CANADA, 1932

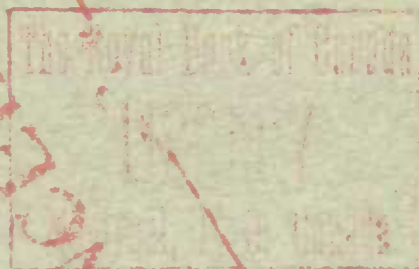
including

Actinolite	Mineral Waters
Barytes	Peat
Bituminous Sands	Phosphate
Fluorspar	Silica Brick
Graphite	Sodium Carbonate
Magnesitic Dolomite	Sodium Sulphate
Magnesium Sulphate	Sulphur
Bog Manganese	

Published by Authority of the HON. H. H. STEVENS, M. P.,
Minister of Trade and Commerce.

OTTAWA
1933

553.6071



Cancelled
Date

DOMINION BUREAU OF STATISTICS - CANADA

Dominion Statistician: R. H. Coats, B.A., F.S.S. (Hon.), F.R.S.C.

Mining, Metallurgical and Chemical Branch

Chief: W. H. Losee, B.Sc.

MISCELLANEOUS NON-METALLIC MINERALS IN CANADA, 1932.

The Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa reports finally revised statistics on the production in Canada during 1932 of actinolite, barytes, bituminous sands, fluor spar, graphite, magnesite, magnesium sulphate, bog manganese, mineral waters, peat, phosphate, silica brick, sodium carbonate, sodium sulphate and sulphur, as follows:-

ACTINOLITE - The production of actinolite in Canada has been confined to the townships of Elzevir and Kaladar in Hastings and Addington counties, Ontario. There was no production of this mineral during 1932; in 1931 the output of actinolite totalled 35 tons valued at \$456; this was crushed and pulverized and, after mixing with mica, was exported to the United States. Actinolite, often with mica, is utilized in the manufacture of coal tar roofing compounds.

BARYTES - Deposits of barytes at Five Islands, Colchester county, and Brookfield, Hants county, Nova Scotia, were first operated between 1865 and 1870. These deposits have produced about 5,000 tons of barytes. The McKellar Island deposit in Thunder Bay District, Ontario, in the course of its operations produced several thousand tons of this mineral. Large deposits of barytes at Lake Ainslie, Cape Breton Island, were opened up in 1894 and operations in this district have been practically continuous since that date. Between 1900 and 1903 the Cap Rouge deposit in North Cheticamp district was operated. In 1918 a deposit in Langmuir township, Ontario, was active and a mill for grinding and preparing barytes completed. Development work was done on the Bellew mine in North Burgess township, Ontario, in 1918. A deposit near Tionaga station was also operated in 1923 and 200 tons of barytes shipped. There was no production of barytes reported in Canada during 1932; in 1931 the output of this mineral in the Dominion came entirely from the Lake Ainslie mine in Nova Scotia. In 1932 experimental milling of barytes was conducted in Langmuir township, Ontario, by Canada Night Hawk Mines, Ltd.

New uses for barium products, according to the United States Bureau of Mines, include the following - a new compound, barium aluminate, used for water purification, of which the manufacturing process is patented, is now produced on a commercial scale. Closely allied with this use is the adoption of air-floated natural barium carbonate to replace the more expensive barium chloride in the removal of calcium sulphate from salt brine. Neither of these barium compounds, however, can be used where the resultant product is for human consumption. Recently ground barite has been added direct to glass mixtures. The consumption of barite in the United States in 1932 was apportioned as follows:- for the manufacture of ground barite, 34,554 tons; for lithopone, 120,378 tons, and for barium chemicals, 32,629 tons.

The uses of barium metal have increased in the lamp, radio and spark plug field and this has, states "Mineral Industry" allowed production on a larger scale. In 1931 the price of the metal was \$30 to \$35 per pound while in 1932 it had dropped to \$7.50 to \$10, with prospects of still lower prices as the consumption grows.

"Metal and Mineral Markets" quotes barite prices for September, 1933, as follows: f.o.b. mines: California, crude, \$6 per ton. Georgia, barytes ore, crude, \$6.50 to \$7.00 per long ton. Missouri, per ton, water ground and floated, bleached, \$23, car lots, f.o.b. works. Crude ore, minimum 95 per cent BaSo₄, less than 1 per cent iron, \$5.00; 1 per cent iron and 93 per cent BaSo₄, \$5; low grade, \$4.50, f.o.b. mines.

Imports of barytes into Canada in 1932 totalled 25,834 cwt. valued at \$22,989 as compared with 33,726 cwt. worth \$32,712 in 1931. These came in 1932, in the order of their importance, from Germany, United States and the United Kingdom. No exports of barytes were reported either in 1931 or 1932. Imports of lithopone during 1932 amounted to 16,110,700 pounds valued at \$585,148 as against 13,862,914 pounds at \$569,037 in 1931.

WORLD PRODUCTION OF BARIUM MINERALS

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries").

(Long tons)

Producing Country	1930	1931
<u>BRITISH EMPIRE</u>		
United Kingdom -		
Barytes, not ground	32,753	24,507
Witherite, not ground	8,095	7,356
Barytes and witherite -		
Ground, bleached	1,823	1,077
Ground, unbleached	16,034	12,640
Irish Free State	1,272	574
Southern Rhodesia	245	...
Canada (sales)	59	14
India	6,797	5,654
Australia	1,708	1,567
<u>FOREIGN COUNTRIES</u>		
Austria	488	86
France	39,000	(a)
Germany -		
Bavaria	17,494	(a)
Prussia	214,486	157,947
Saxony	472	(a)
Italy	19,014	(a)
Portugal .....	...	79
Spain	5,464	(a)
Algeria	2,365	(a)
United States	212,058	155,821
Korea (exports)	1,536	299

Note:- 3,875 tons of barytes were recorded as produced in Russia during year ended September, 1928 - later figures are not available.

(a) Information not available.

Note:- Data for 1932 not yet available.

BITUMINOUS SANDS - Shipments of bituminous sands from the Fort McMurray district, Alberta, amounted in 1932 to 343 tons valued at \$1,372 as compared with 1,015 tons worth \$4,060 in 1931 and 2,067 tons at \$8,268 in 1930. The 1932 shipments were from the Fort McMurray district and went to points in Saskatchewan, Alberta, Ontario and Quebec.

The investigations of the utilization of this material follow three main channels: (1) The use in bituminous road construction, as investigated largely by the Department of Mines, Ottawa. (2) The use of separated bitumen as a source of gasoline, lubricants, etc., as investigated by the Research Council of Alberta and by the Department of Mines. (3) Its use for the production of certain of the higher priced classes of asphaltic materials. Some work in this latter field has been done by the National Research Council and it has been found that by oxidation under controlled conditions mineral rubber of various grades and of very desirable quality can be produced. These are of interest in the compounding of rubber products, the production of certain bituminous paints, and the manufacture of the higher grades of mastic-type floors, etc.

Commercial trials of some of the products obtained are now under way.

The widespread nature of these deposits affords support for the view that they will in due course be of considerable economic importance.

FLUORSPAR - Production of fluorspar in Canada during 1932 amounted to 32 tons valued at \$464 as compared with an output of 40 tons worth \$620 in 1931. Production in both years came from the Madoc area, Hastings county, Ontario. Fluorspar also occurs at the Rock Candy mine situated north of Grand Forks, British Columbia; the mineral is occasionally mined at this property by the Consolidated Mining and Smelting Company for use in the metallurgical plants at Trail. The United States Bureau of Mines states that low activity in the industries using fluorspar in the United States is reflected in shipments of only 25,251 short tons of domestic fluorspar (the lowest since 1901) and imports of only 13,236 short tons (the lowest since 1921). Fluorspar shipped from United States mines was used in the United States as follows:-

Use	1 9 3 1		1 9 3 2	
	Short tons	\$	Short tons	\$
Steel	39,832	563,842	18,881	228,933
Foundry	1,123	18,075	524	7,636
Glass	5,279	162,292	3,596	101,765
Enamel and vitrolite	1,996	65,458	1,261	36,318
Hydrofluoric acid and derivatives...	4,386	108,136	738	14,603
Miscellaneous	557	7,873	226	2,691
TOTAL	53,173	925,676	25,226	391,946

Fluorspar prices in the United States, September, 1933, were: per net ton, 85 per cent CaF_2 and not over 5 per cent SiO_2 , Kentucky and Illinois mines: washed gravel, \$15; No. 2 lump, \$17. 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 , \$30 in bulk; \$34 in bags or barrels. F.O.B. Colorado, 82-5, \$10. Foreign fluorspar, gravel, 85-5, \$20.25 to \$20.75 per gross ton, duty paid, Baltimore or Philadelphia.

Imports of fluorspar into Canada during 1932 amounted to 2,018,000 pounds valued at \$22,965 as compared with 6,431,000 pounds worth \$31,257 in 1931. No exports of fluorspar from Canada were recorded for either 1931 or 1932. Hydrofluosilicic acid totalling 20,869 pounds and valued at \$1,901 was imported during 1932 as against 25,030 pounds at \$5,264 in 1931.

WORLD PRODUCTION OF FLUORSPAR

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries").

(Long tons)

Producing Country	1930	1931
<u>BRITISH EMPIRE</u>		
United Kingdom	29,788	19,922
Union of South Africa (shipments).....	1,495	2,163
Canada	71	36
Australia	953	533
<u>FOREIGN COUNTRIES</u>		
France	(a)	(a)
Germany		
Bavaria	47,304	26,357
Prussia	29,794	12,639
Saxony	8,632	(a)
Italy	6,550	5,758
Norway	245	182
Spain (b)	10,803	(a)
United States (shipments)	85,579	47,754
China	8,000	8,000
Korea	2,261	(a)

NOTE - 5,463 long tons of fluorspar were produced in Russia during year ended September, 1928 - later figures are not available.

(a) Information not available.

(b) In addition 100 cubic metres were produced from quarries during 1930.

Note:- Data for 1932 not yet available.

GRAPHITE - Canadian production of graphite in 1932 amounted to 346 short tons valued at \$18,483 as compared with an output of 548 tons worth \$32,149 in 1931; the mineral during both years was produced entirely in the province of Ontario. The general world industrial depression with a declining demand for graphite and resultant lower prices seriously affected mining operations in most of the graphite producing countries. Canada has produced both flake and amorphous graphite and in the Black Donald mine in Renfrew county, Ontario, the Dominion possesses one of the largest graphite deposits in the world. Important graphite properties have also been operated in the province of Quebec. Competition of more cheaply obtained graphite and the depressed trade conditions have resulted in the mine and mill of the Canadian Graphite Corporation at Guenette, near Mount Laurier, remaining idle since 1930; for five years previously this company had been the only graphite producer in Quebec.

Development work was conducted both in 1931 and 1932 on deposits of amorphous graphite located near Glendale, Inverness county, Nova Scotia; the mineral occurs in an impure crystalline limestone.

The following are the figures, in long tons, for shipments of graphite from Ceylon during 1932 - Japan, 1,633; United States, 1,212; United Kingdom, 1,192; Germany, 687; Australia, 360; France, 325; British India, 260; Italy, 205; Belgium, 75; Denmark, 40; Burma, 26; Canada, 25; Hong Kong, 20; China, 15; Holland, 12; British South Africa, 6; Siam, 6; Total 6,099. The average value per ton was Rs. 167.73. The correspondent of the Mining Journal, London, states that the 1932 demand in Ceylon was principally for very high carbon plumbago and as Madagascar cannot produce this quality, Ceylon had

the advantage of insisting on obtaining a reasonable price for the product; most of the Ceylon mines were worked under antiquated conditions.

A fusion in the German graphite industry has brought into existence the largest graphite company in Europe, according to the "Chemical Trade Journal and Chemical Engineer"; the absorbing concern is the Graphitwerk Kropfmühl A.G., of Munich, which is acquiring two similar companies in Bavaria as well as the plant of a larger concern, the Deutsche Graphitwerke G.m.b.H., at Dohna, near Dresden, owned by the Butgerswerke A.G. The annual graphite production, it is estimated, will be increased by 10,000 tons to approximately 30,000 tons by this merger.

Graphite prices in the United States for September, 1933, were: per lb. F. o. b. New York, Ceylon lump, $6\frac{1}{2}$ to $7\frac{1}{2}$ cents; carbon lump, 3 to 6 cents; chip, 5 to 6 cents; dust, 3 to 4 cents; Madagascar flake, 5 to 6 cents. No. 1 flake, 8 to 16 cents; No. 2, $5\frac{1}{2}$ cents upwards; fine ground, 55 to 70 per cent carbon, 3 cents upward; amorphous, 3 cents upward. Crude amorphous graphite, \$12 to \$23 per ton, according to grade.

Imports and exports of graphite or plumbago into Canada for 1931 and 1932 were as follows:-

	1931	1932
<u>IMPORTS -</u>	\$	\$
Plumbago, not ground or otherwise manufactured	1,404	1,869
Crucibles, plumbago	34,215	29,909
Plumbago, ground, and manufactures of, n.o.p.	81,233	70,565
Total Graphite and Its Products	116,852	102,343

	1931	1932
<u>EXPORTS -</u>	Quantity Value	Quantity Value
	\$	\$
Carbon and graphite electrodes	154,470	217,732
Graphite or plumbago, crude and refined	19,024 cwt 44,606	18,147 41,146

WORLD PRODUCTION OF GRAPHITE

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")
(Long tons)

Producing Country	1930	1931
<u>BRITISH EMPIRE</u>		
Union of South Africa	206	43
Canada (sales)	1,371	489
Ceylon (exports)	8,724	6,721
India .....	...	7
Australia .....	...	60
Total	10,300	7,300
<u>FOREIGN COUNTRIES</u>		
Austria	17,400	11,869
Czechoslovakia	14,330	1,801
France	226	(a)
Germany	24,602	23,199
Italy	5,787	3,986

WORLD PRODUCTION OF GRAPHITE - concluded. (Long tons)

Producing Country	1930	1931
<u>FOREIGN COUNTRIES, concluded</u>		
Norway .....	...	868
Russia (years ended Sept. 30)	(a)	(a)
Madagascar	9,700	4,613
Morocco (French zone)	1,800	(a)
Mexico	5,760	3,073
United States (sales) -		
Amorphous	1,733	(a)
Crystalline	(a)	(a)
Brazil	10	(a)
Japan	226	(a)
Korea	19,672	14,500
Total	108,000	75,000
WORLD'S TOTAL	118,000	82,000

(a) Information not available.

NOTE - Data for 1932 not yet available.

MAGNESITIC DOLOMITE - Production of calcined and dead-burned magnesitic dolomite in 1932 amounted in value to \$262,860 as compared with a value of \$295,579 in 1931 and \$336,162 in 1930. The production of this material is confined in Canada to the townships of Harrington and Grenville along the north shore of the Ottawa river, some sixty miles west of Montreal. The deposits are described as replacements in ancient crystalline limestone of the Grenville series. Deposits of hydro-magnesite occur near the town of Atlin, British Columbia.

The Quebec deposits continued to be the only commercial source of this type of product in Canada. Production was maintained surprisingly well in view of the depression in the steel industry, its chief market. New markets were also entered and the Canadian material is now finding increasing use as a basic refractory in non-ferrous metallurgical plants.

Increased manufacture and use of patching and ramming refractory materials based on magnesia or chromite is also to be noted in Canada.

What may be an occurrence of magnesite of considerable commercial significance was investigated during the year by the Geological Survey. It is situated near Cranbrook, B.C., and according to early reports is of considerable magnitude.

The United States Bureau of Mines reports that patents bearing on the utilization of dolomite have increased in number in recent years both in the United States and other countries. These patents describe the production of refractories, magnesian cements, magnesium chemicals, and metallic magnesium and indicate that dolomite, because of its widespread occurrence, must be considered an increasingly important competitor of magnesite.

The magnesite industry in Russia is being developed rapidly, Soviet figures for 1931 showing the following outputs in metric tons: crude magnesite, 246,000; caustic calcined magnesite, 14,000. The St. Miniere de la Choumediya holds a concession covering the important deposit of amorphous magnesite near Cacak, Yugoslavia. With indicated reserves ample to meet French requirements for several decades, the company has installed modern equipment intended to furnish a substantial

tonnage over a long period. During 1932 Greece exported 13,002 metric tons of crude magnesite, the distribution in per cent being as follows: Great Britain, 43; Italy, 35.5; Germany, 16; Netherlands, Belgium, Luxemburg and France, 5.5. The exports of calcined magnesite, amounting to 10,563 metric tons with an average value of 1,050 drachmas per ton, were distributed as follows: Netherlands, 35 per cent; France, 35 per cent; Germany, 15 per cent; Great Britain, 13 per cent.

The Austrian output of crude magnesite decreased from 179,440 metric tons in 1931 to 134,400 metric tons in 1932. At the same time the production of dead-burned and caustic calcined magnesite decreased 26 and 11 per cent, respectively. About one-half the Austrian output of caustic calcined magnesite is used within Austria, the exports (15,615 metric tons) going mainly to Germany, with significant quantities also to France and Czechoslovakia.

Imports of calcined magnesite (light and dead-burned) into Great Britain and Northern Ireland in August, 1933, were 1,392 tons worth £8,490. Greece supplied 528 tons; Canada, 333 tons; British India, 205 tons; Germany, 211 tons; Holland, 95 tons; and Norway, 20 tons.

Magnesite prices in the United States for September, 1933, were: per ton, f.o.b. California, dead-burned, \$25. Kiln run, 94 per cent MgO (artificial periclase), \$65. Caustic, 95 per cent MgO, \$38; 90 per cent, \$35. Washington, dead-burned grain magnesite, \$22.

Imports of magnesite, dead-burned, sintered, caustic, calcined or plastic magnesia, into Canada totalled 2,130,200 pounds valued at \$28,626 in 1932 as compared with 3,574,100 pounds at \$40,628 in 1931; of these quantities 2,015,500 pounds came from the United States in 1932 and 3,210,800 pounds in 1931.

WORLD PRODUCTION OF MAGNESITE

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")
(Long tons)

Producing Country and Description	1930	1931
<u>BRITISH EMPIRE</u>		
Union of South Africa - Crude	1,879	1,336
Canada - Crude	24,677	23,963
Caustic and dead-burnt(c)	11,907	10,188
India - Crude	16,523	5,333
Australia - Crude	8,691(e)	3,425(e)
<u>FOREIGN COUNTRIES</u>		
Austria - Crude	299,588	176,606
Caustic (c)	20,200	34,211
Dead-burnt(c)	122,264	38,186
Bricks (c)	40,434	23,441
Czechoslovakia (exports less imports)(b) - Crude	7,003	7,708
Calcined..	30,123	14,569
Greece - Crude	67,427	(a)
Caustic (c)	19,661	(a)
Dead-burnt(c)	889	(a)
Italy - Crude	4,057	(a)
Jugoslavia (Serbia only) - Crude	17,701	(a)
Calcined	8,585	8,436

WORLD PRODUCTION OF MAGNESITE-concluded
(Long tons)

Producing Country and Description	1930	1931
<u>FOREIGN COUNTRIES</u> - concluded		
Norway - Crude	2,171	1,555
Calcined	783	450
Bricks	326	290
Russia (years ended Sept. 30) - Crude	150,000	(a)
Caustic (c)	6,129	(a)
Dead-burnt (c)	62,566	(a)
Bricks (c)	53,906	(a)
United States - Crude	115,464	65,716
Caustic (sales) (c)	7,661	5,268
Dead-burnt (sales) (c)	44,161	25,206
China - Crude	29,016	30,000
Turkey - Crude	317	2,162

(a) Information not available.

(b) Production figures not available; the estimated production in 1927 was 105,000 long tons.

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

(e) Excluding production of Victoria, which is not available.

Note - Data for 1932 not yet available.

MAGNESIUM SULPHATE (Epsom Salts)- In 1915 work commenced on the spotted Lake deposit of magnesium sulphate near Kruger Mountain, Osoyoos division, British Columbia. Shipments were made of this material to the drug trade during 1915 and 1916. Crude magnesium sulphate to a total of 2,600 tons was extracted in 1917 of which quantity 929 tons were shipped to Oroville, Washington. The following year a deposit near Clinton, Lillooet district, was also operated. Preliminary shipments were made in 1920 from several lakes containing these salts, on the Basque ranch, near Ashcroft, British Columbia. No activities have been reported in this industry since 1923. In that year 121 tons of refined magnesium sulphate were shipped from a deposit near Ashcroft, British Columbia.

During some recent experimental flotation research work in Australia, it was noted that magnesium sulphate acted as an activator for marmatite. Subsequent experiments showed that it may be used in conjunction with copper sulphate and a suitable frothing agent such as eucalyptus oil to produce a concentrate of the above mentioned mineral, and thereby replace some of the more costly reagents now employed for this purpose. For small scale work magnesium sulphate in the proportion of about 1 pound per ton of flotation feed was used.

Imports into Canada during 1932 of magnesium sulphate or epsom salts totalled 4,383,115 pounds valued at \$47,679 as compared with 4,120,086 pounds at \$43,807 in 1931.

MANGANESE BOG - Bog manganese consists mainly of oxide of manganese and water, with some oxide of iron, and often silica, alumina and baryta. Shipments of bog manganese from Dawson Settlement, Albert county, New Brunswick, during 1931 amounted to 77 tons valued at \$462 and constituted the total Canadian production of this material for that year; the New Brunswick property was inactive throughout 1932 and no sales of bog manganese were reported anywhere in the Dominion. The material is utilized principally in the ceramic industry.

Imports into Canada of manganese oxide in 1932 amounted to 3,024,900 pounds valued at \$87,644 as compared with 53,106,000 pounds worth \$258,257 in 1931.

MINERAL WATERS - Sales of natural mineral waters in Canada during 1932 amounted to 76,714 imperial gallons valued at \$7,170 as compared with an output of 217,408 imperial gallons worth \$13,324 in 1931 and 227,141 gallons at \$24,481 in 1930. Of the 1932 output, Quebec produced 15,506 gallons valued at \$4,697, the balance of the Canadian production coming entirely from the province of Ontario. Some of the more prominent Canadian natural mineral waters possessing special therapeutic or hygienic properties and associated with health resorts, include the following: Abenakis Springs on the St. Francis river, in Yamaska county, Quebec - these waters are saline and somewhat resemble those of Kissingen or Nauheim Spas in Germany; calcic, aklakine waters occur in the same province at Potton Springs in Broome county. 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 Falls, is one of the oldest Canadian mineral water resorts; springs occurring here yield strongly saline, bromic and iodic waters, and resemble the celebrated waters of Kreuznach in Prussia; sulphur waters are also found in Ontario 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; the waters here resemble those of the famous Hot Bath Spring in England. The Banff waters may be classified, according to the Mines Branch, Ottawa, as moderately mineralized, calcic, sulphated, saline (sulphuretted) waters; radioactive determinations show the Banff Springs to be among the most active in Canada. 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.

Imports of natural mineral waters, not in bottles, during 1932 amounted to 947 gallons valued at \$1,286 as compared with 155 gallons worth \$95 in 1931. Mineral and aerated waters, n.o.p., imported during 1932 totalled \$105,547 as against a value of \$146,885 in 1931. Exports of mineral and aerated waters amounted in value to \$7,361 in 1932 as compared with a value of \$13,411 in 1931.

PEAT Production of peat in Canada during 1932 totalled 3,248 tons valued at \$7,593 as compared with 1,674 tons at \$7,033 in 1931. Shipments in 1932 from the Alfred bog, in Prescott county, totalled 86 tons valued at \$387, f.o.b. plant. This material was purchased by the Ontario Department of Public Works for consumption in the Normal Schools at North Bay, Peterboro and Ottawa. Other shipments in Ontario came from bogs in Dundas county and were reported at 2,400 tons worth \$3,920, making a total for the province of 2,486 tons valued at \$5,307. The balance of the 1932 peat production in Canada came from the peat bog at St. Hyacinthe, Quebec. It was announced early in 1932 that a new company, International Peat Fuels Ltd., had been formed to take over the Hydro Peat Company and that an extension to the plant was contemplated. Tests have shown that the St. Hyacinthe peat is of high quality, and the harvesting conditions are excellent.

PHOSPHATE - Sales of phosphate in Canada during 1932 totalled 1,316 tons valued at \$12,333. This mineral in the form of apatite, a calcium phosphate, was produced entirely in the Buckingham district of the province of Quebec. The last recorded production of this mineral in Canada was in 1930 when 40 tons valued at \$760 were shipped from the same area. Phosphate produced in Quebec during 1932 was purchased by the Electric Reduction Company of Buckingham, P.Q. In addition to the sales reported in Quebec there was an output of apatite in 1932 from a property in North Burgess township, Lanark county, Ontario. The mineral mined here was shipped

to the United States for experimental purposes. No work of importance was done in 1932 on the phosphate properties of the Consolidated Mining and Smelting Company in British Columbia. The study of the geological features of the phosphate-bearing section of this district and the nature of the deposit at various points was, however, continued.

While phosphate fertilizers and compounds are produced by three Canadian manufacturers, no Canadian rock is at present being used for this purpose. Recent developments in the blast furnace production of phosphoric acid, however, may be of eventual interest in the utilization of some of the lower grade Canadian resources of this material.

It is interesting to note that the production of apatite concentrates on the Kola Peninsula in Russia during 1932 was reported at 160,000 tons; for 1933, it is estimated that the total output of crude apatite will be 850,000 tons and of concentrates, 320,000 tons.

Utilization of phosphate rock in the United States during 1930 was as follows: (long tons) for direct application to the soil, ground rock, 41,593 tons; manufacture of phosphorous and chemicals containing phosphorous (other than super phosphates) 281,805 tons; ingredient for stock feed, 4,478 tons; fertilizer filler, 35,451 tons; miscellaneous uses, 2,214 tons, and for the manufacture of superphosphates, 2,367,787 tons (apparent consumption of phosphate rock, less tonnage of rock for all purposes other than the manufacture of superphosphates).

Consumption of phosphate rock in Canada for the manufacture of fertilizers during 1932 totalled 41,114 tons valued at \$316,518. Imports of phosphate rock during 1932 totalled 65,533 tons valued at \$346,907 as compared with 141,723 tons at \$619,079 in 1931.

Acid phosphate (not medicinal) imports into Canada in 1932 totalled 1,387 tons valued at \$226,136 as compared with 1,279 tons worth \$188,884 in 1931. Imports of soda phosphate in 1932 were 3,555 tons appraised at \$202,746 as against 3,837 tons at \$203,789 in 1931. Phosphate prices in the United States, July, 1933, were, per long ton, f.a.s. or f.o.b. mines; Florida pebble, f.a.s. for export, 76 to 77 per cent, \$6.75; 75 per cent, \$6.00; 74 to 75 per cent, \$5.75; 70 per cent, \$4.25; 68 per cent, \$3.75. Tennessee, ground lime phosphate, 85 per cent through 300 mesh, 33 per cent, P_2O_5 , \$8.50 per net ton, bags extra. Rock phosphate, 29 per cent, P_2O_5 , 200 mesh, \$9. Furnace lump, \$6.25.

WORLD PRODUCTION OF PHOSPHATE ROCK

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")

(Long tons)

Producing Country	1930	1931
<u>BRITISH EMPIRE</u>		
Seychelles (exports)	15,725	4,730
Union of South Africa .....	...	1,876
Canada	36	...
India	303	109
Christmas Island	119,933	65,849
Australia	26	609
Nauru and Ocean Islands	443,305	375,610
Total	579,000	449,000

WORLD PRODUCTION OF PHOSPHATE ROCK - concluded.
(Long tons)

Producing Country	1 9 3 0	1 9 3 1
<u>FOREIGN COUNTRIES</u>		
Belgium (c)	39,742	42,853
Estonia	4,774	4,508
France	160,000	(a)
Poland	11,561	(a)
Russia (estimated)	220,300	325,000
Spain	5,300	(a)
Algeria	833,314	555,939
Egypt	308,527	238,380
Madagascar	11,100	8,000
Morocco (French zone)	1,751,000	925,769
Tunis	3,273,000	2,114,000
Netherlands West Indies (exports)	86,115	(a)
United States	3,951,353	2,577,535
French Indo-China	29,800	13,000
China	8,000	8,000
Japan	27,275	(a)
Netherlands East Indies	1,238	108
Philippine Islands	(a)	(a)
Angaur Island	61,105	60,000
Makatea	173,294	120,000
Total	11,000,000	7,300,000
<u>WORLD'S TOTAL</u>	11,600,000	7,700,000

Roumania produced 800 cu. metres and 900 cu. metres of phosphatic guano during 1929 and 1930 respectively.

(a) Information not available.

(c) In addition Phosphatic chalk was produced as follows:-

1929 - 58,019 tons; 1930 - 98,200 tons.

Note - Data for 1932 not yet available.

SILICA BRICK - Production of silica brick in Canada during 1932 totalled 93 thousand valued at \$4,304 as compared with a production of 900 thousand worth \$35,746 in 1931. The output in 1932 came entirely from the plants of the Algoma Steel Corporation at Sault Ste. Marie, Ontario. Silica brick is also produced at Sydney, Nova Scotia, by the Dominion Steel and Coal Company; silica rock for this production is quarried at Leitches Creek. Imports of silica fire brick, containing not less than 90 per cent silica, amounted in value to \$122,952 in 1932 as compared with a value of \$234,909 in the preceding year.

SODIUM CARBONATE (NATURAL) - Sales of natural sodium carbonate in Canada during 1932 totalled 495 tons valued at \$5,450 as compared with 712 tons worth \$7,351 in 1931 and 364 tons at \$4,550 in 1930. Several lacustrine deposits of sodium carbonate occur in British Columbia and in 1932 the total Canadian production came from the Salso property near Cherry Creek, Kamloops, and from a deposit operated in the Lillooet district by the Soda Mining and Products Co. Ltd. Sodium carbonate, or soda ash, has many uses, being employed in the manufacture of glass, soap, and in the purification of oils, etc. Artificial sodium carbonate is produced from sodium chloride (salt) by the Solvay or ammonia soda process and also by electrolytic methods.

Imports of soda ash or barilla in 1932 amounted to 1,803,951 pounds valued at \$27,751 as compared with 1,647,304 pounds valued at \$25,771 in 1931. Soda bicarbonate imports during 1932 totalled 10,592,208 pounds valued at \$196,841 as against 10,931,335 pounds worth \$188,268 in 1931.

SODIUM SULPHATE (NATURAL) - Sodium sulphate occurs naturally in large deposits in Western Canada. During 1932 all shipments were made from properties located in the province of Saskatchewan. The material in 1932 was marketed in both the United States and Canada, the greater part going to pulp mills. In 1931 sodium sulphate recovered at Ormiston, Saskatchewan, was consigned to Copper Cliff, Ontario, for use in the metallurgical treatment of copper-nickel ores. The International Nickel Company of Canada reported that in view of the decreased demand for nickel there was sufficient nitre cake in stock in 1932 to meet the requirements of the Orford process plant. It was therefore not necessary to resume the mining of sodium sulphate by the Horseshoe Lake Mining Co. Ltd. at Ormiston, or the production of nitre cake by Canadian Industries Limited at Copper Cliff; it was expected, by Canadian Industries Limited, that the nitre cake plant would be re-opened during the latter half of 1933. The value of shipments during 1932 amounted to \$271,736 as compared with a value of \$421,097 in 1931 or a decrease of 35.5 per cent. There was, however, a distinct increase in the value of sales during the early part of 1933 when the value of production for the first half of the year represented an increase of 20 per cent over that for the corresponding period in 1932.

Sodium sulphate finds its principal use in the pulp and paper industry for the manufacture of "kraft paper" by the sulphate process, in the manufacture of glass, in the dyes industry, in the smelting of nickel-copper ores, and as one of the raw materials in the manufacture of sodium carbonate. Consumption of salt cake for the manufacture of wood pulp in Canada during 1932 totalled 24,301 tons valued at \$489,343; 24,756 tons valued at \$503,560 in 1931, and 33,119 tons worth \$676,597 in 1930.

"Chemical and Metallurgical Engineering" reports that with the completion, late in 1932, of the new plant of the Rhodes Alkali & Chemical Corporation, the United States has moved one step nearer to complete independence of foreign salt cake. Rhodes Marsh, the site of the new plant is south of Mina, Nevada; salts occurring in the deposit include Glauber's salt, thenardite (anhydrous sodium sulphate) and ordinary salt (Na cl).

Imports of salt cake (crude) into the United States in 1932 totalled 122,247,237 pounds valued at \$644,074; of these imports Belgium supplied 32,311,109 pounds; Germany, 64,108,946 pounds; Netherlands, 7,156,138 pounds; Spain, 2,710,624 pounds; and Canada, 15,960,420 pounds.

Exports of sodium sulphate (Glauber's salt) from Belgium in 1932 included 41,190,820 pounds to the United States; 18,386,280 pounds to Finland, and 30,709,140 pounds to Sweden.

The following exports of sodium sulphate (including acid sodium sulphate) were made from Germany during 1932 to -

	Pounds
Belgium	33,950,840
Bulgaria	1,056,860
Denmark	3,512,520
Finland	43,810,580
France	546,920
Great Britain	3,743,080

	<u>Pounds</u>
continued - Italy	5,055,600
Latvia	1,008,040
Netherlands	10,218,120
Norway	11,986,040
Austria	2,250,820
Sweden	133,113,420
Switzerland	4,154,040
Czechoslovakia	6,326,980
British India	779,680
United States	76,175,660
Canada	2,910,380
Argentina	251,460
Brazil	2,842,840
Panama	4,310,900
Australia	1,809,720

Imports of Glauber's salts into Canada in 1932 totalled 1,806,882 pounds valued at \$11,027 as compared with 1,999,042 pounds worth \$10,838 in 1931. Of the 1932 imports 8,064 pounds worth \$78 came from Great Britain, 247,944 pounds at \$2,865 from the United States, and 1,542,056 pounds worth \$8,008 from Germany. Imports of sodium sulphate or salt cake (crude) in 1932 were as follows: from United Kingdom, 6,272,000 pounds valued at \$38,479; 2,192,984 pounds worth \$10,351 from United States, and 400,746 pounds at \$3,095 from Germany. Imports of sulphide of soda in 1932 totalled 3,403,181 pounds valued at \$73,069 as against 2,743,392 pounds worth \$57,815 in 1931. Sulphite of soda imports totalled 831,932 pounds valued at \$24,415 in 1932; corresponding figures for 1931 were 961,318 pounds at \$26,202.

Prices in the United States in October, 1933, for Glauber's salt were: domestic, car lots, works, bulk, ton \$15.00; bags, 100 pounds \$1.00; barrels, 100 lbs. \$1.10. Imported, bags, 100 pounds, \$0.75 to \$1.10. Sulphate, anhydrous, domestic, barrels, 2 cents per pound; imported, barrels, 100 pounds, \$1.85.

SULPHUR (PYRITES) - The sulphur content of pyrites shipped and of waste Bessemer gases used in the manufacture of sulphuric acid, amounted in 1932 to 53,172 tons valued at \$470,014 as compared with 50,107 tons valued at \$429,457 in 1931 and 37,730 tons at \$314,835 in 1930. Sulphur employed in the manufacture of sulphuric acid was recovered from salvaged smelter gases in Ontario and British Columbia. In the former province, Canadian Industries Limited, continued the operation of its acid plant at Copper Cliff using sulphur gases from the International Nickel Company's smelter, while in British Columbia the Consolidated Mining and Smelting Company of Canada, Limited, reported that its sulphuric acid plants worked very successfully during 1932; most of the sulphur dioxide gases from the zinc plant roasters were converted into sulphuric acid. Costs by the end of the year were much below estimates and the plants at Trail have demonstrated that they can easily exceed their rated capacities. Oleum up to 40 per cent, water white acid for batteries and milk testing, and any degree of sulphuric acid can now be made in Canada.

During 1932 pyrites concentrates were shipped in Quebec by the Consolidated Copper and Sulphur Company of Eustis and from Boischatel township by Aldermac Mines Limited. The only other Canadian shipper of pyrites in 1932 was the Britannia Mining and Smelting Co. Ltd. of Britannia Beach, British Columbia. Concentrates produced by this company went to both Canadian and foreign plants.

In addition to the manufacture of sulphuric acid from smelter flue gas - now an important Canadian industry - increasing attention is being paid to the possible recovery of elemental sulphur from smelter gases and from the large potential supply of by-product pyrite from the flotation concentration of ores. The recovery of sulphur by distillation from pyrite, as carried on many years ago in Europe, was supplanted by the development of a large world production of natural sulphur. Recently, however, two plants are reported to have been placed in operation in Europe wherein elemental sulphur is recovered from furnace gases. This development is of considerable interest to Canada.

Some pyrite was consumed in Canada during the year in the recently developed flash roasting process for the production of sulphur dioxide as used in the manufacture of sulphite pulp.

The marketing agreement between the American exporters and the Silician Sulphur Consortium which had been in effect since 1923 was nullified by the dissolution of the Consortium on July 31, 1932. The Consortium stock of sulphur, amounting to 200,000 metric tons, was taken over by the Bank of Sicily, to avoid depressing the market. The United States Department of Mines states that notwithstanding the drastic curtailment in American production in 1932 the United States remained by far the largest sulphur producer in the world. Italy, with a slightly increased production, was again the second largest producer, while Japan, the third largest producer, increased its output materially. Norway, a new producer, entered the market as a significant factor during the year. The Norwegian sulphur was extracted from pyrites. Increased production was noted in Chile and Netherland East Indies. It was recently announced that a company with the title "Sulphur Quarries Ltd." and with English capital, had been formed for the exploitation of certain rich sulphur deposits which have been discovered near Gaza, in Palestine.

Spain continued to be the most important producer of pyrites in the world, while more stable labour conditions in Norway permitted a return to nearly normal production in that country.

Imports of sulphur and brimstone, crude or in roll or flour, totalled 104,994 tons valued at \$2,023,085 in 1932 as compared with 124,192 tons worth \$2,281,654 in 1931. Of the quantities imported, 104,747 tons came from the United States in 1932 and 124,038 tons in 1931.

Exports of sulphur contained in pyrites, in 1932, totalled 17,455 tons valued at \$89,568 as compared with 26,613 tons at \$139,814 in 1931; these went entirely to the United States and Japan.

The price for domestic sulphur in the United States, September, 1933, was, f.o.b., long tons, Texas mines, \$18.00. Pyrites per long ton unit of sulphur, c.i.f. United States ports, guaranteed 48 per cent sulphur, Spanish .12 cents. Nominal.

WORLD PRODUCTION OF PYRITES (INCLUDING CUPREOUS PYRITES)

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")

(Long tons)

Producing Country	1930	1931	Estimated Sulphur Content	
			1930	1931
<u>BRITISH EMPIRE</u>				
United Kingdom	5,497	1,979	(a)	(a)
Union of South Africa	3,547	3,708	(a)	(a)
Canada(c)	(a)	(a)	33,688	44,738
Cyprus	257,028	193,845	128,514	96,923

WORLD PRODUCTION OF PYRITES (INCLUDING CUPREOUS PYRITES) concluded.

(Long tons)

Producing Country	1930	1931	Estimated Sulphur Content	
			1930	1931
BRITISH EMPIRE - concluded				
India .....	...	...	...	...
Australia .....	...	507	...	(a) ...
Total	(e) 270,000	(e) 200,000		
FOREIGN COUNTRIES				
Czechoslovakia	23,253	20,367	9,185	8,045
France	194,536	189,686	89,900	87,200
Germany	285,165	220,459	122,163	95,025
Greece	175,000	(a)	84,054	(a)
Hungary	1,052	(a)	(a)	(a)
Italy	705,942	635,560	309,838	278,947
Jugoslavia	49,550	29,064	(a)	(a)
Norway	719,407	354,266	318,965	157,544
Poland	10,872	3,534	4,700	1,500
Portugal	393,902	282,671	200,000	140,000
Roumania	23,881	(a)	10,000	(a)
Russia (years ended Sept. 30) ...	237,900	(a)	(a)	(a)
Spain	3,362,507	2,754,791	1,450,000	1,240,000
Sweden	59,486	56,699	27,295	25,500
Algeria	16,365	20,988	7,364	9,100
United States (b)	347,512	330,848	124,226	119,000
Japan	552,532	(a)	(a)	(a)
Total	7,100,000	(a)		
WORLD'S TOTAL	7,400,000(e)	(a)		

(a) Information not available.

(b) Includes by-product pyrite from zinc operations in Wisconsin and New York, and pyrite and pyrrhotite concentrates from copper operations in Tennessee.

(c) Includes estimated sulphur content of smelter gases used for acid making.

(e) Excluding production of Canada.

Note - Data for 1932 not yet available.

Prices in this bulletin have been taken from the "Engineering and Mining Journal."

PRODUCTION OF MISCELLANEOUS NON-METALLIC MINERALS IN CANADA, 1931 and 1932.

Item	Unit of measure	1931		1932	
		Quantity	Value	Quantity	Value
			\$		\$
Actinolite	tons	35	456	...	...
Barytes	tons	16	363	...	...
Bituminous sands	tons	1,015	4,060	343	1,372
Fluorspar	tons	40	620	32	464
Graphite	tons	548	32,149	346	18,483
Magnesitic dolomite	xx	...	295,579	...	262,860
Manganese bog	tons	77	462	...	...
Mineral waters	Imp. gal.	217,408	13,324	76,714	7,170
Peat	tons	1,674	7,033	3,248	7,593
Phosphate	tons	...	...	1,316	12,333
Silica brick	M	900	35,746	93	4,304
Sodium carbonate	tons	712	7,351	495	5,450
Sodium sulphate	tons	...	421,097	...	271,736
Sulphur (x)	tons	50,107	429,457	53,172	470,014
TOTAL	xx	...	1,247,697	...	1,061,779

(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.

PRINCIPAL STATISTICS RELATING TO MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1931 and 1932.

	1931	1932
Number of plants	34	35
Capital employed	\$ 5,457,930	2,072,913
Number of employees - On salary	41	35
On wages	234	147
Total	275	182
Salaries and wages - Salaries	\$ 68,947	54,822
Wages	228,447	100,344
Total	\$ 297,394	155,166
Cost of fuel and electricity	\$ 205,149	110,396
Selling value of products	\$ 1,247,697	1,061,779

FUEL AND ELECTRICITY USED IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1931 and 1932.

	Unit of measure	1931		1932	
		Quantity	Value	Quantity	Value
			\$		\$
Bituminous coal - Canadian ..	short tons	5,614	32,807	4,628	30,038
Foreign ...	short tons	931	4,512	100	1,300
Lignite coal - Canadian ..	short tons	10,445	34,152	696	2,633
Anthracite coal	short tons	2	31	2	31
Gasoline (exclusive of vehicles)	Imp. gal.	40,306	6,663	25,659	4,722
Kerosene	Imp. gal.	731	172	853	182
Fuel oil and diesel oil	Imp. gal.	1,382,900	101,517	864,137	54,554
Wood	cords	675	2,412	339	1,177
Electricity purchased	k.w.h.	2,145,960	22,170	1,322,230	15,745
Other fuel	xxx	...	713	...	14
TOTAL	xxx	...	205,149	...	110,396

POWER EMPLOYED IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1931 and 1932.

	1	9	3	1	1	9	3	2
	Number of		Total horse		Number of		Total horse	
	units		power		units		power	
Steam engines and steam turbines....	7		645		2		230	
Gasoline, gas and oil engines	18		1,322		11		633	
Electric motors	112		2,905		70		2,395	
Boilers	9		650		4		205	
TOTAL .....	...		5,522		...		3,663	

DIRECTORY OF FIRMS IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA, 1932.

<u>Name of Operator</u>	<u>Head Office Address</u>
<u>ACTINOLITE</u> -	
<u>ONTARIO</u> -	
Building Services Limited	1111 Beaver Hall Hill, Montreal, P.Q.
<u>BARYTES</u> -	
<u>NOVA SCOTIA</u> -	
Brandram-Henderson Ltd.	Montreal, P.Q.
<u>ONTARIO</u> -	
Barytes Products Ltd.	Box 282, Montreal, P.Q.
Canada Night Hawk Mines Ltd.	372 Bay St., Toronto, Ont.
<u>BITUMINOUS SANDS</u> -	
<u>ALBERTA</u> -	
International Bitumen Co. Ltd.	410 Williamson Bldg., Edmonton
McMurray Asphaltum & Oil Ltd.	Petrolia St., Petrolia, Ont.
<u>FLUORSPAR</u> -	
<u>ONTARIO</u> -	
Storlosar, Chas. A.	Box 198, Madoc, Ont.
<u>BRITISH COLUMBIA</u> -	
Consolidated Mining & Smelting Co. of Canada, Ltd.	Trail, B.C.
<u>GARNETS</u> -	
<u>QUEBEC</u> -	
Labelle Nickel & Garnet Co. Ltd.	Room 20, 354 St. Catherine St. E., Montreal, P.Q.
<u>GRAPHITE</u> -	
<u>QUEBEC</u> -	
Canadian Graphite Corp.	1193 Phillips Place, Montreal, P.Q.
<u>ONTARIO</u> -	
Black Donald Graphite Co. Ltd.	Calabogie, Ont.
<u>MAGNESITIC DOLOMITE</u> -	
<u>QUEBEC</u> -	
Canadian Refractories Ltd.	101 Murray St., Montreal, P.Q.
International Magnesite Co. Ltd.	Calumet, P.Q.

DIRECTORY OF FIRMS IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA,
1932. cont'd.

<u>Name of Operator</u>	<u>Head Office Address</u>
<u>MANGANESE BOG</u> -	
<u>NEW BRUNSWICK</u> -	
New Brunswick Mineral Development Co.	Hillsboro, N.B.
<u>MINERAL WATERS (NATURAL)</u> -	
<u>QUEBEC</u> -	
Abenakis Springs Co.	Blondin, P.Q.
Eau Minerale Etoile	Ste. Genevieve de Batiscan, P.Q.
Maski Bottling Works	Maskinonge, P.Q.
Radnor Mineral Water Springs	St. Maurice, P.Q.
<u>ONTARIO</u> -	
Boyd, T. R. (Carlsbad Sanitorium)	Carlsbad Springs, Ont.
Canada Dry Ginger Ale Ltd.	145 Sherbourne St., Toronto, Ont.
Deneault, F.	Bourget, Ont.
Gurd, Chas. & Co. Ltd.	1016 Bleury St., Montreal, P.Q.
<u>PHOSPHATE</u> -	
<u>QUEBEC</u> -	
Bigelow, Venard	Buckingham, P.Q.
Chartrand, W.	Buckingham, P.Q.
Hart, Joseph (Estate)	Buckingham, P.Q.
Hetu Mining Syndicate	New Birks Bldg., Montreal, P.Q.
Larocque, S.	Buckingham, P.Q.
Mallette, Marius	Buckingham, P.Q.
Miller, James	Glen Almond P.O., P.Q.
Raby & Wallingford	Perkins, P.Q.
Richardson, R. G.	89 Rochester St., Ottawa, Ont.
Smith, P.	Buckingham, P.Q.
Winning, B..	Notre Dame de la Salette, P.Q.
<u>ONTARIO</u> -	
Smith, Frank E.	Park and West Sts., Prescott, Ont.
<u>PYRITES (SULPHUR)</u> -	
<u>QUEBEC</u> -	
Aldermac Mines Ltd.	1108 Dominion Square Bldg., Montreal, P.Q.
Consolidated Copper & Sulphur Co. Ltd.	Eustis, P.Q.
<u>ONTARIO</u> -	
Canadian Pyrites Ltd.	1400 Guardian Bldg., Cleveland, Ohio, U.S.A.
<u>BRITISH COLUMBIA</u> -	
Britannia Mining and Smelting Co. Ltd.	Britannia Beach, B.C.
<u>SILICA BRICK</u> -	
<u>NOVA SCOTIA</u> -	
Dominion Steel and Coal Corp. Ltd.	Sydney, N.S.
<u>ONTARIO</u> -	
Algoma Steel Corp. Ltd.	Sault Ste. Marie, Ont.

DIRECTORY OF FIRMS IN THE MISCELLANEOUS NON-METAL MINING INDUSTRIES IN CANADA,
1932. concluded.

<u>Name of Operator</u>	<u>Head Office Address</u>
<u>SODIUM CARBONATE -</u> <u>BRITISH COLUMBIA-</u> Austin, C. W. Soda Mining and Products Co. Ltd.	c-o Cornwall Lodge, Kamloops, B.C. 423 Hamilton St., Vancouver, B.C.
<u>SODIUM SULPHATE -</u> Canadian Salines Ltd. Horseshoe Lake Mining Co. Ltd. Natural Sodium Products Ltd. Sodium Corp. Ltd.	North Battleford, Sask. c-o Barium Corp., South Charleston, West Virginia, U.S.A. 20 High St. W., Moose Jaw, Sask. 302 Bay St., Toronto, Ont.

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RECEIVED

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

STATISTICS CANADA LIBRARY
BIBLIOTHÈQUE STATISTIQUE CANADA



1010739382