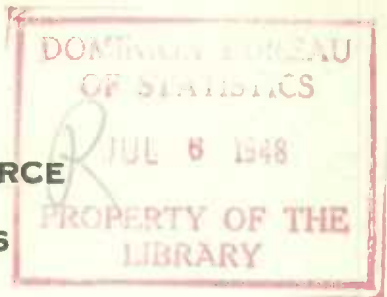


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**CANADA**  
**DEPARTMENT OF TRADE AND COMMERCE**  
**DOMINION BUREAU OF STATISTICS**

+ + + *Census of Industry* + + +

Historical File Copy

**MINING, METALLURGICAL & CHEMICAL STATISTICS**

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**THE**  
**FELDSPAR & QUARTZ MINING INDUSTRY**  
**IN**  
**CANADA**  
**1946**

(including data relating to Nepheline-Syenite)



**OTTAWA**  
**1948**

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A37-25-5-48  
 Herbert Marshall  
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### THE FELDSPAR AND QUARTZ MINING INDUSTRY, 1946

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 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.

Production in 1946, as measured by the sales of feldspar, nepheline syenite and quartz, was valued at \$2,168,673 which was the highest recorded amount to date. Sales in the preceding year, 1945, amounted to \$2,093,880.

Feldspar production came entirely from Ontario and Quebec; nepheline syenite came from Ontario only, and quartz (silica) in various forms was produced in Nova Scotia, Quebec, Ontario, Saskatchewan and British Columbia.

In 1946 there were 34 active firms in the industry, but only 30 of these properties made shipments during the year. The industry employed 517 persons to whom \$876,034 was paid in salaries and wages. The cost of fuel, electricity, process supplies, containers and freight amounted to \$440,701 which if deducted from the gross output value, yields a net value of \$1,727,972 compared with \$1,626,590 in 1945.

Table 1 - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY (x), 1939-1946

Year	Number of shipping mines	Average number of employees	Total salaries and wages	Cost of purchased fuel and electricity at works	Cost of process supplies	Gross value of shipments f.o.b. works
			\$	\$	\$	\$
1939 .....	38	338	330,170	79,114	99,607	1,352,671
1940 .....	41	400	377,254	76,134	138,383	1,508,999
1941 .....	35	506	610,489	91,165	159,818	1,838,054
1942 .....	34	533	782,903	124,100	287,928	1,998,996
1943 .....	34	535	768,199	134,247	322,605	2,138,229
1944 .....	41	529	772,385	166,501	241,400	2,104,030
1945 .....	27	483	767,517	180,799	220,873	2,093,880
1946 .....	30	517	876,034	161,208	180,207	2,168,673

(x) Includes nepheline syenite.

Table 2 - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY, 1945 and 1946

		Quebec		Other Provinces (b)(c)	
		1945	1946	1945	1946
Number of active firms (a) .....		13	17	18	17
Number of shipping mines .....		12	15	15	15
Number of employees: Administration .....		36	23	39	22
Workmen .....		231	248	165	224
Total .....		267	271	204	246
Salaries and wages : Salaries .....	\$	62,064	54,451	65,012	52,454
Wages .....	\$	340,843	389,165	299,598	379,964
Total .....	\$	402,907	443,616	364,610	432,418
Selling value of products (gross) .....	\$	873,321	943,109	1,220,559	1,225,564
Cost of fuel and purchased electricity .....	\$	91,166	91,672	89,633	69,536
Cost of process supplies, freight and containers .....	\$	106,855	140,173	179,636	139,320
Net value of sales .....	\$	675,300	711,264	951,290	1,016,708

(a) Small shippers whose production is recorded from consumers' returns are sometimes not included in the total.

(b) Includes data relating to nepheline syenite.

(c) Includes plants in Nova Scotia, Saskatchewan, and British Columbia

NOTE: This report was prepared by Mr. A. R. Deir, Mining Statistician.

Table 3 - NUMBER OF WORKMEN, BY MONTHS, 1946

Month	Q u e b e c			O n t a r i o				CANADA TOTAL (x)
	Surface	Mill		Surface	Underground		Mill	
	Male	Female	Male	Male	Female	Male	Male	
January .....	130	1	100	40	3	41	24	351
February .....	124	1	108	54	3	42	25	369
March .....	112	1	97	57	3	48	28	358
April .....	112	1	98	122	3	54	26	431
May .....	146	1	108	108	3	87	34	505
June .....	163	1	106	114	3	82	34	519
July .....	155	1	108	162	3	92	34	567
August .....	150	1	101	146	3	97	37	550
September ...	162	1	98	140	3	82	34	522
October .....	187	1	100	125	3	96	36	550
November ....	180	1	96	119	3	66	26	507
December .....	141	1	98	102	3	57	26	452
Average ..	146	1	101	107	3	71	30	472

(x) Includes a few employees in Nova Scotia in some months.

Table 4 - FUEL AND ELECTRICITY USED, 1946 (b)

Kind	Unit of measure	C A N A D A		Ontario (a)		Q u e b e c	
		Quantity	Cost at works	Quantity	Cost at works	Quantity	Cost at works
			\$		\$		\$
Bituminous coal -							
Canadian .....	short ton	1,347	13,779	245	3,059	1,102	10,720
Foreign .....	short ton	2,988	23,840	2,711	20,704	277	3,136
Anthracite coal -							
United States .....	short ton	28	570	...	...	28	570
Coke .....	short ton	3	42	...	...	3	42
Gasoline .....	Imp. gal.	108,044	32,241	58,933	17,115	49,111	15,126
Kerosene .....	Imp. gal.	294	63	294	63	...	...
Fuel oil .....	Imp. gal.	538,289	59,169	180,524	21,143	357,765	38,026
Wood .....	cord	267	2,244	2	6	265	2,238
Gas: Manufactured .....	M cu. ft.	...	...	...	...	...	...
Other fuel .....	...	...	...	...	...	...	...
Electricity purchased ...	K.W.H.	3,851,800	29,260	1,755,520	7,446	2,096,280	21,814
TOTAL .....	...	...	161,208	...	69,536	...	91,672
Electricity generated for own use .....	K.W.H.	2,588,033	...	107,733	...	2,480,300	...

(a) Includes data for 1 property in Nova Scotia.

(b) Data relating to production of silica flux by some smelting companies are included with those of the non-ferrous smelting and refining industry or the sand and gravel industry.

Table 5 - POWER EQUIPMENT, 1946

Description	Quebec		Ontario (x)	
	Number	Horse power	Number	Horse power
<u>Ordinarily in Use</u>				
Steam engines .....	...	...	8	508
Steam turbines .....	...	...	...	...
Diesel engines .....	6	1,165	14	1,067
Other internal combustion engines .....	26	1,349	20	853
Electric motors operated by purchased power ...	57	1,205	53	1,130
Electric motors operated by establishment power	120	1,184	20	124
Stationary boilers .....	...	...	9	825
Motor-generator sets .....	1	3	7	266
<u>In Reserve or Idle</u>				
Steam engines .....	...	...	...	...
Steam turbines .....	...	...	...	...
Diesel engines .....	...	...	...	...
Other internal combustion engines .....	7	727	3	155
Electric motors operated by purchased power ...	6	87	1	50
Electric motors operated by establishment power	16	99	1	5

(x) Includes 1 property in Nova Scotia.



F E L D S P A R

Production of feldspar, crude and ground, during 1946 was 35,243 tons worth \$384,677 compared with 30,246 tons valued at \$282,656 in 1945. Quebec produced the major portion, namely 29,758 tons worth \$330,981.

Exports of feldspar from Canada totalled 19,239 tons at \$140,403 in 1946 and imports of ground feldspar amounted to 705 tons valued at \$13,622.

The consumption of ground feldspar in Canada amounted to 13,114 tons in 1946, including 4,099 tons for scouring powders, 2,701 tons for glass, 4,800 tons for pottery, etc., and 1,499 tons for enamelling.

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, pale shades of white to buff are demanded.

Table 6 - PRODUCTION OF FELDSPAR, CRUDE AND GROUND, IN CANADA, BY PROVINCES, 1930-1946

Year	Quebec		Ontario		Manitoba	
	Tons	\$	Tons	\$	Tons	\$
1930 .....	17,074	163,802	9,722	104,667	...	...
1931 .....	10,381	86,842	7,962	100,119	...	...
1932 .....	3,390	39,063	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
1935 .....	7,002	63,075	8,656	75,003	2,084	6,252
1936 .....	8,115	75,703	8,409	70,840	1,322	7,932
1937 .....	12,285	105,612	9,061	72,610	...	...
1938 .....	5,874	62,878	8,106	65,964	78	451
1939 .....	5,399	60,923	7,061	51,056	40	330
1940 .....	8,548	89,004	12,907	98,619	...	...
1941 .....	14,218	137,160	11,822	107,124	...	...
1942 .....	16,802	164,588	5,468	49,353	...	...
1943 .....	17,199	176,222	6,659	61,549	...	...
1944 .....	17,842	177,271	5,667	50,361	...	...
1945 .....	26,389	247,242	3,857	35,414	...	...
1946 .....	29,758	330,981	5,485	53,696	...	...

Table 7 - CONSUMPTION OF GROUND FELDSPAR IN CANADA, 1941-1946

	1941	1942	1943	1944	1945	1946
	(Tons)					
(a) By Uses						
Glass .....	909	2,880	2,614	2,382	2,740	2,701
Scouring powders .....	5,411	4,344	5,892	4,617	4,847	4,099
Abrasives .....	40	119	58	75	60	15
Clay products (pottery, tile, insulators, etc.) ..	3,755	3,234	2,947	2,625	2,347	4,800
Enamelling .....	2,030	1,676	1,667	1,372	2,684	1,499
Miscellaneous .....	...	...	...	102	266	...
TOTAL .....	12,145	12,253	13,178	11,173	12,944	13,114
(b) By Provinces						
Quebec .....	4,763	5,626	7,555	6,388	6,815	6,886
Ontario .....	7,223	6,588	5,210	4,485	5,769	5,849
Manitoba .....	...	...	166	...	...	...
Alberta .....	159	39	247	300	360	379
CANADA .....	12,145	12,253	13,178	11,173	12,944	13,114

Table 8 - IMPORTS INTO CANADA AND EXPORTS OF FELDSPAR, 1945 and 1946

	1 9 4 5				1 9 4 6			
	Tons		\$		Tons		\$	
<b>Imports -</b>								
Crude feldspar .....								
Ground feldspar .....	826		15,052		705		13,622	
<b>Exports -</b>								
Feldspar .....	16,888		125,028		19,239		140,403	

NEPHELINE SYENITE

Production of nepheline syenite in Canada during 1946 was confined to one company, The American Nepheline Corporation Ltd. at Lakefield, Ontario. Shipments were valued at \$229,198 compared with \$275,766 in 1945. All of the exports went to the United States, the quantity being 51,839 tons valued at \$168,895 compared with 48,351 tons at \$153,311 in the preceding year.

Consumption of ground nepheline syenite in Canada amounted to 5,803 tons in 1946 including 5,584 tons for glass and 219 tons in the pottery industry.

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 9 - PRODUCTION(x) OF NEPHELINE SYENITE IN CANADA, 1936-1946

Year	Value	Year	Value
	\$		\$
1936 .....	37,426	1942 .....	246,893
1937 .....	121,481	1943 .....	292,010
1938 .....	142,737	1944 .....	217,989
1939 .....	140,148	1945 .....	275,766
1940 .....	117,849	1946 .....	229,198
1941 .....	227,583		

(x) Only one or two producers in recent years; quantity not available for publication.

Table 10 - CONSUMPTION OF GROUND NEPHELINE SYENITE IN CANADA, 1943-1946

	1943	1944	1945	1946
	(Tons)			
<b>(a) By Uses</b>				
Glass .....	5,630	7,285	7,778	5,584
Pottery .....	...	257	324	219
Total .....	5,630	7,542	8,102	5,803
<b>(b) By Provinces</b>				
Quebec .....	1,268	1,498	1,570	1,192
Ontario .....	4,133	5,107	4,991	3,973
Alberta .....	229	937	1,541	638
Total .....	5,630	7,542	8,102	5,803



QUARTZ (SILICA)

Production of quartz or siliceous material during the year under review was 1,413,378 short tons valued at \$1,554,798, a decrease in quantity from the 1,513,628 tons produced in 1945, but an increase over the value of \$1,535,458 which was placed on that year's sales. Output included crude and crushed dyke quartz, quartzite, sandstone and natural silica sands and gravels. The mineral in one or more of the forms thus defined was produced during 1946 in Nova Scotia, Quebec, Ontario and Saskatchewan. Shipments of silica in Nova Scotia were made to steel plants largely for the making of silica brick. In Quebec, high-grade silica sands were produced for the manufacture of glass and chemicals while a considerable tonnage of these same sands was sold for sand-blasting, moulding and various other purposes; in the same province relatively large quantities of crushed quartzite were mined and milled for the manufacture of silicon carbide and other products. The greater part of the tonnage of silica shipped in Ontario during 1946 represented material intended for use in the production of silica brick, cement and ferro-silicon and for the fluxing of nickel-copper ores. Quartz production as recorded for Saskatchewan represented low-grade natural silica sands or gravels shipped as flux to the Flin Flon smelter of the Hudson Bay Mining and Smelting Co. Ltd.

Table 11 - PRODUCTION(x) OF QUARTZ (SILICA) IN CANADA, 1932-1946

Year	Tons	\$	Year	Tons	\$
1932 .....	189,132	276,147	1940 .....	1,858,302	1,203,527
1933 .....	185,783	297,820	1941 .....	2,052,878	1,366,187
1934 .....	272,563	482,265	1942 .....	1,738,174	1,538,162
1935 .....	233,002	424,882	1943 .....	1,776,749	1,608,448
1936 .....	1,046,649	597,781	1944 .....	1,740,262	1,658,409
1937 .....	1,377,448	1,129,011	1945 .....	1,513,628	1,535,458
1938 .....	1,380,011	961,617	1946 .....	1,413,378	1,554,798
1939 .....	1,582,935	1,100,214			

(x) Complete data for production of this material in Ontario previous to 1936 are not available.

Table 12 - PRODUCTION OF QUARTZ, BY PROVINCES, 1945 and 1946

	1945		1946	
	Short tons	Value \$	Short tons	Value \$
Production (shipments) (x)				
Nova Scotia .....	10,734	36,171	7,525	15,550
Quebec .....	195,857	626,079	214,076	612,128
Ontario .....	1,165,238	820,664	1,052,644	852,713
Saskatchewan .....	141,799	52,544	130,105	47,542
British Columbia .....	...	...	9,028	26,865
CANADA .....	1,513,628	1,535,458	1,413,378	1,554,798

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

Table 13 - PRODUCTION(a) OF NATURAL LOW-GRADE SILICA SAND AND SILICA GRAVEL AS NON-FERROUS SMELTER FLUX, 1944-1946

	1944		1945		1946	
	Tons	\$	Tons	\$	Tons	\$
Ontario .....	608,403(b)	212,840	523,558	183,245	461,122	161,392
Saskatchewan .....	143,101	50,085	141,799	52,544	130,105	47,542
CANADA .....	751,504	262,925	665,357	235,789	591,227	208,934

(a) Included in totals shown in Tables 12 and 13.

(b) Exclusive of low-cost quartzite used in smelting nickel-copper ores.

Table 14 - IMPORTS INTO CANADA AND EXPORTS OF SILICA, 1945 and 1946

	1945		1946	
	Quantity	\$	Quantity	\$
	Tons		Tons	
<b>Imports -</b>				
Ground flint stone .....	712	20,550	823	34,449
Ganister .....	426	3,384	518	3,367
Silica sand for manufacturing .....	410,427	926,648	390,014	914,456
Silex or crystallized quartz .....	7,251	247,393	10,690	114,450
Silica fire brick .....	...	741,394	...	579,075
<b>Exports -</b>				
Quartzite .....	121,435	282,578	200,316	441,976

Table 15 - CONSUMPTION OF SILICA SAND AND GROUND QUARTZ IN CANADA, BY INDUSTRIES AND BY PROVINCES, 1942-1946

	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
<b>(a) By Industries</b>					
Steel foundries .....	134,724	129,881	89,807	81,590	58,503
Iron foundries .....	9,146	15,104	7,498	11,135	8,953
Ferro-alloys .....	4,338	4,535	6,481	9,949	6,013
Enamelling .....	632	1,071	394	423	633
Brass foundries .....	1,874	3,237	2,514	...	...
White metal foundries .....	42	12	41	...	...
Smelters .....	321	3,774	191	...	...
Electrical apparatus .....	329	681	...	...	350
Glass .....	145,005	132,992	131,987	135,959	123,910
Artificial abrasives and abrasive products	76,943	89,022	73,771	74,406	83,910
Products from imported clays .....	3,036	2,773	3,441	3,659	4,554
Monumental and ornamental stone .....	1,385	980	759	820	1,464
Prepared foundry supplies .....	1,082	126	169	108	142
Cement mills .....	20,711	19,473	23,942	29,424	31,222
Refractories .....	1,642	1,365	1,023	1,114	983
Roofing paper .....	2,879	2,135	4,307	885	1,193
Chemicals .....	15,296	17,305	19,708	17,073	19,456
Fertilizers .....	15,848	37,988	20,715	25,871	44,077
Paints .....	1,310	1,239	1,767	1,904	1,959
Soaps and washing compounds .....	180	246	4,545)	4,350	5,256
Cleaning preparations .....	2,282	3,004	58)	...	...
Matches .....	333	334	349	385	356
Miscellaneous .....	402	236	74	2,678	4,464
<b>TOTAL</b> .....	<b>439,740</b>	<b>467,513</b>	<b>393,541</b>	<b>401,733</b>	<b>397,398</b>
<b>(b) By Provinces</b>					
Prince Edward Island .....	309	335	...	...	...
Nova Scotia .....	4,836	2,364	1,087	2,001	2,659
New Brunswick .....	3,996	6,810	705	8,126	20,356
Quebec .....	207,244	210,909	204,970	192,482	193,504
Ontario .....	190,465	210,875	153,871	159,543	139,898
Manitoba .....	12,635	11,989	11,168	16,939	19,717
Saskatchewan .....	35	59	72	41	368
Alberta .....	14,777	16,205	16,947	17,235	16,572
British Columbia .....	5,443	7,967	4,721	5,366	4,324
<b>CANADA</b> .....	<b>439,740</b>	<b>467,513</b>	<b>393,541</b>	<b>401,733</b>	<b>397,398</b>



DIRECTORY OF FELDSPAR AND QUARTZ MINING INDUSTRY, 1946

- |                          |                                |
|--------------------------|--------------------------------|
| (a) Produces silica      | (e) Produces nepheline syenite |
| (b) Produces feldspar    | (f) Produces grinding pebbles  |
| (c) Operates a mill      | (g) Contractor                 |
| (d) Also produces kaolin | (h) Produces scapolite         |

Name of Firm	Head Office Address	Location of Mine or Mill
<u>Nova Scotia -</u>		
Nairn, J. (a)	24 Whitney Ave., Sydney	Leitches Creek
Stevens, Archie (a)	11 McKenzie St., Glace Bay	Melford
<u>Quebec -</u>		
Belval, T. (b)	Farnham	Farnham
Bigelow, Gordon (b)(g)	Glen Almond	Derry Tp.
Bigelow, Robt. & Sons (b)	Buckingham	Portland East Tp.
Bon Ami Ltd. (b)(c)	13719 Notre Dame St. E., Montreal	Montreal
Buckingham Feldspar Inc. (b)	276 St. James St. W., Montreal	Buckingham
Buckingham Mining Corp. (b)	1502 Athlone Rd., Montreal	Buckingham
Canada China Clay & Silica Ltd. (a)(d)	1600 Royal Bank Bldg., Toronto, Ont.	Amherst Tp.
Canadian Carborundum Co. Ltd. (a)(c)	Box 57, Niagara Falls, Ont.	St. Canut
Canadian Flint & Spar Co. Ltd. (a)(b)(c)	Room 512 Victoria Bldg., Ottawa, Ont.	Buckingham
Consumers Industrial Minerals Ltd. (b)	8661 Drolet, Montreal	Montcalm Co.
Feldspar Products Ltd. (b)	1224 St. Catherine St., Montreal	Papineau
Hill, Wm. (a)(f)	Glen Almond	Buckingham Tp.
Industrial Silica Corp. (a)	Room 408 - 266 St. James St., Montreal	Roberval Co.
Lafrance, Ovila (a)	Angers	Buckingham Tp.
Law, S. H. (a)(b)	Room 28, 14 Toronto St., Toronto, Ont.	Derry Tp.
McGill, Lawrence (h)	Pointe-au-Ch�ne	Grenville
Montpetit, Euclide (a)	Melocheville	Beauharnois Co.
Morin, A. H. (a)(b)	Box 3, Buckingham	Buckingham Tp.
St. Lawrence Alloys & Metals Ltd. (a)(c)	Beauharnois	Beauharnois Co.
<u>Ontario -</u>		
American Nepheline Corp. (e)	Lakefield	Methuen Tp.
Bancroft Mica & Stone Products (b)(c)	Bancroft	Faraday Tp.
Bathurst Feldspar Mines Ltd. (b)	Room 508 - 21 King St. E., Toronto	Bathurst Tp.
Buffalo Ankerite Gold Mines Ltd. (f)	Box 533, South Porcupine	Deloro Tp.
Canspar Mines Ltd. (b)	100 Adelaide St. W., Toronto	Barry's Bay
Conger Feldspar Mining Co. Ltd. (b)	10 Adelaide St. E., Toronto	Conger Tp.
Dominion Mines & Quarries Ltd. (a)(c)	Canada Life Bldg., Toronto	Killarney
Frontenac Floor & Wall Tile Co. Ltd. (b)(c)	Kingston	Kingston
International Nickel Co. of Canada Ltd. (a)	Copper Cliff	Lawson Tp.
Kingston Silica Mines Ltd. (a)(c)	R. R. No. 1, Kingston	Pittsburg Tp.
Manitoulin Quartzite Co. (a)(c)	732 Langlois Ave., Windsor	Manitoulin Island
Quartz Crystals Mining Co. of Canada Ltd. (a)	712 Federal Bldg., Toronto	Lansdowne Tp.
Verona Rock Products Ltd. (a)(b)	330 Bay St., Toronto	Verona
Wright and Co. (a)(c)	960 Queen St., Sault Ste. Marie	Deroche Tp.
<u>Saskatchewan -</u>		
Hudson Bay Mining & Smelting Co. (a)	Flin Flon, Man.	
<u>British Columbia -</u>		
Consolidated Mining & Smelting Co. Ltd. (a)	Trail, B. C.	Fairview

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