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SILVER-LEAD-ZINC MINES

1963

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EXPLANATORY NOTES

Establishment

The reporting unit in the Census of Manufactures is the **establishment**. Beginning with the 1961 Census, the establishment is defined as follows:

The smallest unit which is a separate operating entity capable of reporting all the following:

- Materials and supplies used,
- Goods purchased for resale as such,
- Fuel and power consumed,
- Number of employees and their pay,
- Inventories,
- Shipments or sales.

The establishment is to be distinguished from smaller subdivisions or departments which do not have records which permit them to report all items required of an establishment. Prior to 1961, some establishments were required to submit two or more separate reports when they were engaged in operations which were classifiable to different industries. Beginning with 1961, separate reports for such operations will be required only in cases where accounting records can provide all the elements of principal statistics enumerated above. Special reporting arrangements were made with respondents when the acceptance of combined reports would have seriously

affected the statistics for particular industries or areas. Where continuity of industry statistics was affected by this change in reporting procedures, adjustments to the data were made back to 1957 in order to maintain comparability of the series for recent years.

A mining establishment is typically a mine, mine/mill, quarry, pit or bog principally engaged in mining operations. Prior to 1961, the Census of Mines, Quarries and Oil Wells attempted to cover the mining activities of all establishments, whether or not they were principally engaged in mining operations. Beginning with the 1961 Census, establishments (accounting entities) which are not primarily engaged in mining are no longer included as mining establishments in the basic industry statistics. Again adjustments to the industry statistics were made to reflect the removal of such reporting units for the period 1957-1960. These reporting units are now listed as establishments in other Bureau industry surveys, such as Wholesale Trade, Construction, etc. In order, however, to maintain complete coverage of certain commodity items produced mainly in mining establishments, many non-mining establishments are now surveyed for commodity information only and the latter are included in the appropriate tables of industry reports.

SYMBOLS

The following standard symbols are used in Dominion Bureau of Statistics publications:

- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- amount too small to be expressed.
- Ⓟ preliminary figures.
- Ⓡ revised figures.

SILVER-LEAD-ZINC MINES

1963

Part (a) of this report includes statistics for industry 056—Silver-Lead-Zinc Mines and part (b) includes data for industry 055—Silver-Cobalt Mines of the Standard Industrial Classification Manual (Catalogue No. 12-501).

Definition of the Industry—General statistical data contained in this report pertain only to the mining of silver-cobalt and silver-lead-zinc ores. However, the output figures for specific metals represent the total production from all sources.

Silver mining is not a distinct mining industry in Canada inasmuch as the silver-bearing minerals usually occur in association with other metals of

economic value—with lead and zinc; with copper, nickel and arsenic; with lode and placer free gold; in copper-gold and nickel-copper ores. Silver-lead-zinc mining is a very important industry in British Columbia and in the Yukon Territory. In eastern Canada lead and zinc ores have been mined in Ontario, Quebec, Nova Scotia, Newfoundland and New Brunswick.

It should be noted that, in addition to its recovery from silver-lead-zinc ores, zinc is produced in large quantities from copper-gold-silver ores mined in New Brunswick, Quebec, Manitoba, Saskatchewan and British Columbia.

A. SILVER-LEAD-ZINC MINES

During 1963 there were 59 firms which did some work on 61 properties. There were 32 producers or shippers. The average employment in the industry numbered 4,636 persons to whom \$24,885,947 were paid in salaries and wages. Fuel cost \$1,775,885 and 338,428,858 kwh. of electricity were purchased for \$1,944,884. Process supplies cost \$8,689,242

and freight plus treatment charges amounted to \$43,114,961.

For statistical purposes some firms are classified as silver-lead-zinc mines in a given year and later transferred to copper-gold-silver mining as the major portion of the value of their output was derived from copper and gold.

TABLE 1 A. Principal Statistics for the Silver-Lead-Zinc Mines, Significant Years 1921 - 59

Basis: Standard Industrial Classification in use prior to 1960

Year	Estab- lish- ments	Em- ployees	Salaries and wages	Cost of fuel and electricity at works	Cost of process supplies	Gross selling value of products (f.o.b. works)	Net value of production ¹
	number				dollars		
1921	72	781	966,171	90,953	..	2,177,053	..
1929	168	4,153	6,482,392	793,139	..	22,748,089	..
1931	40	1,299	2,149,921	485,106	..	6,351,975	..
1933	43	1,100	1,501,012	284,277	..	7,569,867	..
1937	130	2,220	3,914,643	845,898	1,940,177	28,528,967	22,740,582
1939	83	1,646	2,803,057	667,661	1,619,385	18,254,851	13,555,609
1941	64	1,666	3,452,199	610,168	689,284	24,277,977	20,653,212
1944	20	2,769	5,810,290	860,231	1,752,087	21,291,957	16,802,759
1946	31	2,451	5,987,111	780,136	2,636,735	48,342,501	39,292,606
1949	101	5,438	15,676,043	1,989,632	7,181,113	100,349,929	67,108,165
1951	144	9,324	30,380,859	3,090,958	10,382,057	185,692,981	131,909,215
1954	124	6,386	24,847,011	3,488,018	9,927,474	136,256,758	78,077,960
1957	83	5,844	26,256,837	2,992,834	11,360,204	115,961,445	59,485,349
1958	67	4,485	20,763,855	2,208,845	9,092,759	98,152,340	46,166,133
1959	52	4,241	19,843,990	1,992,494	6,244,399	101,873,270	53,554,292

¹ The gross value from which the value of fuel, purchased electricity, process supplies, freight and treatment charges have been deducted.

TABLE 1 B. Principal Statistics for the Silver-Lead-Zinc Mines, 1957 - 63

Basis: Revised Standard Industrial Classification and New Establishment Concept

Year	Estab- lish- ments	Em- ployees	Salaries and wages	Cost of fuel and electricity at works	Cost of process supplies	Gross selling value of products (f.o.b. works)	Net value of production ¹
	number		dollars				
1957	83	5,844	26,256,837	2,992,834	11,360,204	115,961,445	59,485,349
1958	67	4,485	20,763,855	2,208,845	9,092,759	98,152,340	46,166,133
1959	52	4,241	19,843,990	1,992,494	6,244,399	101,873,270	53,554,292
1960	47	4,215	21,304,035	2,245,901	8,517,725	111,986,518	61,377,333
1961	68	4,352	22,098,610	2,446,827	6,628,804	111,037,882	61,422,497
1962	59	4,532	23,545,985	2,790,474	7,947,054	111,258,068	59,098,858
1963	61	4,636	24,885,947	3,720,769	8,689,242	125,777,854	70,252,882

¹ The gross value from which the value of fuel, purchased electricity, process supplies, freight and treatment charges have been deducted.

TABLE 2. Ore Mined and Milled by the Silver-Lead-Zinc Mines, 1962 and 1963

	Newfoundland Nova Scotia New Brunswick	Quebec and Ontario	British Columbia	Yukon and Northwest Territories	Canada
	short tons				
1962					
Ore mined	556,315	1,165,329	4,327,002	185,877	6,234,523
Ore milled	560,479	1,160,167	4,321,058	185,862	6,227,566
Concentrates produced:					
Lead	50,703	9,339	229,525	12,335	301,902
Zinc	74,154	90,088	396,873	11,904	573,019
Precipitates and other	—	—	438	—	438
Copper, copper-lead	12,107	40,275	—	—	52,382
1963					
Ore mined	689,250	1,490,464	3,220,045	185,598	5,585,357
Ore milled	691,024	1,358,651	3,213,207	186,721	5,449,603
Concentrates produced:					
Lead	60,295	8,808	196,543	24,097	289,743
Zinc	92,603	109,690	380,730	—	583,023
Precipitates and other	—	—	2,505	40	2,545
Copper	13,758	54,377	—	—	68,135

TABLE 3. Destination of Shipments from Silver-Lead-Zinc Mines, 1962 and 1963

	Tons shipped	Gross value f.o.b. shipping points	Total metal content (without deductions)			
			Gold	Silver	Lead	Zinc
			troy ounces		pounds	
1962						
To Canadian smelters:		\$				
Lead ore	651	5,204	4	4,646	11,234	8,048
Lead concentrates	194,640	22,181,270	905	4,261,003	241,006,339	11,907,732
Zinc concentrates ¹	395,567	38,561,253	613	1,155,677	41,333,220	390,738,872
Copper concentrates ²	40,275	6,316,347	4,397	406,165	..	..
Silver-lead ore	1,010	219,485	3,295	98,327	31,261	45,599
Tailings	210	918	—	889	—	—
Total Canadian	632,353	67,284,477	9,214	5,926,707	282,382,054	402,700,251
To foreign smelters:						
Lead concentrates	105,876	19,431,083	9,577	9,008,314	118,722,649	18,265,587
Zinc concentrates ¹	180,459	20,762,719	1,834	662,983	6,238,216	201,893,026
Tin concentrates	556	771,795	—	—	—	1,112,653 ³
Copper concentrates ⁴	8,400	1,925,578	2,688	407,965	1,108,738	1,024,743
Silver-lead ore	15	3,162	—	2,141	16,880	—
Precipitates	62	1,079,254	5,972	717,426	—	—
Total foreign	295,368	43,973,591	20,071	10,798,829	126,086,483	221,183,356
Total shipments	927,721	111,258,068	29,285	16,725,536	408,468,537	623,883,607
Cost of freight .....	...	7,941,756	...	...	...	...
Cost of fuel and purchased electricity .....	...	2,790,474	...	...	...	...
Smelter charges .....	...	33,479,926	...	...	...	...
Cost of process supplies .....	...	7,947,054	...	...	...	...
Net value of shipments .....	...	59,098,858	...	...	...	...
Other operating revenue .....	...	64,832	...	...	...	...
1963						
To Canadian smelters:						
Lead ore	337	34,010	21	14,220	76,480	30,731
Lead concentrates	191,197	27,158,392	647	4,498,579	246,946,888	13,129,329
Zinc concentrates ¹	387,220	43,599,885	193	1,122,194	44,057,538	386,394,752
Miscellaneous ore	1,921	16,325	—	—	—	—
Copper concentrates ⁵	56,986	9,170,528	5,693	545,073	..	..
Silver-lead ore	3,011	114,306	37	20,877	660,936	1,234,882
Total Canadian	640,672	80,093,446	6,591	6,200,943	291,741,842	400,789,694
To foreign smelters:						
Lead concentrates	147,174	20,761,966	15,130	8,220,367	98,856,423	14,517,989
Zinc concentrates ¹	142,182	21,012,697	1,619	475,338	5,147,832	222,879,308
Tin concentrates	610	972,644	—	—	—	1,220,000 ³
Copper concentrates ⁶	14,551	2,399,522	2,686	416,186	1,128,050	1,129,626
Silver-lead ore	105	33,266	634	9,800	6,306	8,818
Tailings	—	—	—	—	—	—
Precipitates	40	504,313	193	361,588	40,926	—
Total foreign	304,662	45,684,408	20,262	9,483,279	105,179,537	238,535,741
Total shipments	945,334	125,777,854	26,853	15,684,222	396,921,379	639,325,435
Cost of freight .....	...	7,487,268	...	...	...	...
Cost of fuel and purchased electricity .....	...	3,720,769	...	...	...	...
Smelter charges .....	...	35,627,693	...	...	...	...
Process supplies .....	...	8,689,242	...	...	...	...
Net value of shipments .....	...	70,252,882	...	...	...	...
Other operating revenue .....	...	671,964	...	...	...	...

¹ Does not include any zinc concentrates produced from copper-gold-zinc ores in Quebec, Manitoba, Saskatchewan or British Columbia.

² Copper content, in pounds, was 19,717,338.

³ Tin content in pounds.

⁴ Copper content, in pounds, was 4,569,346.

⁵ Copper content, in pounds, was 26,589,565.

⁶ Copper content, in pounds, was 6,662,119.

Note: In addition to the metals contained in shipments listed in Table 3, there are considerable quantities of lead and silver contained in ores shipped from certain gold mines in British Columbia. Cadmium, bismuth, antimony, tin and sulphur are also recovered from the silver-lead-zinc ores produced in this industry.

TABLE 4. Employees and Earnings in the Silver-Lead-Zinc Mines, 1957-63

Year	Administrative		Workmen		Total employees	Total man-hours worked	Earnings		Total earnings
	Male	Female	Male	Female			Administrative	Workmen	
	number					dollars			
1957	905	83	4,782	74	5,844	12,279,530	4,921,808	21,335,029	26,256,837
1958	728	69	3,630	58	4,485	9,376,231	4,430,151	16,333,704	20,763,855
1959	696	69	3,425	51	4,241	8,304,986	4,538,988	15,305,002	19,843,990
1960	635	52	3,478	50	4,215	8,984,756	4,198,509	17,105,526	21,304,035
1961	681	53	3,570	48	4,352	9,234,040	4,393,362	17,705,248	22,098,610
1962	693	53	3,738	48	4,532	9,601,866	4,646,078	18,899,907	23,545,985
1963	771	57	3,761	47	4,636	10,319,244	5,392,386	19,493,561	24,885,947

TABLE 5. Workmen, by Months, in the Silver-Lead-Zinc Mines, 1962 and 1963

Month	1962		1963					Total
	Total	Mine			Mill			
		Surface	Underground		Male	Female		
		Male	Female	Male				
	number							
January	3,689	1,005	34	2,053	608	10	3,710	
February	3,659	997	34	2,058	594	11	3,694	
March	3,585	1,000	34	2,068	587	11	3,700	
April	3,656	1,013	34	2,058	585	9	3,699	
May	3,826	1,079	37	2,057	588	11	3,772	
June	3,941	1,148	40	2,065	591	11	3,855	
July	3,987	1,189	44	2,107	605	12	3,957	
August	3,906	1,145	39	2,116	614	11	3,925	
September	3,835	1,093	37	2,077	597	10	3,814	
October	3,859	1,116	36	2,109	613	10	3,884	
November	3,746	1,084	36	2,072	621	11	3,824	
December	3,690	1,029	35	2,153	643	10	3,870	
Averages	3,786	1,075	37	2,082	604	10	3,808	
<i>Man-hours of labour</i>	<i>8,013,955</i>						<i>8,539,077</i>	

TABLE 6. Fuel and Electricity Used in the Silver-Lead-Zinc Mines, 1963

Kind	Quantity	Cost at plant
		\$
Bituminous coal (a) From Canadian mines	short ton 23,419	396,577
(b) Imported	" 2,897	49,910
Sub-bituminous coal (from Alberta mines only)	-	-
Anthracite coal	short ton 2	50
Lignite coal	-	-
Coke (for fuel only)	-	-
Gasoline (includes gasoline used in cars and trucks)	Imp. gal. 371,881	149,842
Kerosene or coal oil	" 14,083	3,171
Fuel oil	" 4,955,353	1,172,991
Wood (cords of 128 cubic feet of piled wood)	cord 3	33
Gas (a) Liquefied petroleum gases (propane, etc)	Imp. gal. 8,556	3,185
(b) Other manufactured gas	-	-
(c) Natural gas	-	-
Other fuel .....	...	126
Electricity purchased for motors and lighting	kwh. 319,109,765	1,885,622
Electricity purchased for other purposes	" 19,319,093	59,262
Total (cost only) .....	...	3,720,769
Electricity generated (a) For own use	kwh. 38,949,687	...
(b) For sale	-	-

TABLE 7. Drilling Completed on Silver-Lead-Zinc Deposits, 1961 - 63

	Footage drilled		
	1961	1962	1963
Diamond drilling for exploration and testing:			
By mining companies with their own personnel and equipment	52,607	45,359	65,666
By diamond drilling contractors	290,459	436,467	303,468
Other diamond drilling:			
Blast hole diamond drilling:			
By mining companies with their own personnel and equipment	350,240	426,920	320,232
By diamond drilling contractors	—	54,727	435
Drilling by percussion or other machines ¹	8,767,937	10,569,036	8,191,602

¹ Not complete as records are unobtainable at certain mines.

TABLE 8. Taxes Paid by the Silver-Lead-Zinc Mining and Smelting Companies, 1961 - 63

Tax paid	1961	1962	1963
		dollars	
Dominion income tax	12,008,687	10,728,843	12,148,708
Provincial tax	2,444,861	5,715,248	6,977,108
Municipal tax	1,276,905	1,296,153	1,394,896

TABLE 9. Cost of Prospecting by Canadian "Silver-Lead-Zinc Mines" Companies, 1961 - 63

Province in which prospecting ¹ was conducted	By New- foundland, Nova Scotia, New Brunswick companies ²	By Quebec companies ²	By Ontario companies ²	By British Columbia companies ²	By Yukon and Northwest Territories companies ²	Total
	dollars					
1961						
Newfoundland	453,721	—	—	22,584	—	476,305
Nova Scotia	—	—	—	48,404	—	48,404
New Brunswick	24,328	340	—	101,149	—	125,817
Quebec	45,680	4,946,653	—	109,171	—	5,101,504
Ontario	—	11,725	15,216	80,478	—	107,419
Manitoba	—	—	—	20,000	—	20,000
Saskatchewan	—	—	—	8,920	—	8,920
Alberta	—	—	—	10,655	—	10,655
British Columbia	—	—	—	696,468	—	696,468
Northwest Territories	—	—	—	146,504	147,833	294,337
Yukon	—	—	—	49,983	111,943	161,926
Totals	523,729	4,958,718	15,216	1,294,316	259,776	7,051,755
1962						
Newfoundland	522,111	13,211	—	457	—	535,779
Nova Scotia	31,984	1,657	—	52,902	—	86,543
New Brunswick	16,202	14,701	—	131,939	—	162,842
Quebec	11,522	6,542,048	—	150,158	21,500	6,725,228
Ontario	—	111,807	3,827	138,544	99,000	353,178
Manitoba	—	17,173	—	24,864	16,526	58,563
Saskatchewan	—	28,255	—	35,367	5,000	68,622
Alberta	—	—	—	161,000	—	161,000
British Columbia	—	146,824	—	788,678	50,000	985,502
Northwest Territories	—	15,201	—	92,631	55,312	163,144
Yukon	—	20,489	—	77,619	108,779	206,887
Totals	581,819	6,911,366	3,827	1,654,159	356,117	9,507,288

See footnotes at end of table.

TABLE 9. Cost of Prospecting by Canadian "Silver-Lead-Zinc Mines" Companies, 1961-63 - Concluded

Province in which prospecting ¹ was conducted	By Newfoundland, Nova Scotia, New Brunswick companies ²	By Quebec companies ²	By Ontario companies ²	By British Columbia companies ²	By Yukon and Northwest Territories companies ²	Total
	dollars					
1963						
Newfoundland	480,302	-	-	3,400	-	483,702
Nova Scotia	48,332	-	-	9,810	-	58,142
New Brunswick	38,987	-	-	49,676	-	88,663
Quebec	400	357,419	-	135,488	-	493,307
Ontario	-	62,915	128,696	63,145	-	254,756
Manitoba	-	67,500	-	13,575	-	81,075
Saskatchewan	-	-	-	19,502	-	19,502
Alberta	-	-	-	201,204	-	201,204
British Columbia	-	-	-	1,536,721	391,548	1,928,269
Northwest Territories	-	-	-	28,611	306,507	335,118
Yukon	-	-	-	114,031	-	114,031
Totals	568,021	487,834	128,696	2,175,163	698,055	4,057,769

¹ Prospecting includes the search for new mineral deposits on the surface and preliminary exploration.

² Province in which the companies' principal operations are conducted.

Note: No indication is made of the kind of minerals sought.

TABLE 10. Specified Expenditures by the Silver-Lead-Zinc Mining and Smelting Companies, 1963

	1963
	\$
(a) Workmen's compensation	793,061
(b) Silicosis assessment	508,937
(c) Unemployment insurance	663,381
(d) Aggregate cost of structures, roads, machinery, equipment, etc., built by or purchased from outside contractors or suppliers and chargeable to Fixed Assets Account	25,176,936
(e) Book value of fixed assets (new structures, roads, machinery, equipment, etc., including major repairs and alterations) produced by own employees and chargeable to Fixed Assets Account	1,219,017
(f) Other capital expenditures not reported in (d) and (e)	2,062,615
(g) Cost of materials and supplies used in the production of machinery and equipment and in the construction of roads and new structures (including major repairs and alterations by own employees and chargeable to Fixed Assets Account)	664,175
(h) Cost of all other goods, materials and supplies (including office, medical, laboratory, cafeteria and store supplies) purchased and not chargeable to Fixed Assets Account	11,854,304

SILVER

Statistics on silver production are computed as follows: (a) recoverable silver in ores, concentrates and matte shipped for export; (b) silver in crude gold bullion produced; (c) silver in blister and anode copper made at Canadian smelters; (d) silver in base bullion made by the Consolidated Mining and Smelting Company of Canada Limited, at Trail, British Columbia, which is the only lead smelter in Canada; (e) silver bullion produced from the treatment of Cobalt-silver ores by the Cobalt Refinery Ltd., at Cobalt, Ontario.

Silver production in 1963 amounted to 29,932,003 troy ounces valued at \$41,425,891 compared with 30,422,972 troy ounces worth \$35,442,761 in the preceding year.

Ontario produced over 9.6 million troy ounces; British Columbia moved up into second place with 6.4 million ounces; Yukon was in third place with 6.1 million ounces.

TABLE 11. Production of Silver (All Forms) from Canadian Ores, 1954-63

Year	Troy ounces	Value	Year	Troy ounces	Value
		\$			\$
1954.....	31,117,949	25,907,870	1959.....	31,923,969	28,022,860
1955.....	27,984,204	24,676,472	1960.....	34,016,829	30,244,363
1956.....	28,431,847	25,497,681	1961.....	31,381,977	29,580,651
1957.....	28,823,298	25,182,915	1962.....	30,422,972	35,442,761
1958.....	31,163,470	27,053,007	1963.....	29,932,003	41,425,891

TABLE 12. Production of Silver (All Forms) by Months, 1962 and 1963

Month	1962	1963	Month	1962	1963
	troy ounces			troy ounces	
January.....	2,551,394	2,289,478	August.....	2,408,070	2,898,512
February.....	2,065,971	2,232,734	September.....	2,836,669	2,304,911
March.....	2,532,930	2,574,882	October.....	2,737,110	2,721,581
April.....	2,272,855	2,392,732	November.....	2,502,287	2,820,473
May.....	2,217,612	2,672,495	December.....	2,765,480	2,399,633
June.....	2,683,932	2,408,273			
July.....	2,848,662	2,216,299	Totals.....	30,422,972	29,932,003

TABLE 13. Refinery Production of Silver (All Sources) 1954-63

Year	Troy ounces	Year	Troy ounces
1954.....	19,870,068	1959.....	22,362,533
1955.....	19,997,617	1960.....	22,564,397
1956.....	22,109,419	1961.....	18,239,803
1957.....	20,533,053	1962.....	16,749,356
1958.....	25,430,204	1963.....	19,772,408

TABLE 14. Silver Production according to Nature of Ores, by Provinces, 1963

Province	Crude placer gold	Auriferous quartz ores	Copper-gold-silver ores	Nickel-copper ores	Silver-lead-zinc ores	Silver-cobalt and other ores	Total
	troy ounces						
Newfoundland.....	—	—	—	—	981,005	—	981,005
Nova Scotia.....	—	—	—	—	423,189	—	423,189
New Brunswick.....	—	—	73,560	—	258,912	—	332,472
Quebec.....	—	112,720	2,785,226 ¹	—	1,543,698	—	4,441,644
Ontario.....	—	344,867	2,466,603	1,320,777	415,840	5,053,534	9,601,621
Manitoba.....	—	4,019	685,798	77,159	—	—	766,976
Saskatchewan.....	—	—	746,683	—	—	—	746,683
Alberta.....	12	—	—	—	—	—	12
British Columbia.....	651	20,078	313,582	—	6,116,847	—	6,451,158
Yukon.....	10,936	—	—	—	6,095,101	—	6,106,037
Northwest Territories.....	—	81,141	—	—	—	65	81,206
Totals.....	11,599	562,825	7,071,452	1,397,936	15,834,592	5,053,599	29,932,003

¹ Contains a small quantity recovered from gold ores.

TABLE 15. Production of Silver, by Provinces and by Point of Computation, 1962 and 1963

	1962		1963	
	Quantity	Value	Quantity	Value
	troy ounces	\$	troy ounces	\$
Newfoundland:				
In ores and concentrates exported.....	1,181,648	1,376,620	981,005	1,357,711
Nova Scotia:				
In concentrates.....	724,245	843,745	423,189	585,694
New Brunswick:				
In ores and concentrates exported.....	178,521	207,977	332,472	460,141
Quebec:				
In anode copper.....	2,826,542	3,292,921	2,680,353	3,709,608
In gold bullion made and in concentrates exported.....	1,776,477	2,069,596	1,761,291	2,437,627
Totals.....	4,603,019	5,362,517	4,441,644	6,147,235
Ontario:				
In silver recovered in Canada from cobalt ores.....	1,969,230	2,294,152	3,148,933	4,358,123
In gold bullion.....	384,756	448,241	339,221	469,482
In blister copper.....	4,017,089	4,679,909	3,903,400	5,402,305
In ores, concentrates, residues, matte, etc., exported.....	3,012,370	3,509,411	2,210,067	3,058,733
Totals.....	9,383,445	10,931,713	9,601,621	13,288,643
Manitoba:				
In blister copper.....	445,153	518,603	497,635	688,727
In gold bullion (gold mines) and in ores exported.....	402,726	469,176	269,341	372,768
Totals.....	847,879	987,779	766,976	1,061,495
Saskatchewan:				
In blister copper.....	762,215	887,980	746,683	1,033,409
Alberta:				
In alluvial gold.....	17	20	12	17
British Columbia:				
In alluvial gold.....	471	549	651	901
In gold bullion.....	23,317	27,164	20,001	27,681
In base bullion and in ores, etc., exported.....	6,163,149	7,180,069	6,430,506	8,899,820
Totals.....	6,186,937	7,207,782	6,451,158	8,928,402
Yukon:				
In alluvial gold.....	11,496	13,393	10,936	15,135
In silver-lead ores to smelters.....	6,470,748	7,538,421	6,095,101	8,435,620
Totals.....	6,482,244	7,551,814	6,106,037	8,450,755
Northwest Territories:				
In gold bullion, placer gold, and exports.....	72,802	84,814	81,206	112,389
Canada.....	30,422,972	35,442,761	29,932,003	41,425,891

Note: For 1962 silver was valued at \$1.165 per troy ounce, the average price of domestic sales; for 1963 the corresponding price was \$1.384.

TABLE 16. Source of Silver Production, by Percentages, 1959-63

Source	1959	1960	1961	1962	1963
In silver-cobalt ores	20.85	21.04	14.92	15.47	16.88
In base bullion ¹	22.70	23.58	25.50	19.91	21.32
In gold ores (bullion and placer)	2.02	2.05	2.17	2.15	2.05
In blister and anode copper ²	24.04	23.52	24.38	26.46	26.27
In matte, copper ores and silver-lead ores, etc., exported (other than silver-cobalt ores)	30.39	29.81	33.03	36.01	33.48
Totals	100.0	100.0	100.0	100.0	100.0

¹ Includes some silver bullion from silver-lead ores.

² From copper-gold-silver and nickel copper ores.

TABLE 17. Estimated Consumption of Fine Silver in Canada, for Industrial Purposes, 1961-63

Used for	1961	1962	1963
	troy ounces		
Coinage	5,141,894	10,882,071	13,012,204
Silverware	1,392,825	1,499,891	1,256,044
Photography	1,558,576	1,618,650	1,668,784
Wire and rod	42,390	18,536	13,353
Silver alloys	229,834	275,844	331,350
Miscellaneous ¹	1,248,564	1,124,350	1,292,893
Totals accounted for	9,614,083	15,419,342	17,574,628

¹ Includes sheet, anodes for electroplating and silver used in manufacture of electrical equipment and jewellery.

TABLE 18. Imports and Exports of Silver and Silver Products, 1962 and 1963

	1962		1963	
	Quantity	Value	Quantity	Value
	troy ounces	\$	troy ounces	\$
Imports:				
Silver, unmanufactured	15,182,336	17,658,069	7,949,829	10,819,587
Silver, manufactures of, n.o.p. ....	...	797,241	...	717,122
Toilet articles of which the most important component in value is sterling silver .....	...	25,225	...	13,395
Totals account for .....	...	18,480,535	...	11,550,104
Exports:				
Silver contained in ore, concentrates, etc.	8,801,332	9,104,528	8,286,756	9,643,385
Silver bullion	9,445,094	10,941,526	10,834,629	14,782,600
Silver and goldware .....	...	203,846	...	256,641
Totals accounted for .....	...	20,249,900	...	24,682,626

TABLE 19. Silver Production of the World
(From the Annual Report of the American Bureau of Metal Statistics)

Country	1959	1960	1961	1962	1963
	fine ounces				
North America:					
United States	23,000,000	36,800,000	34,900,000	36,345,000	35,000,000
Canada	31,923,969	34,016,829	31,168,415	30,669,028	29,839,756
Mexico	44,074,274	44,525,435	40,341,466	41,249,399	42,760,484
Totals, North America, as reported	98,998,243	115,342,264	106,409,881	108,263,427	107,600,240
Central America and West Indies	3,967,869	4,135,039	4,477,860	3,012,108	4,750,198
South America:					
Argentina	1,549,600	1,671,838	1,430,675	1,318,150	1,546,160
Bolivia (exports)	4,503,766	4,887,113	3,900,206	3,760,381	4,869,034
Brazil	225,146	252,914	231,930	237,915	220,000
Chile	2,010,790	1,679,062	2,156,718	2,184,271	2,372,305
Columbia	102,678	134,333	127,549	131,599	106,278
Ecuador	162,608	126,419	101,192	127,739	121,784
Peru	27,224,588	30,754,786	33,581,222	32,930,781	36,800,348
Totals, South America, as reported	35,779,176	39,506,465	41,529,492	40,690,836	46,035,909
Europe:					
Austria	64,300	58,192	58,192	68,480	68,803
Finland	522,727	390,365	456,144	380,495	579,967
France	831,078	778,030	868,050	690,276	610,864
Germany, Federal Republic of	1,897,730	1,842,077	1,879,790	1,957,562	2,100,000
Italy	1,060,693	943,956	973,116	929,832	1,006,318
Portugal	52,173	52,245	55,000	52,920	54,000
Spain	2,206,698	1,739,677	4,526,599	5,684,123	5,600,000
Sweden	3,098,070	2,659,448	2,825,246	3,367,777	2,874,276
United Kingdom	13,655	7,097	4,744	4,700	..
Yugoslavia	2,827,271	3,024,768	3,454,003	3,750,844	3,791,923
Totals, Europe, as reported	12,574,395	11,495,855	15,100,884	16,887,009	16,686,151
Oceania:					
Australia (commonwealth)	15,076,000	15,198,923	14,300,000	17,250,000	18,900,000
Fiji	23,652	31,319	37,712	38,935	46,870
New Guinea ¹	36,000	33,037	30,242	24,500	23,696
New Zealand	4,873	1,353	804	416	286
Totals, Oceania, as reported	15,140,525	15,264,632	14,368,758	17,313,851	18,970,852
Asia:					
Burma	1,728,351	1,984,263	1,743,302	1,980,038	2,076,000
India	124,774	132,718	191,008	126,706	128,314
Japan	9,477,595	10,419,911	12,159,580	14,753,088	15,213,730
Korea, Republic of	241,892	329,641	460,411	412,783	442,002
Philippines	504,085	1,133,343	812,793	675,570	767,249
Taiwan (Formosa)	60,974	54,850	77,301	80,129	61,440
Totals, Asia, as reported	12,137,671	14,054,726	15,444,395	18,028,314	18,690,735
Africa:					
Algeria	400,000	300,000	300,000	300,000	250,000
Congo, Republic of the	4,758,310	4,305,014	3,457,797	1,189,577	1,097,176
Ghana (exports)	16,839	14,160	7,027	3,187	4,827
Kenya	46,420	33,865	37,836	46,307	50,072
Morocco	1,234,303	1,097,183	907,905	826,338	772,743
Republic of South Africa	2,020,780	2,226,204	2,288,279	2,549,206	2,736,868
Southern Rhodesia	328,947	392,026	106,801	83,500	83,742
South West Africa	1,996,955	1,004,920	1,833,437	1,253,200	634,134
Tanganyika (exports)	536,407	614,279	64,144	23,959	22,669
Tunisia	43,306	34,401	69,766	24,325	9,131
Zambia ²	948,459	698,127	744,084	697,054	111,079
Totals, Africa, as reported	12,330,726	10,720,179	9,817,076	6,996,653	5,772,441
Russia³	25,000,000	25,000,000	25,000,000	27,000,000	27,000,000
World totals, as reported	215,928,605	235,519,160	232,148,346	238,192,198	245,506,526
Estimated world totals⁴	222,300,000	241,000,000	236,900,000	241,800,000	249,500,000

¹ Year ended May 31, of year following that stated.² Recovered from an accumulation of refinery slimes.³ Conjectural.⁴ Other silver producing countries, not listed in this table, are included in the estimate for the total.

LEAD

Lead production is calculated as the lead in base bullion made from Canadian ores at the smelter of Consolidated Mining & Smelting Co. of Canada Ltd., at Trail, British Columbia, plus the recoverable lead content in ores and concentrates exported. The value is computed on the basis of the average price, in Canadian dollars, for refined lead.

The silver-lead-zinc mines of British Columbia produce the major portion of the nation's lead. Some of the lead-silver ores from the Yukon territory were smelted at Trail in British Columbia and part were exported to foreign smelters. In eastern Canada

most of the lead concentrates were shipped to foreign smelters for treatment.

Production of lead, in all forms, during 1963 amounted to 201,165 short tons valued at \$44,256,199 compared with 215,329 tons valued at \$42,721,341 in the preceding year. The price of lead was 10.50 cents in February but increased to 11.0 cents in July. Lead sold at 12.50 cents in December.

Refined lead output, which included some lead recovered from imported ores, amounted to 155,000 tons in 1963 compared with 152,217 tons in 1962.

TABLE 20. Production¹ of New Lead, 1954-63

Year	Tons	Value		Year	Tons	Value	
		\$	¢			\$	¢
1954	218,495	58,250,831	12.33	1959	186,696	39,616,835	10.61
1955	202,762	58,314,500	14.38	1960	205,650	43,926,888	10.68
1956	188,854	58,582,651	15.51	1961	230,435	47,054,765	10.21
1957	181,484	50,670,407	13.96	1962	215,329	42,721,341	9.92
1958	186,680	42,413,805	11.36	1963	201,165	44,256,199	11.00

¹ Primary lead in base bullion produced, plus recoverable lead in ores exported.

TABLE 21. Production of Lead, by Months, 1962 and 1963

Month	Lead (all forms)		Refined lead ¹	
	1962	1963	1962	1963
	short tons			
January	18,732	15,919	13,092	15,740
February	16,327	15,225	12,566	12,991
March	17,163	17,880	14,013	13,367
April	17,811	17,483	12,199	13,533
May	18,578	18,320	13,663	14,929
June	20,216	17,445	11,638	13,391
July	19,784	15,015	13,834	7,907
August	17,250	18,771	13,664	13,476
September	14,670	15,445	8,646	12,772
October	20,498	17,686	14,323	13,635
November	16,353	17,948	13,491	12,262
December	17,947	14,028	11,088	10,997
Totals	215,329	201,165	152,217	155,000

¹ Includes lead refined from foreign ores.

TABLE 22. Production of Lead (All Forms)¹ by Provinces 1961 - 63

Province	1961		1962		1963	
	Pounds	Value	Pounds	Value	Pounds	Value
		\$		\$		\$
Newfoundland	43,936,710	4,485,938	50,660,572	5,025,529	46,784,221	5,146,264
Nova Scotia	—	—	—	—	2,800,480	308,053
New Brunswick	—	—	3,758,717	372,865	3,566,150	392,277
Quebec	6,784,464	692,694	9,432,012	935,656	8,673,195	954,051
Ontario	1,670,535	170,562	2,287,087	226,879	3,077,814	338,560
Manitoba	6,107,331	623,558	7,584,246	752,357	5,474,570	602,203
British Columbia	385,600,537	39,369,815	335,282,537	33,260,028	314,974,034	34,647,144
Yukon	16,769,815	1,712,198	16,290,125	1,615,980	16,978,607	1,867,647
Totals	460,869,392	47,054,765	430,658,673	42,721,341	402,329,071	44,256,199

¹ Primary lead in base bullion produced, plus recoverable lead in ores exported.

TABLE 23. Imports and Exports of Lead, 1962 - 63

	1962		1963	
	Short tons	Value	Short tons	Value
		\$		\$
Imports:				
Lead in pig and block	578	111,115	1,741	289,734
Lead, old and scrap	46	8,175	55	7,936
Lead in bars and sheets	68	23,348	97	33,116
Lead acetate (not ground)	48	15,734	41	13,776
Lead nitrate (not ground)	92	22,297	69	14,949
Lead manufactures n.o.p. ....	...	290,597	...	297,089
Lead tetraethyl, compounds of .....	...	...	...	...
Lead capsules for bottles .....	...	76,373	...	87,632
Lead pigments:				
Litharge	771	204,418	1,084	292,386
Dry white lead	87	28,110	13	5,031
Dry red lead and orange mineral	173	40,995	159	39,086
Exports:				
Lead, scrap	1,780	215,125	3,989	479,319
Lead, contained in ore	59,495	7,855,245	53,756	7,206,741
Lead pigs, blocks, shot	125,802	17,726,724	97,144	15,546,270
White lead .....	..	..	..	..
Lead manufactures, n.o.p. ....	..	..	..	..
Lead pipe .....	..	..	..	..
Lead fabricated materials, n.e.s.	2,396	542,660	854	251,951

TABLE 24. Consumption of Refined Lead by Principal End-uses, 1962 - 63

Used for or in the production of	1962		1963	
	Primary lead	Secondary lead ¹	Primary lead	Secondary lead ¹
	short tons			
Antimonial lead	575	16,760	1,488	16,561
Batteries and battery oxides	15,568	456	15,961	619
Cable covering	4,026	2,578	4,612	1,470
Chemical uses, n.e.s. (white lead, red lead, litharge, tetraethyl lead, etc.)	14,215	1,631	15,106	2,557
Copper alloys (brass, bronze, etc.)	214	116	227	123
Lead alloys:				
Solders	1,575	2,384	1,574	2,717
Other (including babbitts, type metal, etc.)	329	2,557	604	1,827
Semi-finished products (pipe, sheets, traps, bends, block for caulking, ammunition, foil and collapsible tubes, etc.)	8,503	3,485	6,276	3,695
Other	971	1,342	924	1,617
Totals accounted for	45,976	31,309	46,772	31,186

¹ Includes all remelt scrap lead and scrap lead used to make antimonial lead.

TABLE 25. World Production of Lead on Mine Basis, 1959-63
(From the Annual Report of the American Bureau of Metal Statistics)

Country	1959	1960	1961	1962	1963
	short tons				
United States ¹	255,586	246,669	261,921	236,956	253,369
Canada ^{1,2}	186,696	205,650	230,435	211,270	202,398
Greenland	11,633	7,635	10,104	891	...
Guatemala	6,381	5,918	12,972	1,067	825
Mexico	210,187	210,176	199,876	213,072	209,423
Totals, North America	670,483	676,048	715,308	663,256	666,015
Argentina	33,800	26,000	29,700	31,700	28,990
Bolivia ³	24,293	23,610	22,378	20,504	22,226
Brazil	8,800	10,800	10,800	10,600	10,600
Chile	2,560	2,694	2,252	1,603	1,074
Peru	126,934	145,096	150,352	141,288	162,266
Totals, South America	196,387	208,200	215,482	205,695	225,156
Austria	5,906	5,758	6,592	5,855	5,504
Finland	2,126	1,755	3,439	3,161	1,262
France	17,400	19,107	20,062	15,102	8,818
Germany, Federal Republic of	57,928	54,998	54,630	55,264	57,150
Greece	10,513	19,707	14,550	14,187	14,550
Ireland	1,476	1,480	279	..	..
Italy ¹	54,901	52,144	49,219	43,206	34,440
Norway	2,487	2,780	2,524	3,153	3,297
Spain ¹	74,314	77,583	83,777	74,309	68,556
Sweden	51,257	58,753	68,453	74,726	77,051
United Kingdom ²	2,632	1,549	1,655	447	276
Yugoslavia	101,908	100,553	106,571	112,429	111,969
Totals, Europe	382,848	396,167	411,751	401,839	382,873
Burma ⁴	22,341	19,820	17,905	19,669	19,841
India ⁴	4,362	4,130	4,039	3,140	3,899
Japan	39,844	43,576	51,014	58,923	58,110
Korea, Republic of	256	1,012	1,014	1,554	2,113
Philippines	391	134	111	90	78
Totals, Asia	67,194	68,672	74,083	83,376	84,041
Algeria	11,291	11,529	10,031	9,957	8,840
Congo, Republic of	5,448	4,741	3,628	965	364
Morocco	100,834	104,263	97,299	99,501	81,539
South West Africa ⁴	77,551	68,973	77,683	83,081	83,220
Tunisia	19,997	19,753	18,554	15,806	13,400
Zambia ⁴	16,128	16,160	16,953	16,848	20,863
Totals, Africa	231,249	225,419	224,148	226,158	208,226
Australia ¹	336,819	325,034	281,389	394,203	437,709
Russia ^{5,6}	358,200	385,800	413,400	438,000	440,900
Bulgaria ⁵	88,700	92,600	88,000	90,000	98,000
Czechoslovakia ⁵	7,000	7,200	7,200	7,200	10,000
Germany East ⁵	7,700	7,700	7,700	7,700	8,300
Poland ^{5,6}	42,700	43,800	43,900	41,800	42,600
Rumania ^{5,6}	13,200	13,500	13,500	13,500	13,800
China ⁵	72,000	75,000	80,000	80,000	80,000
Korea, North ⁵	21,000	25,000	27,500	27,500	30,000
Totals, Soviet Sphere	610,500	650,600	681,200	705,700	723,600
World totals, as reported⁷	2,495,480	2,550,140	2,603,361	2,680,227	2,727,620

¹ Calculated as recoverable.

² Base bullion from domestic ores, plus recoverable content of ores exported.

³ Exports.

⁴ Same as pig lead production.

⁵ Conjectural.

⁶ Smelter production.

⁷ In addition there is production in Honduras, Columbia, Ecuador, Iran, Thailand, Turkey, Republic of South Africa and United Arab Republic; the total of all these countries is estimated to be about 42,000 tons in 1963.

ZINC

Zinc production is calculated as the refined zinc recovered from domestic ores at Canadian smelters, plus the recoverable zinc in ores and concentrates shipped for export. The quantity arrived at in this way is valued at the average price, in Canadian dollars, for Grade A electrolytic zinc.

New zinc in all forms produced in 1963 amounted to 473,722 short tons valued at \$121,083,466 compared with 463,145 tons valued at \$112,080,981 in 1962. Refined zinc output, including zinc refined from foreign ores, amounted to 284,020 tons in 1963 and 280,159 tons in 1962.

Zinc concentrates from Buchans Mines in Newfoundland were exported for treatment, as were the concentrates from Magnet Cove Barium Mines in

Nova Scotia and the Heath Steele Mines in New Brunswick. In Quebec zinc concentrates were produced from ores classified as copper-gold-silver, of the Vauze, Sullico, Solbec, Quemont, and Normetal Mines. Other Zinc producers were classified as lead-zinc mines. Ontario shippers included, Geco, Wilroy, and Kam Kotia.

The zinc concentrates produced in eastern Canada were exported for treatment. The Hudson Bay Mining and Smelting Company's refinery at Flin Flon, Manitoba, treated ores from the Flin Flon mines. A large portion of the zinc ores mined in British Columbia were treated in the smelter at Trail. Ores from the Mayo district in the Yukon were sent to Trail, British Columbia, and to smelters in the United States.

TABLE 26. Production¹ of Zinc from All Types of Canadian Ores, 1954 - 63

Year	Short tons	Value	Average price per pound (Canadian funds)	Year	Short tons	Value	Average price per pound (Canadian funds)
		\$	¢			\$	¢
1954	376,491	90,207,285	11.98	1959	396,008	96,942,663	12.24
1955	433,357	118,306,466	13.65	1960	406,873	108,635,003	13.35
1956	422,632	125,437,344	14.84	1961	416,004	104,749,879	12.59
1957	413,741	100,042,533	12.09	1962	463,145	112,080,981	12.10
1958	425,099	92,501,496	10.88	1963	473,722	121,083,466	12.78

¹ Refined zinc made in Canada, plus recoverable zinc in ores, etc., exported.

TABLE 27. Production of Zinc, by Months, 1962 and 1963

Month	Primary zinc in all forms		Refined zinc ¹	
	1962	1963	1962	1963
	short tons			
January	38,096	36,450	22,943	23,999
February	32,223	33,945	21,881	21,673
March	35,759	37,958	23,853	25,013
April	37,483	37,528	23,676	24,368
May	41,305	41,493	24,689	24,575
June	41,217	41,326	24,048	22,703
July	40,781	45,433	23,504	22,885
August	45,693	36,651	23,867	21,887
September	38,719	39,128	23,405	21,186
October	43,236	40,036	23,943	24,513
November	33,946	43,848	21,629	25,778
December	34,687	39,926	22,721	25,440
Totals	463,145	473,722	280,159	284,020

¹ Includes zinc refined from foreign ores.

TABLE 28. Production of Zinc (All Forms),¹ by Provinces, 1961-63

Province	1961		1962		1963	
	Pounds	Value	Pounds	Value	Pounds	Value
		\$		\$		\$
Newfoundland.....	69,277,362	8,722,020	65,081,560	7,874,869	68,970,834	8,814,473
Nova Scotia	—	—	1,513,140	183,090	—	—
New Brunswick	—	—	4,996,488	604,575	21,228,005	2,712,939
Quebec	108,010,062	13,598,467	141,473,544	17,118,299	150,168,758	19,191,567
Ontario	103,874,146	13,077,755	126,264,684	15,278,027	132,939,970	16,989,728
Manitoba	93,017,677	11,710,925	99,840,226	12,080,667	92,784,466	11,857,855
Saskatchewan.....	56,719,653	7,141,004	61,799,241	7,477,708	66,639,117	8,516,479
British Columbia	388,972,266	48,971,608	413,431,339	50,025,192	402,863,104	51,485,905
Yukon	12,137,418	1,528,100	11,888,876	1,438,554	11,850,706	1,514,520
Totals	832,008,584	104,749,879	926,289,098	112,080,981	947,444,960	121,083,466

¹ Refined zinc, plus recoverable zinc in ores etc., exported.

TABLE 29. Imports and Exports of Zinc, 1962 and 1963

	1962		1963	
	Short tons	Value	Short tons	Value
		\$		\$
Imports:				
Zinc dust and granules	889	263,866	1,171	353,148
Zinc in blocks, pigs, slabs, anodes	710	187,341	639	167,347
Zinc in bars, rods, plates, sheets.....	765	426,222	788	465,688
Zinc slugs, discs, and shells .....	...	199,241	...	138,547
Zinc white (zinc oxide).....	2,736	576,795	2,232	458,191
Zinc sulphate	1,501	147,984	1,682	178,216
Zinc chloride	218	46,012	207	43,936
Zinc, manufactures of, n.o.p.....	...	3,319,067	...	3,798,285
Lithopone	734	120,156	...	...
Zinc dross and zinc scrap	345	24,889	234	17,956
Exports:				
Zinc, fabricated materials, n.e.s.	468	765,724	1,318	611,691
Zinc contained in ore concentrates.....	242,457	19,228,728	213,044	18,194,079
Zinc, scrap, dross and ashes	5,492	553,152	5,722	610,622
Zinc, blocks, pigs, slabs	210,723	40,775,571	200,002	41,664,512
Zinc oxide	1,751	425,414	...	...

TABLE 30. Consumption of Refined Zinc, by End-uses, 1962-63

Used for or in the production of	1962		1963	
	Primary zinc	Secondary zinc	Primary zinc	Secondary zinc
	short tons			
Copper alloys (brass, bronze, etc.)	6,516	100	7,296	95
Galvanizing:				
Electro	695	60	770	43
Hot dip	35,898	402	37,070	326
Zinc diecast alloy	10,534	—	14,919	—
Other (including rolled and ribbon zinc, zinc oxide, etc.)	11,677	2,192	13,598	1,474
Totals accounted for	65,320	2,754	73,653	1,938

TABLE 31. World Production of Zinc Ore, by Countries, 1959-63

(From the Annual Report of the American Bureau of Metal Statistics)

In tons of 2,000 pounds of zinc content, either by assay or estimated as recoverable

Country	1959	1960	1961	1962	1963
United States ^{1,2}	425,303	435,427	464,390	505,491	529,254
Canada ^{1,3}	396,008	430,049	443,099	501,937	497,180
Greenland	9,227	11,155	7,498	2,402	...
Guatemala	...	11,070	8,746	899	1,289
Mexico ⁴	290,936	299,192	296,489	276,328	264,351
Totals, North America	1,121,474	1,186,893	1,220,222	1,287,057	1,292,074
Argentina ⁵	44,200	31,500	33,300	36,400	31,600
Bolivia ⁶	3,740	4,439	5,878	4,020	5,122
Peru ⁵	157,738	196,344	191,656	178,837	216,390
Totals, South America	205,678	232,283	230,834	219,257	253,112
Austria ⁵	6,522	7,250	6,651	7,264	7,816
Finland	59,591	46,327	51,175	57,508	73,144
France ⁵	15,528	19,073	17,196	17,747	18,739
Germany, Federal Republic ⁷	90,565	95,158	96,188	95,633	102,958
Greece ⁴	13,014	15,621	19,342	18,939	20,062
Ireland	1,303	1,377	184	...	...
Italy ¹	122,833	122,264	134,642	124,532	101,312
Norway ⁵	10,907	11,394	10,284	13,058	14,383
Spain ⁵	94,950	83,866	97,964	83,417	101,117
Sweden ⁵	82,783	77,492	82,893	69,856	73,700
Yugoslavia	66,881	62,150	66,008	67,366	67,534
Totals, Europe	564,877	541,972	582,527	555,320	580,765
Burma	12,038	11,128	7,865	9,036	8,819
India	5,994	5,880	5,637	6,073	6,613
Japan ⁵	156,898	172,768	185,472	212,172	218,207
Philippines	6	5,487	3,652	4,916	4,291
Totals, Asia	174,936	195,263	202,626	232,197	237,930
Algeria ⁵	41,980	44,240	48,171	45,913	40,000
Congo, Republic of the	77,130	120,217	109,828	105,530	114,139
Morocco, Southern zone ⁵	69,378	54,199	44,951	37,941	38,902
South West Africa ¹	12,395	13,119	14,906	25,201	36,715
Tunisia ⁵	3,656	4,212	3,709	4,709	4,806
Zambia ¹	41,848	44,317	45,073	45,658	54,461
Totals, Africa	246,387	280,304	266,638	264,952	289,023
Australia ¹	234,051	273,043	271,135	287,344	298,400
Free world totals, as reported	2,547,403	2,709,758	2,773,982	2,846,127	2,951,304
Russia ⁸	413,400	441,000	446,400	451,900	463,000
Germany, East	7,700	7,700	7,700	7,700	7,700
Poland	142,500	158,800	153,800	160,000	162,100
Bulgaria	61,300	64,700	61,300	65,000	81,500
China	72,000	88,000	90,000	90,000	90,000
Korea, North	83,000	83,000	83,000	83,000	83,000
Totals, Soviet Sphere, as reported⁹	779,900	843,200	842,200	857,600	887,300
World totals, as reported¹⁰	3,327,303	3,552,958	3,616,182	3,703,727	3,838,604

¹ Calculated as recoverable.² U.S. Bureau of Mines.³ Dominion Bureau of Statistics.⁴ Metal content by assay of ore and concentrates exported in that form plus smelter production.⁵ Calculated as zinc content by assay.⁶ Exports.⁷ In addition, production from pyrites, estimated in recent years to be about 22,000 tons.⁸ Smelter production.⁹ In addition, there is production in East Germany, and other Eastern Europe; the total of all these countries is estimated to be about 8,000 tons in 1963.¹⁰ In addition there is production in Honduras, Chile, Columbia, Iran, Republic of Korea, Thailand and Turkey; the total of all these countries is estimated to be about 8,000 tons in 1963.

CADMIUM

Cadmium is recovered from the silver-lead-zinc ores treated by the smelter of the Consolidated Mining and Smelting Company of Canada Limited, Trail, British Columbia, and from the copper-gold-zinc ores processed at the smelter of the Hudson Bay Mining and Smelting Company Limited, Flin

Flon, Manitoba. Production in 1963 was 2,475,485 pounds compared with 2,604,973 pounds in the preceding year. These figures include recoverable cadmium in exported concentrates, but do not include cadmium recovered in Canada from foreign ores.

TABLE 32. Production of Cadmium (Recoverable), from Canadian Ores, 1954 - 63

Year	From copper-gold-silver-zinc ores	From silver-lead-zinc ores	Total	
			Quantity	Value
		pounds		\$
1954	154,596	932,184	1,086,780	1,847,526
1955	191,691	1,727,390	1,919,081	3,262,439
1956	208,327	2,131,094	2,339,421	3,977,016
1957	286,044	2,082,086	2,368,130	4,025,821
1958	355,602	1,400,448	1,756,050	2,669,195
1959	334,029	1,826,334	2,160,363	2,765,265
1960	466,200	1,891,297	2,357,497	3,347,646
1961	307,757	1,914,193	2,221,950	3,555,128
1962	405,317 ^f	2,199,656 ^f	2,604,973	4,730,957
1963	389,185	2,086,300	2,475,485	5,941,164

TABLE 33. Production, Exports and Domestic Consumption of Cadmium Metal, 1953 - 63

Year	Production ¹	To domestic consumers ²	Exports ³
	tons (2,000 pounds)		
1953	489	133	185
1954	529	113	392
1955	857	174	694
1956	966	144	827
1957	1,009	117	844
1958	817	172	607
1959	1,264	496	828
1960	1,119	368	680
1961	1,117	747	327
1962	1,218	282	962
1963	1,177	230	915

¹ Includes cadmium recovered from foreign ores.

² Producers' shipments to domestic consumers.

³ Producers' shipments for export.

B. SILVER-COBALT MINES

The silver-cobalt mining industry is centered in the Temiskaming district in Ontario. Mining started in the Cobalt area early in this century when the silver discovery was made during the construction of a railway.

The average number of persons employed in the industry was 705 to whom \$3,003,602 were paid as salaries and wages. Fuel cost \$142,251 and 26,185,766 kwh. of electricity were purchased for \$203,646. Process supplies used were valued at \$412,612.

TABLE 34 A. Principal Statistics of the Silver-Cobalt Mines, Significant Years, 1921 - 59

Basis: Standard Industrial Classification in use prior to 1960

Year	Estab-lish-ments ¹	Em-ployees	Salaries and wages	Cost of fuel and electricity at plant	Cost at plant of process supplies	Gross value of products	Net value added ²
	number		dollars				
1921	39	1,224	1,739,706	448,897	..	6,316,812	..
1929	32	1,149	1,532,333	407,952	..	3,918,316	..
1931	26	786	1,149,689	227,467	..	1,925,593	..
1933	14	242	322,281	83,565	..	1,071,602	..
1937	25	300	394,386	90,134	116,455	853,386	540,762
1939	43	323	412,728	63,486	105,500	890,128	653,032
1941	14	182	229,984	40,875	59,761	788,815	662,443
1944	11	165	260,575	48,323	35,809	422,860	323,260
1946	11	247	404,012	58,712	48,932	325,846	207,483
1949	18	264	607,782	82,735	127,661	822,881	503,572
1951	20	514	1,406,783	148,661	299,084	4,539,842	3,640,343
1954	15	808	2,614,266	273,024	466,390	5,294,499	4,103,256
1957	12	598	2,209,805	256,694	353,026	4,314,088	3,105,688
1958	12	570	2,115,670	241,027	320,403	4,792,545	3,633,390
1959	11	486	1,647,687	185,883	229,554	5,006,541	4,118,972

¹ Includes lessees shipping from dumps.² Gross value less the value of fuel, electricity, process supplies, freight and treatment charges.**TABLE 34 B. Principal Statistics of the Silver-Cobalt Mines, 1959 - 63**

Basis: Revised Standard Industrial Classification and New Establishment Concept

Year	Estab-lish-ments	Em-ployees	Salaries and wages	Cost of fuel and electricity at plant	Cost at plant of process supplies	Gross value of products	Net value added ¹
	number		dollars				
1959	11	486	1,647,687	185,883	229,554	5,006,541	4,118,972
1960	7	520	2,077,281	253,243	297,067	5,643,143	4,526,714
1961	20	560	2,216,805	295,788	375,186	4,515,717	3,424,158
1962	21	611	2,517,012	305,341	292,566	6,107,978	5,011,493
1963	21	705	3,003,602	345,897	412,612	6,956,626	5,591,773

¹ Gross value less the value of fuel, electricity, process supplies, freight and treatment charges.**TABLE 35. Summary¹ of Operations of Silver-Cobalt Mines and Mills, 1961 - 63**

	1961	1962	1963
	short tons		
Ore mined	233,781	230,412	307,095
Ore salvaged from surface ²	48,936	4,209	-
Ore and tailings treated (milled) ³	281,140	233,242	292,585
Concentrates produced	6,080	5,737	6,800

¹ Partly estimated as data are unobtainable from some small shippers.² Complete data not available.³ Does not include crude ore shipped.

TABLE 36. Mines and Mill Shipments of Canadian Silver-Cobalt Ores and Concentrates, 1962 and 1963

	Gross weight	Metal content			
		Silver	Cobalt	Nickel	Copper
		short tons	ounces	pounds	
1962					
To Canadian smelters	5,665	2,443,730	157,649	40,230	176,302
To foreign plants	734	2,582,552	67,698	14,798	9,406
Totals	6,399	5,026,282	225,347	55,028	185,708
1963					
To Canadian smelters	6,122	3,215,110	241,554	34,585	230,545
To foreign plants	739	1,996,764	79,485	19,315	7,840
Totals	6,861	5,211,874	321,039	53,900	238,385

TABLE 37. Employees and Earnings in the Silver-Cobalt Mines, 1958-63

Year	Administrative		Workmen		Total employees	Man-hours worked	Earnings		Total earnings
	Male	Female	Male	Female			Administrative	Workmen	
	number						dollars		
1958	73	5	488	4	570	1,304,033	380,569	1,735,101	2,115,670
1959	67	4	409	6	486	1,082,824	334,091	1,313,596	1,647,687
1960	62	5	447	6	520	1,186,773	336,534	1,740,747	2,077,281
1961	76	3	475	6	560	1,147,662	407,185	1,809,620	2,216,805
1962	85	6	515	5	611	1,297,556	398,006	2,119,006	2,517,012
1963	107	13	579	6	705	1,568,651	643,315	2,360,287	3,003,602

TABLE 38. Workmen on the Payroll at End of the Month in the Silver-Cobalt Mines, 1962 and 1963

Month	1962					1963					
	Mine			Mill	Total	Mine			Total		
	Surface		Under-ground			Surface		Under-ground		Mill	
	Male	Female	Male	Male	Male	Female	Male	Male	Female		
number											
January	134	6	253	65	458	100	4	396	86	2	588
February	135	5	264	50	454	109	4	417	85	2	617
March	140	5	278	48	471	106	4	431	86	2	629
April	143	5	303	51	502	89	3	423	88	2	605
May	139	4	275	59	477	91	3	450	95	2	641
June	146	4	280	60	490	96	3	413	98	2	612
July	206	4	309	72	591	98	4	353	101	2	558
August	158	4	305	74	541	98	4	380	105	2	589
September	161	4	315	74	504	103	4	356	104	2	568
October	207	4	296	74	581	93	4	362	104	1	564
November	212	5	295	74	586	73	4	339	87	1	504
December	179	5	311	74	569	62	4	339	85	1	491
Averages	160	5	298	57	520	93	4	388	94	2	581
<i>Man-hours of labour</i>					<i>1,135,326</i>					<i>1,314,804</i>	

TABLE 39. Fuel and Electricity Used in the Silver-Cobalt Mines, 1963

Kind	Quantity	Cost at plant	
		\$	
Bituminous coal (a) From Canadian mines	short ton	514	11,858
(b) Imported.....		-	-
Sub-bituminous coal (from Alberta mines only).....		-	-
Anthracite coal	short ton	169	4,261
Lignite coal		-	-
Coke (for fuel only).....		-	-
Gasoline (includes gasoline used in cars and trucks).....	Imp. gal.	34,370	14,586
Kerosene or coal oil	"	270	80
Fuel oil and diesel fuel	"	238,087	45,125
Wood (cords of 128 cubic feet of piled wood)	"	-	-
Gas (a) Liquefied petroleum gases (propane, etc.)	Imp. gal.	3,594	2,179
(b) Other manufactured gas		-	-
(c) Natural gas		-	-
Other fuel .....	...		64,162
Electricity purchased for power and lighting	kwh.	26,185,766	203,646
Electricity purchased for other purposes.....		-	-
Total .....	...		345,897
Electricity generated (a) For own use	kwh.	-	-
(b) For sale	"	-	-

TABLE 40. Specified Miscellaneous Expenditures by the Silver-Cobalt Mines, 1963

	1963
	\$
(a) Workmen's compensation	85,636
(b) Silicosis assessment	-
(c) Unemployment insurance	45,152
(d) Aggregate cost of structures, roads, machinery, equipment, etc., built by or purchased from outside contractors or suppliers and chargeable to Fixed Assets Account	424,598
(e) Book value of fixed assets (new structures, roads, machinery, equipment, etc., including major repairs and alterations) produced by own employees and chargeable to Fixed Assets Account	92,430
(f) Other capital expenditures not reported in (d) and (e)	94,483
(g) Cost of materials and supplies used in the production of machinery and equipment and in the construction of roads and new structures (including major repairs and alterations by own employees and chargeable to Fixed Assets Account)	77,764
(h) Cost of all other goods, materials and supplies (including office, medical, laboratory, cafeteria and store supplies) purchased and not chargeable to Fixed Assets Account	1,264,199

COBALT

A large portion of the cobalt output is produced at Port Colborne, Ontario, by the International Nickel Company of Canada, as electrolytic cobalt and cobalt oxide. This cobalt originates in the nickel-copper ores of the Sudbury area. The cobalt in the ores of the Falconbridge Nickel Mines Ltd. is contained in the nickel-copper matte which that firm ships to Norway. Cobalt was recovered from the

nickel-copper ores from Lynn Lake, Manitoba, by Sherritt-Gordon Mines Ltd. at the firm's refinery in Alberta.

Some of the silver-cobalt ores from the Cobalt and Gowganda areas are processed at Cobalt Refinery Ltd., Cobalt, Ontario.

Arsenic

Data on arsenious oxide formerly included in this bulletin are now given in the report on the Miscellaneous Non-metal Mining Industry.

TABLE 41. Production of Cobalt from Canadian Ores, 1954 - 63

Year	Quantity	Value	Year	Quantity	Value
	pounds	\$		pounds	\$
1954	2,252,965	5,912,997	1959	3,150,027	5,954,916
1955	3,318,637	8,563,700	1960	3,568,811	6,763,016
1956	3,516,670	9,065,493	1961	3,182,897	4,751,543
1957	3,922,649	7,784,423	1962	3,481,922	6,345,205
1958	2,710,429	5,308,298	1963	3,024,965	6,122,169

TABLE 42. Imports and Exports of Cobalt, 1962 - 63

	1962		1963	
	Quantity	Value	Quantity	Value
	pounds	\$	pounds	\$
Imports:				
Cobalt ore	—	—	—	—
Oxide of cobalt	40,936	47,770	28,291	34,747
Exports:				
Cobalt contained in ore .....	..	..	..	..
Cobalt metallic	542,565	919,083	739,227	1,214,975
Cobalt alloys .....	..	..	..	..
Cobalt oxides and hydroxides	1,629,900	2,313,206	1,098,300	1,508,328

TABLE 48. World Production of Cobalt

(From the Annual Report of the American Bureau of Metal Statistics)

Country	1959	1960	1961	1962	1963
	pounds				
Canada ¹	3,150,027	3,568,811	3,236,323	3,481,922	3,024,965
Zambia ²	4,814,000	3,860,000	3,402,000	1,896,000	1,556,448
Congo, Republic of ²	18,586,983	18,348,886	18,356,000	21,230,000	16,093,580
Morocco ³	2,660,952	2,802,047	2,844,000	3,166,000	3,022,507
United States ³	2,993,709	..	..	..	..

¹ Metal recovered from smelter products, plus cobalt contained in cobalt residues exported.

² Cobalt content of alloys.

³ Content of ore.

Operators of Silver-Lead-Zinc Mines, 1963

Name of operator	Head office address	Location of mine
Newfoundland:		
American Smelting & Refining Co. ¹	120 Broadway, New York	Buchans
Nova Scotia:		
Magnet Cove Barium Corp'n ¹	Walton, Hants Co.	Pembroke
Milado Mines (1957) Ltd.	405-25 Adelaide St. W., Toronto, Ontario	Bathurst
Talisman Mines Ltd. ¹	25 Adelaide St. W., Toronto, Ontario	West Gore
New Brunswick:		
Brunswick Mining & Smelting Corp. Ltd. ¹	330 Bay St., Toronto, Ontario	Bathurst
Combined Metal Mines Ltd. ¹	330 Bay St., Toronto, Ontario	Bathurst
Fab Metal Mines Ltd. ¹	25 Adelaide St. W., Toronto, Ontario	Bathurst
Heath Steele Mines Ltd. ¹	Box 1390, Newcastle	Newcastle
Sturgeon River Mines Ltd.	330 Bay St., Toronto, Ontario	Gloucester
Quebec:		
Caesar Minerals Ltd.	121 Richmond St. W., Toronto, Ontario	Rogoumaure
Contagus Mines Ltd. ¹	330 Bay St., Toronto, Ontario	Lesuerer Twp.
Coulee Lead and Zinc Mines Ltd. ¹	902-55 Yonge St., Toronto, Ontario	Poirier Twp.
Federal Metals Corporation	507 Place d'Armes, Montreal	Grand Cascapedia
Galinee Mattagami Mines Ltd. ¹	44 King St. W., Toronto, Ontario	Galinee
Ghislaui Mining Corp., Ltd.	6847 St. Hubert St., Montreal	Montauban-les-Mines
Grand Calumet Mining Company Limited	355 St. James St. W., Montreal	Grand Calumet Twp.
Grand Manitou Mines Ltd.	159 Craig St. W., Montreal	Nomininque
Isle Dieu Mattagami Mines Ltd. ¹	44 King St. W., Toronto, Ontario	Isle Dieu Twp.
Juma Mining and Exploration Ltd. ¹	217 Essex St., Sarnia, Ontario	Matagami
Kusten Mines Ltd.	320 Bay St., Toronto, Ontario	Galinee
Les Mines Dumagami Ltée	C.P. 490, Malartic	Abitibi
Les Mines Roy & Ross Inc.	296 St. Germain, Rimouski	St. Fabien
Les Mines Talon Inc.	7466 Christophe Colomb, Montreal 10	Cap Desrosiers
Manitou Barvue Mines Ltd. ¹	407-25 Adelaide St. W., Toronto, Ontario	Bourlamaque Twp.
Mattagami Lake Mines Ltd. ¹	44 King St. W., Toronto, Ontario	Galinee Twp.
Mattagami Syndicate	225-12 Richmond St. E., Toronto, Ontario	Mattagami Lake
New Calumet Mines Ltd. ¹	355 St. James St. W., Montreal	Calumet
New Inscoc Mines Ltd.	355 St. James St. W., Montreal	Dufresnay Twp.
Newlund Mines Ltd.	2402-44 King St. W., Toronto, Ontario	Lake Quebec
Orchan Mines Ltd. ¹	Noranda	Mattagami
Paramaque Mines Ltd.	405-25 Adelaide St. W., Toronto, Ontario	Bourlamaque
Parquet Mines Ltd.	50 Richmond St. W., Toronto, Ontario	Duparquet Twp.
Rio Tinto Canadian Exploration Ltd.	1201-121 Richmond St. W., Toronto, Ontario	Poirier
Roy-Ross Mines Inc. ¹	296 St. Germaine, cté Rimouski	St. Fabien
Sanctae Rosalis Mining Corp. ¹	250-11th Ave. Val d'Or	Clermont
Satellite Metal Mines Ltd. ¹	908-330 Bay St., Toronto, Ontario	Montauban-les-Mines
Southern Exploration Development Corporation.	614 St. James St. W., Montreal 3	Richmond Gulf
Val Jon Exploration Ltd. ¹	60 Adelaide St. E., Toronto, Ontario	Various
Vendome Mines Ltd.	102-680 Sherbrooke St. W., Montreal	Barraute
Ontario:		
Giant Yellowknife Gold Mines Ltd.	7 King St. W., Toronto	Sudbury
Willroy Mines Ltd. ¹	25 Adelaide St. W., Toronto	Manitowadge
Zenmac Metal Mines Ltd. ¹	80 Richmond St. W., Toronto	Schreiber
British Columbia:		
American Smelting and Refining Company ¹	1112 W. Pender St., Vancouver	Various
Antoine Silver Mines ¹	Box 509, Kaslo	Slocan
Archer, Ronald ¹	Kimberley	Golden
Bonanza Mines ¹	Spanish Fork, Utah, U.S.A.	Nelson
Caledonia Mines Ltd.	Box 470, Kaslo	Kaslo
Canadian Exploration Ltd. ¹	700 Burrard Bldg., Vancouver	Salmo
Carter, Logan & Holmes	821-10th St., Nelson	Nelson
Carnegie Mining Corp. Ltd.	26 Adelaide St. W., Toronto, Ontario	Slocan
Coast Exploration Ltd. ¹	629 Hornby St., Vancouver	Greenwood and Bob Creek

¹ Establishments in the Silver-Lead-Zinc Mines Industry - List includes some dormant properties.

Operators of Silver-Lead-Zinc Mines, 1963 - Concluded

Name of operator	Head office address	Location of mine
British Columbia - Concluded:		
Consolidated Mining & Smelting Co. of Canada Ltd., The ¹	Trail	Various
Copper Soo Mining Company Ltd. ¹	844 W. Hastings St., Vancouver	Fort Steele
Cultus Explorations Ltd. ¹	11810-124th Ave., Edmonton, Alberta	Slocan
Dakota Silver Mines Ltd. ¹	Beaton	Revelstoke
De Kock, L.C.	Nelson	Rosebud Lake
Dolly Varden Mines Ltd.	617-837 West Hastings St. Vancouver 1	Alice Arm
Endersby, A.	Fruitvale	Salmo
Ewers, K.G. ¹	Okanagan Falls	Oliver
Fox, G.D.	Trail	Trail
Humbolt Mine ¹	Cranbrook	Cranford Creek
Jordan Mines Ltd ¹	320-355 Burrard St., Vancouver	Mount Copeland
K-Belle Enterprise Co.	Linden, Alberta	Salmo
Laughton, T.G.	Nelson	Ainsworth
London Pride Silver Mines Ltd ¹	611-850 West Hastings St., Vancouver 1	Slocan
Lone Bachelor Mines Ltd.	416-25 Adelaide St. W., Toronto, Ontario	New Denver
Lucky Four Leasers	6-490 Baker St., Nelson	New Denver
Lucky Jim Mine	San Antonio, Texas, U.S.A.	Law Creek
McWilliams & Riesterer	Vancouver	Nicola
Mills, Frank	Silverton	Slocan
Mastodon-Highland Bell Mines Ltd. ¹	1200 W. Pender St., Vancouver	Revelstoke
Mazie Mine Ltd. ¹	Princeton	Princeton
Muller, E.	Helix, Oregon, U.S.A.	Kaslo
Nesbitt, B.I.	809-525 Seymour St., Vancouver	Eagle Ace
New Ainsworth Base Metals Ltd.	Vancouver	Kaslo
New Cronin Babine Mines Ltd. ¹	844 W. Hastings St., Vancouver	Omenica
New Indian Mines Ltd. ¹	714-789 W. Pender St. Vancouver	Stewart
New Jersey Zinc Exploration Co. (Canada) Ltd. ¹	905-525 Seymour St., Vancouver	Merritt
Norcross, D.H.	R.R. 2, Nelson	Ainsworth
Norex Mines	Oliver	Oliver
Northwest Mining Partnership	Kellogg, Idaho, U.S.A.	Kootenay
Ottawa Silver Mines Ltd	19 North Bernard, Spokane Wash. U.S.A.	Slocan
Pearson, J.K.	Calgary, Alberta	Slocan
Peerless Canadian Explorations Ltd. ¹	25 Adelaide St. W., Toronto, Ontario	Kaslo
Perepolkin, Fried & De Rosa	Hills	Sandon
Petersen, E.H.	Sandon	Slocan
Rabbit Paw ¹	New Denver	Slocan
Red Rock Mines Ltd. ¹	850 West Hastings St., Vancouver	Wallace Mountain
Reeves MacDonald Mines Ltd. ¹	837 W., Hastings St., Vancouver	Nelson
Ruth-Hope Mines Ltd. ¹	Sandon	Slocan
Shady Mining Company ¹	Sandon	Slocan
Sheep Creek Mines Ltd. ¹	6-490 Baker St., Nelson	Toby Creek
Sheritt Lee Mines Ltd.	Vancouver	Beaverdell
Silback Premier Mines Ltd. ¹	844 W., Hasting St., Vancouver	Stewart
Silver Bell Mine ¹	Silverton	Slocan
Silver King Mines Ltd. ¹	Slocan	Slocan
Silver Scandie Mines Ltd.	Osoyoos	Beaverdell
Silver Standard Mines Ltd. ¹	808-602 West Hasting St., Vancouver	Ominica
Standard Bryllium Corp.	Kaslo	Kaslo
Susie Mine ¹	Okanagan Falls	Oliver
Tarnowski, M.	Silverton	Silverton
North West Territories:		
Bankeno Mines Ltd. ¹	600-250 University Ave., Toronto 1, Ontario.	Artic Islands
Pine Point Mines Ltd. ¹	Trail	Pine Point
Yukon:		
Canal Metal Mines Ltd.	405-25 Adelaide St. W., Toronto, Ontario	Stormy Mountain
Ketzakey Silver Mines Ltd.	10029-148th St. Edmonton, Alberta	Ross River
Newconex Canadian Exploration Ltd.	1702-8 King St. E., Toronto 1, Ontario	Yukon
Peso Silver Mines Ltd. ¹	420-475 Hornby St., Vancouver, British Columbia.	Mayo
Tintina Silver Mines Ltd.	1001-85 Richmond St. W., Toronto, Ontario	Watson Lake
United Keno Hill Mines Ltd. ¹	7 King St. E., Toronto, Ontario	Mayo

¹ Establishments in the Silver-Lead-Zinc Mines Industry. List includes some dormant properties.



Operators of Silver-Cobalt Mines, 1963

Name of Operator	Head office address	Location of mine
Ontario:		
Accra Mines Ltd. ¹	305-100 Adelaide St. W., Toronto	Robb Twp.
Agnico Mines Ltd. ¹	711-62 Richmond St. W., Toronto	Coleman Twp.
Alsof Mines Ltd.	2001-80 King St. W., Toronto 1	Mickle Twp.
Argentium Silver Mines Ltd. ¹	904 Yonge St., Toronto 5	Whitson Twp.
Chitaroni Minerals Ltd.	10 Prospect Ave., Cobalt	Brady Lake
Consolidated Professor Mines Ltd. ¹	360 Bay St., Toronto	Temiskaming
Deer Horn Mines Ltd. ¹	62 Richmond St. W., Toronto	Coleman Twp.
Ganda Silver Mines Ltd. ¹	25 Adelaide St. W., Toronto	Willet and Clarendon Twp.
Glen Lake Silver Mines Ltd. ¹	365 Bay St., Toronto	Coleman Twp.
Harrison Minerals Ltd.	145 Yonge St., Toronto	Buck Twp.
Hiho Silver Mines Ltd. ¹	503-365 Bay St., Toronto	Coleman Twp.
Keeley Frontier Mines Ltd. ¹	67 Yonge St., Toronto	Silver Centre
Langis Silver & Cobalt Mining Co., Ltd. ¹	25 Adelaide St. W., Toronto	Casey & Harris Twp.
Mayfair Mines Ltd.	331 Bay St., Toronto	Coleman Twp.
McAllister, R.	Box 283, Cobalt	Coleman Twp.
McIntyre Porcupine Mines Ltd. (Castle Div.) ¹	25 King St. W., Toronto	O'Brien
Mentor Exploration & Development Co., Ltd.	100 Adelaide St. W., Toronto	Coleman Twp.
Miller-Lorrain Mines Ltd. ¹	392 Bay St., Toronto	Temiskaming
Patricia Silver Mines Ltd. ¹	365 Bay St., Toronto	Coleman Twp.
Professor Silver Mines, Ltd.	360 Bay St., Toronto	Gillies Limit
Reid Stewart Lease	Cobalt	Coleman Twp.
Richardson, F.	Cobalt	Coleman Twp.
Rix-Athabasca Uranium Mines, Ltd.	335 Bay St., Toronto	Coleman Twp.
Rusty Lake Mining Corp. ¹	1117 St. Catherine St. W., Montreal, Quebec...	Leith Twp.
Shaynee Consolidated Mines, Ltd.	62 Richmond St. W., Toronto	Montreal River
Silver Claim Lake Mines Ltd.	Rexdale P.O. Toronto	Nicol Twp.
Silver Miller Mines Ltd. ¹	62 Richmond St. W., Toronto	Coleman Twp.
Silver Summit Mines Ltd. ¹	100 Adelaide St. W., Toronto	Coleman Twp.
Silver Town Mines Ltd. ¹	503-365 Bay St., Toronto	Coleman Twp.
Silvermaque Mining, Ltd. ¹	80 Richmond St. W., Toronto	Gillies Limit
Sinclair Miller Mines Ltd.	392 Bay St., Toronto	Mosher Bay
Siscoe Metals of Ontario Ltd. ¹	300 Dominion Square Bldg., Montreal 2, Quebec	O'Brien
Stewart, Reid ¹	Cobalt	Cobalt
Tormont Mines Ltd. ¹	25 Adelaide St. W., Toronto	Various

¹ Establishments in the Silver-Cobalt Mines Industry. List includes some dormant properties.

Note: In addition to the names listed, there were some small shippers.