CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

THE FELDSPAR & QUARTZ MINING INDUSTRY IN CANADA 1934

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

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FELDSPAR AND QUARTZ, 1934.

Owing to the very close physical association of these minerals in many Canadian deposits (pegmatites), it has been found difficult for some operators to make a separation of all data pertaining to the mining of each individual mineral and for this reason the general statistics relating to capital, employment, fuel and electricity, etc., have been combined in this bulletin by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa.

FELDSPAR

Production of feldspar in Canada during 1934 totalled 18,302 tons valued at $147,281 as compared with 10,658 tons worth $105,117 in 1933 and 7,047 tons at $81,982 in 1933. The 1934 production records a gain of 71.7 per cent in quantity and 40.1 per cent in value over that of the preceding year and represents the third successive annual increase in feldspar production since 1932.

Imports of ground feldspar into Canada during 1934 totalled 917 tons valued at $14,255 as compared with 506 tons appraised at $7,374 in 1933; the imports during both years came entirely from the United States. Exports of Canadian feldspar totalled 10,532 tons valued at $65,158, representing increases of 192.8 per cent in quantity and 182.4 per cent in value over those of 1933; of the tonnage exported in 1934, 10,496 went to the United States.

Canadian production of feldspar in 1934, as in 1933, came entirely from the provinces of Quebec, Ontario and Manitoba. It is worthy of note that prior to 1933 the commercial output of feldspar was confined only to Quebec and Ontario with the exception of the year 1921 when a relatively small tonnage was shipped in Nova Scotia. In 1933 feldspar was recorded as being mined and sold on a commercial basis for the first time in Manitoba; in 1934 the Manitoba product was utilized largely by the ceramic trade, the mineral being ground at Warrood, Minnesota.

Most of the feldspar mined in Canada is of the high-potash variety. Deposits of soda-rich spar are relatively uncommon and often carry a high proportion of objectionable impurities. A proportion of the best grade feldspar mined in the Buckingham district, Quebec, is utilized for dental purposes.

In Quebec the mineral was mined and shipped during 1934 in the townships of Portland, Derry, and Buckingham in the Gatineau-Lievre section of the Ottawa valley; shipments from mines in this area went to both Canadian and foreign plants. The grinding mill of the Canadian Flint and Spar Co. Ltd., located at Buckingham, was

active throughout the year; various grades of pulverized feldspar are marketed by this company.

Mining activities in the Ontario feldspar industry in 1934 centred chiefly at the McDonald and Bathurst mines in the Perth area of Lanark county. Shipments were also made from the MacDonald mine at Hybla; from a deposit in Fraser township, Renfrew county; from the Mount Pleasant Mine, Burwash; from properties at Britt and Warren in the Parry Sound and Nipissing districts, respectively and from the Gunter mine, Sabine township, Nipissing district. At Kingston the grinding plant of the Frontenac Floor and Wall Tile Company, Ltd., maintained production throughout the year; this company, in addition to marketing ground feldspar, utilized the material in the manufacture of ceramic products.

During the year the economic importance of nepheline syenite occurring near Bancroft in Hastings county was investigated and a test shipment of the rock made to the United States. For certain ceramic purposes and for use in the glass industry nepheline syenite has been reported as an adequate substitute for feldspar.

In Manitoba near Point du Bois on the Winnipeg river, Feldspar Products Co. Inc., of Warrood, Minnesota, operated the feldspar properties of the Winnipeg River Tin Mines Ltd. Operations were continuous from July to the end of the year and shipments on a royalty basis were made to a grinding plant located at Warrood; in addition to the exports to the United States a relatively small tonnage went to Winnipeg firms.

USES

"Feldspar is used chiefly in the ceramic industry. Another important outlet is the glass industry which, in recent years, has absorbed about 30 per cent of the production. Feldspar is used in glass manufacture primarily as a source of alumina but also contains other valuable ingredients, such as alkalies, soda, and potash. Because of these constituents it melts without becoming entirely fluid and when cool forms a strong, colorless, or only slight colored glass. In most forms of pottery, feldspar is an essential ingredient of both the body and the glaze. Electrical insulators and similar forms of porcelain also contain feldspar." (Minerals Yearbook, 1934 - United States Bureau of Mines).

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF FELDSPAR, 1933 and 1934.

	1933		1934	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
PRODUCTION (SALES) -				
Quebec	6,183	59,283	9,207	78,853
Ontario	4,387	45,330	7,302	61,665
Manitoba	88	484	1,793	6,763
TOTAL	10,658	105,117	18,302	147,281
IMPORTS OF FELDSPAR -				
Crude only	55	596	122	990
Ground	506	7,374	17	14,255
EXPORTS OF FELDSPAR	3,596	23,076	10,532	65,158

PRODUCTION OF FELDSPAR IN CANADA, JANUARY 1 to JUNE 30, 1934 and 1935.

	1934		1935	
	Quantity	Value	Quantity	Value
	tons	$	tons	$
PRODUCTION (SALES) -				
Quebec	3,434	34,117	1,268	17,301
Ontario	1,958	21,473	3,111	27,486
Manitoba	396	1,833	890	3,338
TOTAL	5,788	57,423	5,269	48,125

PRODUCTION OF FELDSPAR IN CANADA, BY PROVINCES, 1925 - 1934.

	QUEBEC		ONTARIO		MANITOBA	
	Tons	$	Tons	$	Tons	$
1925	11,287	94,730	17,394	141,059	...	...
1926	13,168	111,136	22,783	199,102	...	...
1927	12,730	104,618	17,119	154,533	...	...
1928	12,943	104,789	18,954	180,153	...	...
1929	15,790	133,492	21,737	206,979	...	...
1930	17,074	163,802	9,722	104,667	...	...
1931	10,381	86,842	7,962	100,119	...	...
1932	3,390	39,062	3,657	42,920	...	...
1933	6,183	59,283	4,387	45,350	88	484
1934	9,207	78,853	7,302	61,665	1,793	6,763

CONSUMPTION OF FELDSPAR IN CANADA BY SPECIFIED INDUSTRIES, 1930 - 1933.

Year	Abrasive Products Industry		Imported clay products industry		Soaps and Cleaning Preparations Industry		TOTAL ALL INDUSTRIES (x)	
	Tons	$	Tons	$	Tons	$	Tons	$
1930	19	370	2,254	51,211	1,000	29,904	7,406	159,220
1931	8	190	1,885	34,394	1,001	37,460	6,406	130,635
1932	6	173	1,406	28,043	956	26,647	6,049	116,465
1933	6	115	861	16,297	989	13,293	6,859	113,536

(x) Includes feldspar consumed in glass manufacture.

NOTE - The value of feldspar consumed in the manufacture in Canada of iron and steel products in 1931, 1932 and 1933 totalled, $3,386, $2,799, and $2,969, respectively.

"Metal and Mineral Markets" - New York - publish feldspar prices in September, 1935, as follows: per ton, f.o.b. North Carolina, potash feldspar, 200 mesh, white, $17 in bulk; soda feldspar, $19. F.O.B. Maine, potash, feldspar, white, 200 mesh, $17 in bulk. Granular glass spar, white, 20 mesh, f.o.b. North Carolina, $12.50 in bulk. No. 1 potash spar, $5.50 New Mexico; Crude Clean No. 1 potash spar, $4.75; ground, $9.50.

WORLD PRODUCTION OF FELDSPAR, 1931 - 1933.

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

(Long tons)

Producing Country	1931	1932	1933
BRITISH EMPIRE			
United Kingdom - China stone	42,650	45,091	33,462
Canada	16,378	6,292	9,516
India	334	473	677
Australia (including china stone)	205	1,006	2,570
FOREIGN COUNTRIES			
Czechoslovakia (c)	30,000	30,000	(a)
Finland (exports)	66	1,505	2,663
France	10,500	(a)	(a)
Germany (Bavaria only)	4,921	3,494	(a)
Italy	4,675	5,137	(a)
Norway	16,151	20,249	18,202
Roumania (b)	100	670	(a)
Sweden	32,590	23,319	32,053
Egypt	26	176	59
United States (sales)	147,119	104,715	150,633
Argentina	169	363	370
Manchoukuo	853	1,753	(a)
Brazil	592	(a)	(a)

NOTE - 19,987 long tons of feldspar were produced in Russia during year ended September, 1928 - later figures are not available.

(a) Information not available.

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

(c) As estimated by U. S. Bureau of Mines.

WORLD IMPORTS OF FELDSPAR, 1931 - 1933 (LESS RE-EXPORTS)

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

(Long tons)

Importing Country	1931	1932	1933
BRITISH EMPIRE			
United Kingdom	10,251	11,057	18,382
Canada	1,676	1,328	501
FOREIGN COUNTRIES			
Austria	1,735	964	948
Belgium-Luxemburg E.U.	7,926	4,287	5,025
Czechoslovakia	1,472	1,265	1,172
Denmark	594	772	623
Finland (total imports)	212	111	51
Germany	29,240	20,625	25,249
Latvia	22	30	108
Netherlands	2,059	2,987	3,381
Poland	2,639	1,612	3,003
Sweden	469	14	1,295
United States	10,790	1,897	5,266
Chile	15	...	(a)

(a) Information not available.

QUARTZ (SILICA)

Production of natural silica, including quartzite, silicious fluxing gravel, lode quartz and natural silica sand, totalled 272,563 short tons valued at $482,265 in 1934 as compared with 185,783 tons worth $297,820 in 1933 and 189,132 tons at $276,147 in 1932. Production in 1934, as for the preceding year, came from the provinces of Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan and British Columbia.

A report on silica by the Department of Mines, Ottawa, states that "Quartz and quartzite in sizes from 2 to 6 inches are used in the manufacture of ferro-silicon and as a smelter flux. For silica brick, quartzite is crushed to about 8 mesh. Some quartz is also crushed to make silica sand. Silica sand is generally prepared from a friable sandstone by crushing, washing, drying, and screening to recover different grades of material according to the industry for which it is required. For example, for the manufacture of glass the material should range between 20 and 100 mesh. Silica sand is also prepared from a friable quartz and from vein quartz. Silex is the washed sand or pure quartz crushed and ground in some form of ball mill then either air or water-floated to recover the fine flour. The ceramic industry requires 150 mesh or finer while the paint trade requires air-floated material 250 mesh or finer. The Canadian producers of silica sand are steadily improving their position and each year sees an increasing use of their products. The use of Canadian sand for sand blasting is increasing and the prospects are promising for a still further use of Canadian material for this purpose."

During 1934 the Dominion Steel and Coal Corporation, Limited, quarried silica rock at Leitches Creek, Cape Breton, the product of this quarry was shipped to the silica brick plant of the company located at Sydney. At Melford, Inverness county, silica sand from the Old River Denys property was shipped to New Glasgow by the new operators - Smith and MacDougall.

In Quebec the quarry and mill of the Canadian Carborundum Company, Limited, located at St. Canute, were active from January 1st to December 21st; glass, crude and brick silica sands were sold or used by this company. At Buckingham, the Canadian Flint and Spar Company, Limited, produced and sold pulverized quartz and at St. Remi d'Amherst, Canadian Kaolin Silica Products Limited maintained steady operations throughout the year producing various grades of silica products; crushing, drying, screening and fine grinding are employed in this plant. At East Templeton, Ottawa Silica and Sandstone, Ltd., conducted both quarry and mill operations and made shipments of silica products. In Joly county a garnet-bearing rock was mined and milled for the production of "garno-grit" for sand blasting; these operations were conducted by McLean-McNicoll Limited of Montreal. At St. Bruno de Guiges (near Ville Marie), Flint Sands Limited erected a pilot mill for the treatment of material from a loosely consolidated sandstone deposit; commercial production was expected in 1935. Fine ground silica products were also produced and shipped from the Lake St. John area by Canadian Silica Products Limited. In addition to the operations referred to there were numerous shippers of crude quartz; these were located principally in the Ottawa Valley and a considerable proportion of the tonnage sold by them went to the electro-chemical industry.

In Ontario the Killarney quarry of Dominion Mines and Quarries Ltd. was in operation from May to October. Milling was conducted from June to September, and the crushed, sized and washed product was shipped to Welland, Ontario, and Niagara Falls, New York. In Sabine township, Nipissing district, crude quartzite was shipped from Gunter's mine and in Deroche township the quarry of Wright & Company was in operation from July to October; crude material was shipped from this quarry to Sault Ste. Marie, Ontario. In the Sudbury area a considerable tonnage of silica was consumed as a flux in the copper-nickel smelting operations conducted by

Falconbridge Nickel Mines Ltd. It was reported that a sandstone occurring near Springvale was being marketed in the crushed state as a moulding sand and that Canadian Refractories Limited were investigating the economic importance of silica sands which occur north of Smoky Falls in association with refractory clays.

In Manitoba, natural silica sands were shipped from Black Island on Lake Winnipeg by the Lake Bar Sand and Gravel Company, Limited, while in Saskatchewan the production recorded as quartz for 1934 represents silicious flux mined and consumed by the Hudson Bay Mining and Smelting Company, Limited. The British Columbia quartz output in 1934 was comprised entirely of this mineral consumed as flux at the Anyox smelter of the Granby Consolidated Mining, Smelting and Power Co. Ltd.

"Metals and Mineral Markets" September, 1935, quotations for silica were: per ton, water ground and floated, in bags, f.o.b. Illinois - 325 mesh - $21 to $40 for 92 to 99½ per cent grades. Dry ground, air floated, 325 mesh, 92 to 99½ per cent silica, $20 to $30. Glass sand, f.o.b. producing plant, $1.25 to $5 per ton; moulding sand, 50 cents to $3.50; blast sand, $1.75 to $6. California, $5 for quartz and $2.50 for sand.

"Canadian Chemistry and Metallurgy", August, 1935, quoted silica sand, various grades, car lots at $8.00 - $9.00 per ton; silica, quartz, 99%, 110 to 220 grade, car lots, max. $15.00.

PRODUCTION IN CANADA AND IMPORTS OF QUARTZ AND SILICA PRODUCTS, 1933 and 1934.

	1933		1934	
	Tons	Value $	Tons	Value $
PRODUCTION(x) (SHIPMENTS) -				
Nova Scotia	1,017	1,447	7,292	12,107
Quebec	28,294	109,533	57,208	229,817
Ontario	66,562	86,146	89,838	134,572
Manitoba	7,736	23,507	931	3,031
Saskatchewan	59,506	59,506	92,447	88,748
British Columbia	22,668	17,681	24,847	13,990
CANADA	185,783	297,820	272,563	482,265
IMPORTS -				
Flint and ground flint stones	2,277	26,615	2,340	28,427
Silex or crystallized quartz, ground or unground	4,370	82,823	2,323	53,430
Silica sand for glass, carborundum and steel and filtration plants and sand blasting	64,114	160,131	96,165	226,188
Silica fire brick, 90% silica	...	147,901	...	210,190

(x) Includes both crude and crushed quartz and quartzite, silica flux and natural silica sands.

PRODUCTION OF QUARTZ (SILICA) IN CANADA, 1925 - 1934.

Year	Ton	$	Year	Ton	$
1925	197,224	363,612	1930	226,200	418,127
1926	232,082	553,161	1931	195,724	303,158
1927	233,984	496,364	1932	189,132	276,147
1928	282,522	523,933	1933	185,783	297,820
1929	265,949	561,527	1934	272,563	482,265

PRODUCTION OF QUARTZ IN CANADA, BY PROVINCES, JANUARY 1 to JUNE 30, 1934 and 1935.

Province	1934 Tons	1934 $	1935 Tons	1935 $
Nova Scotia	3,178	4,579	1,286	1,865
Quebec	22,876	96,489	21,530	100,443
Ontario	23,477	31,895	46,934	69,818
Manitoba	35,989	35,989	...	...
Saskatchewan	...	...	39,479	31,743
British Columbia	14,601	17,651	8,533	4,052
CANADA	100,121	186,603	117,762	207,921

SILICA CONSUMED IN SPECIFIED CANADIAN INDUSTRIES, 1930 - 1934.

Industry and item		1930	1931	1932	1933	1934
Glass -						
Silica sand	ton	73,349	62,868	59,143	52,585	65,306
	$	347,553	297,158	290,854	272,689	300,834
Acids, Alkalies and Salts -						
Silica	ton	5,345	6,012	6,342	5,800	12,945
	$	19,672	21,262	20,921	21,714	55,330
Artificial Abrasives -						
Silica sand	ton	45,595	19,358	5,207	13,574	29,991
	$	223,499	98,371	27,588	68,186	150,869
Imported Clay Products -						
Flint	ton	2,816	1,419	1,136	752	1,266
	$	28,958	27,853	18,277	10,457	19,709
Paints, Pigments and Varnishes -						
Silica (x)	ton	823	588	483	410	483
	$	22,951	18,244	14,837	12,970	22,613
Soaps and Cleaning Powders -						
Silica sand	ton	3,160	3,170	3,502	3,272	4,831
	$	80,422	82,278	76,264	67,930	72,371
Iron and steel -						
Sands (a)	ton	131,924	91,310	48,945	44,853	not yet
	$	576,815	389,214	245,466	197,514	available

(x) Includes any silex or infusorial earth used.
(a) Includes moulding, blast and other sand used in the manufacture of primary iron and steel, castings and forgings, boilers, agricultural implements, machinery, automobile parts, railway rolling stock, etc.
NOTE - In addition to the consumption recorded, silica sand is employed for sand blasting in the stone industry.

PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY, 1932, 1933 and 1934.

		1932	1933	1934
Number of firms		33	28(x)	50
Capital employed	$	936,177	1,143,792	1,310,182
Number of employees - On salary		20	23	44
On wages		100	123	268
Total		120	146	312
Salaries and wages - Salaries	$	32,462	34,979	50,888
Wages	$	59,141	82,058	154,620
Total	$	91,603	117,037	205,508
Cost of fuel and electricity	$	13,397	26,327	45,854
Selling value of products	$	358,129	402,937	629,546

(x) Some small shippers from whom no reports were received but whose production was recorded from consumers returns are not included.

NUMBER OF WAGE-EARNERS ON PAY ROLL, BY MONTHS, 1932, 1933 and 1934.

Month	1932	1933	1934
January	69	39	170
February	81	32	153
March	106	34	153
April	56	18	145
May	102	123	263
June	111	172	300
July	122	187	356
August	113	193	389
September	84	200	377
October	90	163	355
November	122	139	286
December	105	132	232

FUEL AND ELECTRICITY USED, 1933 and 1934.

	Unit of measure	1933 Quantity	1933 Cost at works	1934 Quantity	1934 Cost at works
			$		$
Bituminous coal - Canadian	short ton	170	982	1,001	7,208
Foreign	short ton	899	6,099	1,325	9,057
Coke	short ton	1	16	...	...
Gasoline (x)	Imp. gal.	13,152	3,138	30,715	7,627
Kerosene	Imp. gal.	271	59	356	78
Fuel oil	Imp. gal.	65,026	5,946	104,183	9,355
Wood	cord(/)	...	...	504	1,090
Gas (Manufactured)	M cu.ft.	342	1,300	...	...
Other fuel	xxx	...	96	...	...
Electricity purchased	K.W.H.	286,762	8,691	452,272	11,439
TOTAL	xxx	...	26,327	...	45,854
Electricity generated for own use	K.W.H.	438,300	...	900,000	...

(x) Exclusive of motor vehicle consumption.
(/) 128 cubic feet.

POWER EQUIPMENT IN USE, 1934.

Description	Number of units	Total horse power (manufacturers rating)
Steam engines and steam turbines	9	567
Diesel engines	3	600
Other internal combustion engines	15	697
Electric motors operating on purchased power	28	635
Electric motors operated on establishment power	35	208
Boilers	11	726

LIST OF FIRMS IN THE CANADIAN FELDSPAR AND QUARTZ MINING INDUSTRY, 1934.

Name of Firm	Head Office Address	Location of mine or mill
NOVA SCOTIA -		
(a) Dominion Steel & Coal Corp. Ltd.	Sydney	Leitches Creek
(a) Smith, R. M., & MacDougall, J.D.	Port Hood	Melford
QUEBEC -		
Bertrand, W.	Buckingham	Derry Tp.
(a) Bigelow, E.M., & Stewart, Wm.	Glen Almond	Gatineau Dist.
(a) Bigelow, Robt. A.	Buckingham	Buckingham Dist.
(a) Canadian Carborundum Co. Ltd.	Box 65, Niagara Falls, Ont.	St. Canut
(x) Canadian Flint & Spar Co. Ltd.	Box 340, Buckingham	Buckingham
(a) Canadian Kaolin Silica Products Ltd.	660 St. Catherine St.W.,Montreal	St.Remi d'Amherst
(a) Canadian Silica Products Ltd.	81 Tache St., Chicoutimi	Roberval
(a) Cote, Hector	R. R. 4, Sherbrooke	Sherbrooke Dist.
(a) Couture, Edmond	Glen Almond	Glen Almond
Derry Mining Co.	Buckingham	Derry Tp.
Donaldson, Robt. J.	Glen Almond	Buckingham Tp.
Evans, W. H.	Box 386, Buckingham	Buckingham Tp.
(a) Flint Sands Ltd.	24 King St. W., Toronto, Ont.	St. Bruno de Guigues
(a) Gordon, Alfred	Brigham	Missisquoi Co.
McClements, Albert	Buckingham	Buckingham Dist.
McDonnell, B. A.	Glen Almond	Derry Tp.
(a) McDonnell, Edmond	Buckingham	Buckingham Dist.
McDonnell, James	Glen Almond	Buckingham Dist.
(a) McLean-McNicoll Ltd.	609 Confederation Bldg., Montreal	Labelle
O'Brien and Fowler, Ltd.	Box 340, Buckingham	Derry Tp.
(a) Ottawa Silica & Sandstone, Ltd.	East Templeton	East Templeton
Parcher, Alfred	Glen Almond	Derry Tp.
Pedneaud, G.	Buckingham	Buckingham Dist.
(a) Rivest, Zorila	St. Sulpice	Assomption Co.
Toutloff, Frank, and Wallingford, A.	Gatineau Point	Gatineau Dist.
(a) Warwick, Wm.	Glen Almond	Gatineau Dist.
Whitfield, T.	Buckingham	Buckingham Dist.
Winning, Bush	Notre Dame de la Salette	Buckingham Dist.

LIST OF FIRMS IN THE CANADIAN FELDSPAR AND QUARTZ MINING INDUSTRY, 1934. (concluded)

Name of Firm	Head Office Address	Location of mine or mill
ONTARIO -		
Anderson, J.G., & Son	Lucknow	Britt and Warren
(a) Barnes, W. R.	Hamilton	Springvale
Barr, Walter J.	Westmeath	Renfrew Co.
Bathurst Feldspar Mines, Ltd.	230 King St. E., Toronto	Lanark Co.
Charette, S., & Son	Estaire	Burwash
Chayer, Leo	Warren	Warren Sta.
Craig, T. H.	10 Victoria St., Perth	Lanark Co.
(a) Dominion Mines & Quarries, Ltd.	Canada Life Bldg., Toronto	Killarney
(x) Frontenac Floor & Wall Tile Co. Ltd.	Kingston	Kingston
Gunter, Judson A.	Princes Lake	Nipissing Dist.
MacDonald, P.	Hybla	Hybla
(a) Wright & Co.	960 Queen St., Sault Ste.Marie	Deroche Tp.
MANITOBA -		
(a) Lake Bar Sand & Gravel Co.Ltd.	307 Scott Block, Winnipeg	Black Island
Winnipeg River Tin Mines Ltd.	c-o Dysons Ltd., Winnipeg	Pointe du Bois

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(a) Reported production of silica only.
(x) Operated grinding plants.

NOTE - In addition to these operators, metallurgical plants in Ontario, Manitoba, Saskatchewan and British Columbia produced silica flux for their own use.

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