

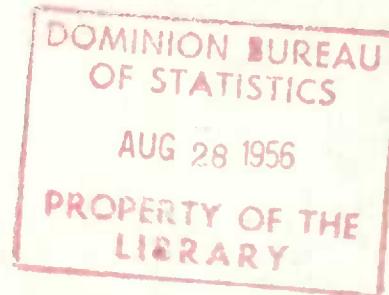
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THE FELDSPAR AND QUARTZ MINING INDUSTRY

1955

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NOTICE

The annual reports prepared by the Industry and Merchandising Division of the Bureau of Statistics are divided into 3 volumes, as follows: **Volume I** — The Primary Industries, including mining, forestry and fisheries; **Volume II** — Manufacturing; **Volume III** — Merchandising and Services. The volumes are made up of parts, and the parts in turn are subdivided according to the industries which they comprise.

Volume I consists of the following parts:

- Part I — Mineral Statistics
- Part II — Forestry Statistics—Operations in the Woods
- Part III — Fisheries Statistics

Part I includes the following reports which constitute the complete series on Mineral Statistics of Canada. Individual reports are issued as the information becomes available; they are arranged in a form suitable for binding.

- A — General Review of the Mining Industry, 50¢
- B — The Gold Mining Industry, 50¢
- C — The Silver-Lead-Zinc Mining Industry, 25¢
- D — The Nickel-Copper Mining, Smelting and Refining Industry, 25¢
- E — The Miscellaneous Metal Mining Industry, 25¢
- F — The Smelting and Refining Industry, 25¢
- G — The Coal Mining Industry, \$1.00
- H — The Crude Petroleum and Natural Gas Industry, 25¢
- I — The Asbestos Mining Industry, 25¢
- J — The Feldspar and Quartz Mining Industry, 25¢
- K — The Gypsum Industry, 25¢
- L — The Peat Industry, 25¢
- M — The Salt Industry, 25¢
- N — The Talc and Soapstone Industry, 25¢
- O — The Miscellaneous Non-metal Mining Industry, 25¢
- P — The Cement Manufacturing Industry, 25¢
- Q — The Clay and Clay Products Industry, 25¢
- R — The Lime Industry, 25¢
- S — The Sand and Gravel Industry, 25¢
- T — The Stone Industry, 25¢
- U — Contract Drilling in the Mining Industry, 25¢

THE FELDSPAR AND QUARTZ MINING INDUSTRY

1955

Owing to the very close physical association of feldspar and quartz in many Canadian deposits (pegmatites), it is difficult for some operators to make a separation of all data pertaining to the mining of each individual mineral; for this reason, the general statistics relating to employment, fuel and electricity, etc., have been combined in this report. Since 1936 corresponding statistics relating to the production of nepheline syenite have been included with those pertaining to the commercial production of feldspar and quartz.

Quebec produced feldspar; nepheline syenite output came from Ontario only; quartz (silica) in

various forms was produced in Nova Scotia, Quebec, Ontario, Saskatchewan and British Columbia.

The average number of employees in the industry was 414 to whom \$1,359,695 were paid as salaries and wages. Fuel cost \$103,081 and 19,292,058 kwh. of electricity were purchased for \$132,943. Process supplies, containers and freight amounted to \$539,661.

There were 25 operators producing quartz or silica flux, 13 producing feldspar, of which 7 were also producing both. Nepheline syenite was produced by American Nepheline Ltd.

TABLE 1. Principal Statistics of the Feldspar and Quartz Mining Industry¹, Significant Years, 1921-1955

Year	Establishments ²	Employees	Earnings	Cost of fuel and electricity at works	Cost of process supplies and containers at works	Gross selling value of products (f.o.b. works)	Net ³ value of production
	No.	No.	\$	\$	\$	\$	\$
1921	31	244	166,253	20,212	N.A.	543,701	N.A.
1929	40	488	353,891	41,462	"	901,998	"
1931	36	166	135,809	20,996	"	490,119	"
1933	28	146	117,037	26,327	"	402,937	"
1937	39	445	384,698	82,611	103,859	1,428,714	1,242,244
1939	43	338	330,170	79,114	99,607	1,352,671	1,173,950
1941	38	506	610,489	91,165	159,818	1,838,054	1,587,071
1944	41	529	772,385	166,501	241,400	2,104,030	1,636,093
1946	30	517	876,034	161,208	180,207	2,168,673	1,727,972
1949	27	442	946,268	146,379	216,206	2,650,035	2,184,782
1950	33	476	1,056,129	179,445	173,123	3,021,555	2,553,587
1951	30	532	1,402,294	263,586	318,493	3,926,523	3,184,952
1952	34	426	1,251,943	266,517	253,174	3,704,425	3,044,081
1953	29	431	1,358,308	245,160	239,602	4,010,191	3,375,154
1954	28	377	1,193,766	204,695	290,080	3,662,181	3,107,993
1955	33	414	1,359,695	236,024	262,907	4,510,375	3,734,690

1. Includes nepheline syenite.

2. Small shippers, whose production is recorded from consumers' returns, are sometimes not included in the total.

3. Gross value less cost of fuel, electricity, process supplies, containers and freight.

TABLE 2. Employees and Their Earnings in the Feldspar and Quartz Mining Industry, 1951-1955

Year	Number of employees				Total man-hours worked (all employees)	Earnings			
	Office and administrative		Workmen			Office and adminis- trative	Workmen	Total	
	Male	Female	Male	Female					
1951.....	43	7	481	1	532	1,202,603	182,275	1,220,019	1,402,294
1952.....	44	5	377	—	426	1,014,210	201,777	1,050,166	1,251,943
1953.....	57	8	365	1	431	936,964	328,208	1,030,100	1,358,308
1954.....	49	9	313	6	377	800,373	208,691	985,075	1,193,766
1955.....	61	9	344	—	414	891,274	315,211	1,044,484	1,359,695

TABLE 3. Number of Workmen, by Months, 1954 and 1955

Month	1954 Total	1955				Total
		Surface		Underground	Mill	
		Male	Female	Male	Male	
January.....	258	135	—	15	83	233
February.....	271	139	—	15	84	238
March.....	288	138	—	15	92	245
April.....	311	166	—	17	102	285
May.....	361	204	—	31	122	357
June.....	374	235	—	35	123	393
July.....	363	243	—	36	126	405
August.....	370	225	—	35	127	387
September.....	359	226	—	34	140	400
October.....	321	220	—	33	138	391
November.....	271	211	—	33	129	373
December.....	260	222	—	33	110	365
Average.....	319	201	—	27	116	344
Man-hours worked.....	689,758					737,036

FELDSPAR

The producers of feldspar in Canada shipped 18,152 tons valued at \$355,879 in 1955. In 1954 the comparable figures for crude and ground feldspar were 16,096 tons valued at \$301,049. Only mines in Quebec were operated in 1955.

The greater part of the production of feldspar is used in the pottery, glass, enamelware, and other ceramic trades, and the remainder mainly in scouring soaps and cleansers and for bonding of fired abrasive wheels and other shapes. Some coarsely-crushed spar, usually made from impure waste or

quarry fines, is sold for stucco dash, artificial stone, chicken grit, etc. Small tonnages of specially selected crude (dental spar) are used in the manufacture of artificial teeth, and such material commands a large premium.

Most of the feldspar used is of the high-potash type, though some high-soda spar is used for blending purposes and in low-fired enamels and glazes. Practically all colours are equally acceptable for ceramic uses, but for cleanser purposes the pale shades of white to buff are demanded.

TABLE 4. Production of Feldspar, Crude and Ground, by Provinces, 1946-1955

	Quebec		Ontario		Canada	
	Tons	Value	Tons	Value	Tons	Value ¹
1946	29,758	\$330,981	5,485	53,696	35,243	384,677
1947	29,146	320,964	6,958	60,396	36,104	381,360
1948	42,800	464,926	12,051	99,511	54,851	564,437
1949	31,848	384,892	5,100	43,610	36,948	428,502
1950	29,788	378,782	5,760	49,619	35,548	428,401
1951	28,000	425,370	12,749	125,727	40,749	551,097
1952	16,645	293,007	3,622	37,628	20,267	330,635
1953	18,591	319,146	2,655	28,018	21,246	347,164
1954	14,305	278,997	1,791	22,052	16,096	301,049
1955	18,152	355,879	—	—	18,152	355,879

1. Excluding the value of containers.

TABLE 5. Consumption of Ground Feldspar, 1950-1954

—	1950	1951	1952	1953	1954	Tons
(a) By uses						
Glass	4,286	3,484	4,042	3,892	4,037	
Scouring powders, cleansers	2,831	1,701	1,807	1,568	933	
Abrasives	9	32	61	23	5	
Clay products (pottery, tile, insulators, etc.)	6,911	5,828	4,936	4,689	5,291	
Enamelling	1,849	1,105	798	930	703	
Heating and cooking apparatus .....	...	137	208	115	105	
Iron castings .....	...	75	90	42	19	
Electrical apparatus .....	...	958	680	650	180	
Total	15,886	13,320	12,622	11,909	11,273	
(b) By provinces						
Nova Scotia	—	6	6	—	—	
Quebec	8,921	7,135	6,776	7,349	6,617	
Ontario	5,868	5,771	5,405	4,096	4,210	
Alberta	1,097	408	404	464	446	
British Columbia	—	—	31	—	—	
Canada	15,886	13,320	12,622	11,909	11,273	

TABLE 6. Imports and Exports of Feldspar, 1953-1955

	1953		1954		1955	
	Tons	Value	Tons	Value	Tons	Value
Imports:		\$		\$		\$
Crude feldspar	4	89	—	—	—	—
Ground feldspar	332	6,996	393	8,078	2,742	3,106
Exports:						
Feldspar	6,848	64,234	1,056	28,206	1,426	38,125

TABLE 7. World Production of Feldspar, by Countries¹, 1950-1954
(Taken from the Minerals Yearbook published by the United States Bureau of Mines)

Country ¹	1950	1951	1952	1953	1954
Long tons ²					
North America:					
Canada (sales)	31,739	36,383	18,096	18,970	13,785
United States (sold or used)	407,925	400,439	420,831	452,600	411,012
Total	439,664	436,822	438,927	471,570	424,803
South America:					
Argentina	3	3	3	3	3
Brazil ⁴	11,311	3	3	3	3
Chile	857	1,181	592	2,047	3
Peru	—	129	—	—	—
Uruguay	699	664	884	779	696
Total ⁴	18,000	19,000	20,000	21,000	22,000
Europe:					
Austria	3,847	3,692	2,537	1,332	2,137
Czechoslovakia	3	3	3	3	3
Finland	7,874	8,069	9,635	9,180	12,062
France	46,973	58,830	63,974	59,053	61,021
Germany, West	75,501	96,680	101,284	94,190	138,323
Italy	17,786	28,684	25,036	23,229	30,373
Norway	23,321	30,627	28,834	18,411	22,600 ⁴
Portugal	—	461	689	59	3
Spain (quarry) ⁵	1,624	1,732	—	—	3
Sweden	35,462	40,423	47,115	37,333	3
Total ⁴	217,000	274,000	284,000	248,000	311,000
Asia:					
India	1,772	3,385	2,020	3,746	3,000 ⁴
Japan ⁶	12,979	26,109	23,812	24,682	25,000 ⁴
Total	14,751	29,494	25,832	28,428	28,000⁴
Africa:					
Eritrea	—	—	—	3	6
Madagascar	—	—	—	24	—
Southern Rhodesia	3,464	1,130	—	—	—
Union of South Africa	5,906	3,290	7,361	5,480	3,525
Total	9,370	4,420	7,361	5,507	3,531
Australia ⁷	13,066	14,842	13,589	6,883	16,384
World total (estimate) ¹	710,000	780,000	790,000	780,000	810,000

1. In addition to countries listed, feldspar is produced in China, Romania and U.S.S.R., but data are not available; estimates are included in the total except for China and U.S.S.R.

2. This table incorporates a number of revisions of data published in previous feldspar chapters.

3. Data not available; included in total.

4. Estimate.

5. In addition, the following quantities of feldspar are reported as ground, but there are no crude production data to support this ground figure: 1950, 44,958 tons; 1951, 58,973 tons; 1952, 70,287 tons; 1953, 71,263 tons; 1954, data not available.

6. In addition, the following quantities of aplite and other feldspathic rock were produced: 1950, 44,958 tons; 1951, 58,973 tons; 1952, 70,287 tons; 1953, 71,263 tons; 1954, data not available.

7. Includes some china stone.

NEPHELINE SYENITE

Nepheline syenite shipments in 1955 were valued at \$2,099,512 compared with \$1,770,528 in the preceding year. Exports of crude and milled nepheline syenite were 118,275 tons valued at \$1,753,117 compared with 83,952 tons worth \$1,269,098 in 1954. The only producer in Canada was the American Nepheline Corporation Limited, who operated a mine and mill in Peterborough County, Ontario. Another mine was being developed in the same locality by International Minerals and Chemical Corporation (Canada) Limited. Production from this new mine is expected in 1955.

Nepheline syenite is a quartz-free rock consisting essentially of nephelite and albite and of microcline feldspar. It usually contains small

amounts of iron-bearing impurities, chiefly magnetite, hematite and biotite mica, as well as such minor accessory minerals as sodalite, cancrinite, corundum, zircon, muscovite, mica, calcite, etc. In the developed Canadian deposits iron-bearing impurities are of coarse sizes and can be readily removed from the crude rock by magnetic means. Other objectionable minerals, notably corundum and muscovite, can be extracted by flotation methods with the recovery of commercial grades of such products. Nepheline syenite is relatively high in alumina (24 per cent in average Canadian commercial rock) compared with straight feldspar (17 to 20 per cent) and for this reason, it is used as a feldspar substitute in a number of ceramic industries, more especially in the glass trade.

TABLE 8. Production of Nepheline Syenite, 1946-1955

Year	Quantity	Selling value, f.o.b. Shipping point	Year	Quantity	Selling value, f.o.b. Shipping point
	Tons	\$		Tons	\$
1946	61,261	229,198	1951.....	81,108	1,114,943
1947	66,995	341,635	1952.....	82,681	1,111,950
1948	74,386	506,462	1953.....	113,345	1,576,271
1949	78,783	623,002	1954.....	123,669	1,770,528
1950	65,638	842,886	1955.....	146,068	2,099,512

1. Value of containers excluded.

TABLE 9. Consumption of Ground Nepheline Syenite, 1950-1954

—	1950	1951	1952	1953	1954
	Tons				
(a) By uses					
Glass and glass wool.....	12,523	13,849	11,042	14,545	13,607
Clay products	1,289	1,767	1,125	1,273	2,063
Miscellaneous non-metallics.....	...	...	...	13	...
Total.....	13,812	15,616	12,167	15,831	15,670
(b) By provinces					
Quebec.....	2,137	2,918	3,031	4,324	3,839
Ontario.....	9,914	10,889	7,132	9,225	9,812
Other.....	1,761	1,809	2,004	2,282	2,019
Total.....	13,812	15,616	12,167	15,831	15,670

QUARTZ (SILICA)

Shipments of quartz or siliceous material during 1955 amounted to 1,869,913 tons valued at \$2,039,575 compared with 1,716,151 tons worth \$1,574,893 shipped in the preceding year. The production included crude and crushed quartz, quartzite and sandstone, as well as natural silica sands and gravels which were used as fluxes.

In Nova Scotia shipments of silica were made to steel plants chiefly for use in making silica brick; the quantity and value of this material are

not shown in this review but are included in the silica-brick industry. In Quebec substantial tonnages of silica rock were crushed and screened for use in the manufacture of ferrosilicon or further milled to produce sand for silicon carbide. In Ontario most of the shipments were for use in making silica-brick, silicon carbide and ferrosilicon, and for the fluxing of nickel-copper ores. In Saskatchewan the output consisted of low-grade natural silica sands or gravels for use as flux at the Flin Flon smelter of the Hudson Bay Mining and Smelting Co., Ltd.

TABLE 10. Production of Quartz (Silica), 1946-1955

Year	Tons	Value	Year	Tons	Value ¹
		\$			\$
1946	1,413,378	1,554,798	1951.....	1,904,885	2,258,468
1947	1,836,428	1,796,612	1952.....	1,783,081	2,253,500
1948	2,017,262	2,082,573	1953.....	1,785,574	2,070,617
1949	1,722,476	1,588,531	1954.....	1,716,151	1,574,893
1950	1,730,695	1,740,268	1955	1,869,913	2,039,575

1. Value of containers is included.

TABLE 11. Production of Quartz, by Provinces, 1954 and 1955

	1954		1955	
	Tons	Value	Tons	Value
Production (shipments) ¹ :		\$		\$
Quebec	83,507	234,007	244,702	791,606
Ontario	1,476,745	1,270,731	1,421,302	1,032,938
Saskatchewan and Alberta	155,899	70,155	175,640	87,820
British Columbia	-	-	28,269	127,211
Canada	1,716,151	1,574,893	1,869,913	2,039,575

1. Includes both crude and crushed quartz, crushed sandstone and quartzite and natural silica sands.

TABLE 12. Production¹ of Natural Low-grade Silica Sand and Silica Gravel as Non-ferrous Smelter Flux, 1953-1955

	1953		1954		1955	
	Tons	Value	Tons	Value	Tons	Value
	\$	\$		\$		\$
Ontario	711,293	127,238	752,456	142,342	770,377	140,623
Saskatchewan	152,786	76,393	155,899	70,155	175,640	87,820
Canada	864,079	203,631	908,355	212,497	946,017	328,443

1. Included in totals shown in Table 1.

TABLE 13. Imports and Exports of Silica, 1954 and 1955

	1954		1955	
	Tons	Value	Tons	Value
Imports:				
Ground flint stone	1,219	30,996	803	25,549
Ganister	540	6,350	456	8,163
Silica sand for manufacturing	655,863	1,883,998	735,458	2,146,088
Silex or crystallized quartz	28,412	275,205	24,517	252,237
Silica fire-brick .....	...	849,110	...	1,765,608
Quartz, piezo electric	17	618,861	10	292,936
Exports:				
Quartzite	162,374	547,821	87,622	265,374

TABLE 14. Available Statistics on the Consumption of Silica Sand and Ground Quartz, 1951-1954

	1951	1952	1953	1954	Tons of 2,000 pounds			
By industries								
Paints, pigments and varnishes	1,882	1,492	1,352	1,333				
Soaps and cleaning compounds	7,464	8,146	9,286	10,876				
Clay products	7,911	6,916	6,541	5,995				
Asbestos products	7,345	6,770	9,088	9,364				
Miscellaneous non-metallic minerals	786	156	1,836	1,464				
Roofing paper	3,372	2,835	3,703	3,842				
Glass	192,238	196,939	234,176	226,430				
Artificial abrasives	114,616	99,349	85,493	81,616				
Iron castings	4,363	5,875	7,351	3,673				
Cooking and heating apparatus	710	1,050	1,271	467				
Boilers, tanks and plate work	113	1,020 ¹	409	681				
Farm implements	396	405	794	207				
Railway rolling stock	6,012	5,010	...	14,383				
Steel castings	93,000	135,439	91,578	73,918				
Heavy chemicals	24,796	16,565	21,012	21,250				
Miscellaneous chemicals	580	751	943	774				
Stone products	1,147	1,055	1,304	2,974				
Machinery	3,957	5,682	1,176	2,369				
Electrical apparatus	10	—	...	...		
Cement manufacturing	60,015	57,906	58,548	69,870				
Cement products	—	—	664	207				
Miscellaneous iron and steel	450	1,230	458	569				
Ferro-alloys	3,828	4,934	4,452	1,628				
Brass and copper products	3,538	4,031	1,896	3,085				
Rolled steel products .....	...	...	458	367				
Pulp and paper .....	...	...	...	929				
Petroleum refining .....	...	...	...	240				
Enamelling .....	...	...	...	244				
Total accounted for	538,530	563,556	543,789	538,755				
By provinces								
Nova Scotia	2,691	2,712	1,825	3,286				
New Brunswick	67	126	152	99				
Quebec	260,506	310,397	283,687	264,493				
Ontario	217,310	198,088	200,353	209,965				
Manitoba	27,089	19,642	20,567	26,725				
Saskatchewan	6	7	5	5				
Alberta	24,362	27,340	31,732	28,070				
British Columbia	6,499	5,244	5,468	6,112				
Canada	538,530	563,556	543,789	538,755				

1. Includes other foundry sands.

List of Firms in the Feldspar and Quartz Mining Industry, 1955

Name of firm	Head office address	Location of mine or mill
Nova Scotia:		
Dominion Steel & Coal Corp. Ltd. ¹	Sydney	Chegoggan Point
Quebec:		
Assad, Adelard	Buckingham	St. Pierre de Wakefield
Bigelow, Gordon ²	Box 759, Buckingham	Derry Twp.
Bigelow, Robt. ²	Glen Almond	Portland East Twp.
Bon Ami Ltd. ³	13719 Notre Dame St. E., Montreal	Montreal
Buckingham Cartage Reg'd. ^{1,2}	Glen Almond	Glen Almond
Burke Bros. ²	R.R. No. 1, Thurso	Buckingham Twp.
Canadian Flint & Spar Co. Ltd. ^{1,2,3}	Room 512, Victoria Bldg., Ottawa, Ontario	Buckingham
Cadieux, Omer ^{1,2}	59, rue Principale, Buckingham	Papineau
Charette & Desgagnes ^{1,2}	Glen Almond	Derry
Cousineau, J.E. ¹	Perkins Mills	Templeton
Couture and Hill ^{1,2}	Glen Almond	Buckingham Twp.
Dominion Silica Corp. Ltd. ¹	25 St. Joseph St., Lachine	Labelle Co.
Electro Metallurgical Co. ¹	2221 Yonge St., Toronto, Ontario	Melocheville
Gauthier, Palma ¹	Glen Almond	Buckingham Twp.
Gaspé Copper Mines Ltd. ¹	Murdockville	Gaspé
Goyer, E., & Frère	St-Bruno	St-Hilaire
Lachaine, Regis ²	St. Pierre de Wakefield	Wakefield
Montpetit, E., & Fils ¹	133, rue Principale, Melocheville	Melocheville
Parcher, Earl ^{1,2}	Glen Almond	Derry Twp.
Radius Exploration Ltd. ¹	5188 Hutchison Ave., Outremont	St. Clotilde
Standard Lime ¹	Box 380, Joliette	Ste-Emelie
Siscoe Vermiculite Mines Ltd. ¹	Box 1234, Cornwall, Ontario	Suzorite
Theoret, Yvon ²	Glen Almond	Glen Almond
Valley, Percy ^{1,2}	Buckingham	Buckingham Twp.
Wallingford, Wm. & A.O. ^{1,2}	Gatineau Point	Templeton
Ontario:		
American Nepheline Corp. ^{3,4}	Lakefield	Methuen Twp.
Algoma Steel Corporation Ltd. ¹	Sault Ste. Marie	Deroche Twp.
Canadian Flint & Spar Co. Ltd. ²	512 Victoria Bldg., Ottawa	Bedford Twp.
Canadian Silica Corp. (Ltd.) ^{1,3}	100 Adelaide St. W., Toronto	Little Current, Whitby
Falconbridge Nickel Mines Ltd. ¹	Falconbridge	Falconbridge
International Nickel Co. of Canada Ltd. ¹	Copper Cliff	Lawson Twp.
Saskatchewan:		
Hudson Bay Mining & Smelting Co. ¹	Flin Flon, Manitoba	Flin Flon
Alberta:		
May, Wallace ⁵	Elkwater Lake	Elkwater
British Columbia:		
Consolidated Mining & Smelting Co. Ltd. ¹	Trail	Fairview

1. Produces silica.
2. Produces feldspar.
3. Operates a mill.
4. Produces nepheline syenite.
5. Produces grinding pebbles.

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