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THE SILVER-LEAD-ZINC MINING INDUSTRY

1955



Published by Authority of
The Right Honourable C. D. Howe, Minister of Trade and Commerce

DOMINION BUREAU OF STATISTICS
Industry and Merchandising Division
Mineral Statistics Section

6502-590-125

Price: 25 cents

Vol. 1—Part I—C-1

NOTICE

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

Volume I consists of the following parts:

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

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

- A – General Review of the Mining Industry, 50¢
- B – The Gold Mining Industry, 50¢
- C – The Silver-Lead-Zinc Mining Industry, 25¢
- D – The Nickel-Copper Mining, Smelting and Refining Industry, 25¢
- E – The Miscellaneous Metal Mining Industry, 25¢
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- S – The Sand and Gravel Industry, 25¢
- T – The Stone Industry, 25¢
- U – Contract Drilling in the Mining Industry, 25¢

THE SILVER-LEAD-ZINC MINING INDUSTRY

1955

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; and at

Great Bear Lake, Northwest Territories, with pitchblende. 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 Quebec, Manitoba, Saskatchewan and British Columbia.

(a) The Silver-Lead-Zinc Mining Industry

There were 99 firms which did some work on 103 mines or properties. In this group there were 41 producers or shippers in 1955. The industry had an average employment of 6,529 persons to whom \$26,741,770 were paid in salaries and wages. Fuel cost \$3,465,589 and 153,803,923 kwh. of electricity were purchased for \$1,688,066. Process supplies

cost \$9,740,623 and freight, plus treatment charges, amounted to \$44,317,426.

There were some firms, formerly classified as silver-lead-zinc mines, which were transferred for statistical purposes to the copper-gold-silver mining industry, as the major portion of the value of their output was derived from copper and gold.

TABLE 1. Principal Statistics for the Silver-Lead-Zinc Mining Industry, Significant Years 1921-1955

Year	Establishments	Employees	Earnings	Cost of fuel and electricity at works	Cost of process supplies	Gross selling value of products (f.o.b. works)	Net ¹ value of production
	No.	No.	\$	\$	\$	\$	\$
1921	72	781	966,171	90,953	N A	2,177,053	N A
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
1952	171	10,330	37,643,614	4,417,393	10,192,616	165,126,784	104,937,002
1953	143	7,144	28,695,373	3,836,581	10,074,160	123,803,184	67,898,350
1954	124	6,386	24,847,011	3,488,018	9,927,474	136,256,758	78,077,960
1955	103	6,529	26,741,770	3,465,589	9,740,623	140,186,677	82,663,039

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 in the Silver-Lead-Zinc Mining Industry, 1954 and 1955

	Newfoundland, Nova Scotia, New Brunswick	Quebec and Ontario	British Columbia	Yukon and Northwest Territories	Canada
	Tons				
1954					
Ore mined	580,913	2,462,411	3,988,938	239,749	7,272,011
Ore milled	579,914	2,461,910	3,986,831	211,655	7,240,310
Concentrates produced:					
Lead	39,882	18,239	234,311	25,079	317,511
Zinc	79,022	141,345	366,237	23,272	609,876
Pitchblende-silver	—	—	—	—	¹
Precipitates and other	—	—	276	—	276
Copper	13,018	4,227	13,289	—	30,534
1955					
Ore mined	592,639	2,196,443	4,573,505	163,765	7,526,352
Ore milled	592,140	2,099,194	4,566,687	162,565	7,420,586
Concentrates produced:					
Lead	31,887	13,980	200,980	19,276	266,123
Zinc	75,209	114,519	382,910	20,506	593,144
Pyrite	7,952	52,014	—	—	59,966
Precipitates and other	—	—	327	—	327
Copper, copper-lead	19,571	3,872	13,993	—	37,436

1. Data not available for publication.

TABLE 3. Destination of Shipments from Silver-Lead-Zinc Mines, 1954 and 1955

	Tons shipped	Gross value f.o.b. shipping points	Total metal content (without deductions)			
			Gold	Silver	Lead	Zinc
		\$	Troy ounces	Troy ounces	Pounds	Pounds
1954						
To Canadian smelters:						
Lead ore	588	106,382	30	54,706	639,956	87,855
Lead concentrates	210,668	38,053,951	1,090	9,622,938	272,107,149	23,165,082
Gold concentrates	143	248,007	7,267	3,396	13,303	21,122
Zinc concentrates ¹	365,288	39,423,568	2,111	1,299,493	49,734,538	350,354,828
Copper concentrates ²	160	22,013	26	812	—	—
Bullion, gold .....	...	5,858	170	122	—	—
Total Canadian	576,947	77,859,779	10,694	10,981,467	322,494,946	373,628,887
To foreign smelters:						
Lead ore	781	124,002	353	85,245	448,810	29,457
Lead concentrates	103,566	22,142,323	111,356	7,076,147	120,508,871	12,411,273
Zinc concentrates ¹	231,454	29,972,468	18,195	1,401,061	4,121,191	265,691,541
Tin concentrates	178	280,437	—	—	355,251 ⁴	—
Copper concentrates ³	31,553	4,596,563	13,784	961,567	3,409,010	6,361,474
Silver concentrates, bullion	14	330,757	—	399,766	—	—
Gravity concentrates	135	76,915	1,807	13,326	59,654	68,051
Precipitates	28	873,514	14,251	439,566	—	—
Total foreign	367,709	58,396,979	159,746	10,376,868	128,547,536	284,561,796
Total shipments	944,656	136,256,758	170,440	21,358,335	451,042,482	658,190,683
Cost of freight .....	...	11,186,792	...	...	...	...
Cost of fuel and purchased electricity ..	...	3,488,018	...	...	...	...
Smelter charges .....	...	33,576,514	...	...	...	...
Cost of process supplies .....	...	9,927,474	...	...	...	...
Net value of shipments .....	...	78,077,960	...	...	...	...

TABLE 3. Destination of Shipments from Silver-Lead-Zinc Mines, 1954 and 1955 - Concluded

	Tons shipped	Gross value, f.o.b. shipping points	Total metal content (without deductions)			
			Gold	Silver	Lead	Zinc
			Troy ounces	Troy ounces	Pounds	Pounds
1955						
To Canadian smelters:						
Lead ore	1,088	102,220	12	39,412	514,222	212,713
Lead concentrates	187,030	36,685,726	1,411	8,869,755	238,488,452	19,850,681
Zinc concentrates ¹	364,675	43,589,371	1,532	1,711,040	47,139,340	343,125,995
Gold concentrates	215	310,066	8,984	3,903	—	—
Copper concentrates ⁵	1,559	412,620	957	9,844	—	—
Pyrite	10,096	78,240	—	—	—	9,058,065 ⁷
Silver concentrates, bullion	113	115,769	139	126,331	58,518	4,114
Total Canadian	564,776	81,294,012	13,035	10,760,285	286,200,532	363,193,503
To foreign smelters:						
Lead ore	182	85,574	3	76,967	125,214	27,280
Lead concentrates	90,639	18,455,260	15,078	3,703,287	104,553,292	11,717,377
Zinc concentrates ¹	231,717	31,735,623	5,004	1,252,382	4,762,582	267,143,172
Copper concentrates ⁶	25,645	5,579,562	11,519	814,297	1,985,296	1,889,922
Gold concentrates .....	...	464	13	4	—	—
Silver concentrates, bullion	1,668	1,781,083	—	1,819,592	1,128,833	—
Precipitates	23	697,058	10,878	346,285	—	—
Tin concentrates	337	346,679	—	—	—	673,411 ⁴
Pyrite	45,538	211,362	—	—	—	45,682,492 ⁷
Total foreign	395,749	58,892,665	42,495	8,012,814	112,555,217	280,777,751
Total shipments	960,525	140,186,677	55,530	18,773,099	398,755,749	643,971,254
Cost of freight .....	...	10,068,235	...	...	...	...
Cost of fuel and purchased electricity ..	...	3,465,589	...	...	...	...
Smelter charges .....	...	34,249,191	...	...	...	...
Cost of process supplies .....	...	9,740,623	...	...	...	...
Net value of shipments .....	...	82,663,039	...	...	...	...

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.

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 70,449.

3. Copper content, in pounds, was 13,300,680.

4. Tin content in pounds.

5. Copper content, in pounds, was 797,379.

6. Copper content, in pounds, was 10,906,922.

7. Sulphur content, in pounds.

TABLE 4. Employees and Earnings in the Silver-Lead-Zinc Mining Industry, 1951-1955

Year	Administrative		Workmen		Total employees	Total man-hours worked	Earnings		Total earnings
	Male	Female	Male	Female			Administrative	Workmen	
	Number						\$	\$	
1951	1,117	103	7,963	136	9,324	20,647,209	4,749,068	25,631,791	30,380,859
1952	1,220	110	8,884	117	10,330	23,421,755	5,830,281	31,813,333	37,643,614
1953	1,023	86	5,948	87	7,144	16,229,164	5,263,075	23,432,398	28,695,473
1954	899	82	5,318	87	6,386	14,400,821	4,468,140	20,378,871	24,847,011
1955	951	93	5,405	80	6,529	14,563,682	5,285,716	21,456,054	26,741,770

TABLE 5. Number of Workmen, by Months, in the Silver-Lead-Zinc Mining Industry, 1954 and 1955

Month	1954	1955					
	Total	Mine			Mill		Total
		Surface		Underground	Male	Female	
		Male	Female	Male			
January	5,396	1,633	68	2,696	883	6	5,286
February	5,261	1,569	66	2,693	884	7	5,219
March	5,191	1,560	66	2,694	893	7	5,220
April	5,063	1,607	68	2,703	871	6	5,255
May	5,248	1,856	69	2,731	897	7	5,560
June.....	5,527	1,942	75	2,769	944	7	5,737
July	5,633	1,985	86	2,756	940	9	5,776
August.....	5,688	1,942	79	2,739	916	8	5,684
September	5,588	1,929	65	2,736	892	8	5,630
October	5,518	1,812	67	2,761	904	8	5,552
November	5,396	1,729	66	2,783	889	8	5,475
December	5,247	1,634	69	2,711	889	8	5,311
Average.....	5,405	1,775	72	2,731	899	8	5,405

TABLE 6. Drilling Completed on Silver-Lead-Zinc Deposits, 1953-1955

	Footage drilled		
	1953	1954	1955
Diamond drilling for exploration and testing:			
By mining companies with their own personnel and equipment	45,545	12,004	76,257
By diamond drilling contractors	536,394	409,650	425,866
Other diamond drilling:			
Blast hole diamond drilling:			
By mining companies with their own personnel and equipment.....	499,521	376,509	523,853
By diamond drilling contractors	37,956	6,677	1,335
Drilling by percussion or other machines ¹	6,387,075	4,733,972	6,935,242

1. Not complete as records are unobtainable at certain mines.

TABLE 7. Taxes Paid by Concerns in the Silver-Lead-Zinc Mining and Smelting Industry, 1953-1955

Tax paid	1953	1954	1955
	\$	\$	\$
Dominion income tax.....	12,231,457	13,406,884	18,565,345
Provincial tax	1,993,825	2,382,618	3,586,121
Municipal tax	772,328	818,893	883,395

TABLE 8. Cost of Prospecting by Canadian Silver-Lead-Zinc Mining Companies

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						
1953						
Newfoundland	269,727	35,109	—	—	—	304,836
Nova Scotia	71,563	—	—	—	—	71,563
New Brunswick	1,455,660	260,071	8,710	894	—	1,725,335
Quebec	15,279	231,736	—	5,878	—	252,893
Ontario	38,679	4,940	7,720	7,782	9,170	68,291
Manitoba	12,378	—	—	1,152	—	13,530
Saskatchewan	28,890	—	—	26,382	4,880	60,152
Alberta	765	—	—	—	—	765
British Columbia	37,603	—	—	904,828	—	942,431
Northwest Territories	2,945	—	—	26,590	—	29,535
Yukon	42,021	—	—	6,561	75,765	124,347
Canada	1,975,510	531,856	16,430	980,067	89,815	3,593,678
1954						
Newfoundland	298,460	—	—	34,845	—	333,305
Nova Scotia	74,145	—	—	—	—	74,145
New Brunswick	2,671,638	44,789	—	1,276,644	—	3,998,071
Quebec	332,248	20,867	—	6,546	—	359,661
Ontario	453,986	17,576	4,579	270,105	—	746,246
Manitoba	38,254	307	—	10,212	—	48,773
Saskatchewan	165,622	—	194	136,597	—	302,413
Alberta	—	—	1,027	1,845	—	2,872
British Columbia	121,098	—	—	513,153	—	634,251
Northwest Territories	4,473	—	—	27,329	—	31,802
Yukon	82,580	—	—	104,270	130,508	316,358
Canada	4,242,504	83,539	5,800	2,381,546	130,508	6,843,897
1955						
Newfoundland	249,576	—	—	—	—	249,576
Nova Scotia	51,380	—	—	—	—	51,380
New Brunswick	391,766	56,589	990	122,886	—	572,231
Quebec	256,294	141,264	—	288,776	4,031	690,365
Ontario	563,461	76,940	14,797	65,055	2,889	723,142
Manitoba	15,988	—	—	85,537	—	101,525
Saskatchewan	2,762	—	—	42,728	—	45,490
Alberta	—	—	—	—	—	—
British Columbia	—	—	—	500,189	—	500,189
Northwest Territories	5,600	—	—	138,970	24,471	169,041
Yukon	—	—	—	58,242	31,067	89,309
Canada	1,536,827	274,793	15,787	1,302,383	62,458	3,192,248

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

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.

TABLE 9. Specified Expenditures by the Silver-Lead-Zinc Mining and Smelting Industry

	1952	1953	1954	1955
	\$	\$	\$	\$
Workmen's compensation	1,250,725	957,436	885,573	820,537
Silicosis assessment	298,708	255,922	209,228	343,844
Unemployment insurance	407,049	304,868	278,460	297,625
Aggregate cost of all supplies purchased	20,700,368	16,476,408	15,099,449	15,319,071
Aggregate cost of plant and equipment purchased	12,184,469	4,031,118	3,103,221	2,392,914
Cost of buildings, machinery and equipment erected or installed during year	25,309,843	4,849,234	3,730,998	3,825,729

TABLE 10. Estimated Capital and Repair Expenditures, 1951-1955

Year	Capital expenditures			Repair expenditures			Capital and repair expenditures		
	Con- struction	Machinery	Total	Con- struction	Machinery	Total	Con- struction	Machinery	Total
	Thousands of dollars								
1951.....	4,666	5,412	10,078	321	3,361	3,682	4,987	8,773	13,760
1952.....	6,840	4,619	11,459	968	2,341	3,309	7,808	6,960	14,768
1953.....	3,821	2,318	6,139	457	1,110	1,567	4,278	3,428	7,706
1954.....	2,992	2,247	5,239	757	1,015	1,772	3,749	3,262	7,011
1955 ¹	4,888	2,211	7,099	681	1,518	2,199	5,569	3,729	9,298

1. Preliminary estimates.

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 Deloro Smelting and Refining Company Ltd., at Deloro, Ontario, and

by Quebec Metallurgical Industries Ltd. plant at Cobalt, Ontario.

The silver production in 1955 decreased to 27,984,204 troy ounces from 31,117,949 troy ounces in 1954. The respective values were \$24,676,472 and \$25,907,870.

British Columbia continued to be the province which produced the most silver. Ontario moved into second place, with 6 million ounces, followed by Yukon with less than 6 million ounces. Quebec produced more than 4.7 million ounces.

TABLE 11. Production of Silver (All Forms) from Canadian Ores, 1946-1955

Year	Ounces	Value	Year	Ounces	Value
		\$			\$
1946.....	12,544,100	10,493,139	1951.....	23,125,825	21,865,467
1947.....	12,504,018	9,002,893	1952.....	25,222,227	21,065,603
1948.....	16,109,982	12,082,487	1953.....	28,299,335	23,774,271
1949.....	17,641,493	13,098,808	1954.....	31,117,949	25,907,870
1950.....	23,221,431	18,767,561	1955.....	27,984,204	24,676,472

TABLE 12. Production of Silver (All Forms) by Months, 1954 and 1955

Month	1954	1955	Month	1954	1955
	ounces			ounces	
January.....	2,603,593	2,232,386	July.....	2,717,859	2,347,380
February.....	2,068,740	2,010,506	August.....	2,840,385	2,470,607
March.....	2,352,392	2,413,591	September.....	2,804,384	2,416,829
April.....	2,745,615	2,324,287	October.....	2,461,823	2,472,990
May.....	2,564,919	2,255,620	November.....	2,823,719	2,213,991
June.....	2,769,694	2,382,980	December.....	2,364,826	2,443,037
			Total.....	31,117,949	27,984,204

TABLE 13. Silver Production According to Nature of Ores, by Provinces, 1955

Province	Crude placer gold	Auriferous quartz ores	Copper-gold-silver ores	Nickel-copper ores	Silver-lead-zinc ores	Silver-cobalt and other ores	Total
	ounces						
Newfoundland	—	—	—	—	701,792	—	701,792
Nova Scotia	—	4	—	—	262,063	—	262,067
New Brunswick	—	—	—	—	25,087	—	25,087
Quebec	—	143,328	2,204,898	—	2,438,469	—	4,786,695
Ontario	—	407,559	12,025	1,480,728	84,252	4,066,453	6,051,017
Manitoba	—	12,180	425,885	16,463	—	—	454,528
Saskatchewan	—	—	1,230,179	—	—	—	1,230,179
Alberta	21	—	—	—	—	—	21
British Columbia	1,004	32,304	235,542	—	8,433,272	—	8,702,122
Northwest Territories	—	57,179	—	—	—	1,298	58,477
Yukon	14,976	—	—	—	5,697,243	—	5,712,219
Canada	16,001	652,554	4,108,529	1,497,191	17,642,178	4,067,751	27,984,204

1. Contains a small quantity recovered from gold ores.

TABLE 14. Production of Silver, by Provinces and by Point of Computation, 1954 and 1955

	1954		1955	
	Quantity	Value	Quantity	Value
	Ounces	\$	Ounces	\$
Newfoundland:				
In ores and concentrates exported	742,120	617,867	701,792	618,840
Nova Scotia:				
In gold bullion and concentrates	262,361	218,434	262,067	231,091
New Brunswick:				
In ores and concentrates exported	—	—	25,087	22,122
Quebec:				
In anode copper	1,783,370	1,484,780	2,198,248	1,938,415
In gold bullion made and in concentrates exported	3,123,934	2,600,894	2,588,447	2,282,493
Total	4,907,304	4,085,674	4,786,695	4,220,908
Ontario:				
In silver recovered in Canada from cobalt ores	3,682,006	3,065,527	4,066,453	3,585,798
In gold bullion	386,384	321,692	397,564	350,572
In blister copper	1,199,750	998,876	1,370,410	1,208,428
In ores, concentrates, residues, matte, etc., exported	175,581	146,183	216,590	190,989
Total	5,443,721	4,532,278	6,051,017	5,335,787
Manitoba:				
In blister copper	400,031	333,054	442,935	390,580
In gold bullion (gold mines) and in ores exported	11,094	9,236	11,593	10,223
Total	411,125	342,290	454,528	400,803
Saskatchewan:				
In blister copper	1,474,370	1,227,516	1,230,179	1,084,772
In gold bullion and in crude alluvial gold	—	—	—	—
Total	1,474,370	1,227,516	1,230,179	1,084,772
Alberta:				
In alluvial gold	18	15	21	18
British Columbia:				
In alluvial gold	1,250	1,041	1,004	885
In gold bullion	24,247	20,187	24,898	21,955
In base bullion and in ores, etc., exported	10,800,117	8,991,854	8,676,220	7,650,691
Total	10,825,614	9,013,082	8,702,122	7,673,531
Northwest Territories:				
In gold bullion, placer gold and pitchblende ¹	59,037	49,152	58,477	51,565
Yukon:				
In alluvial gold	16,656	13,867	14,976	13,205
In silver-lead ores to smelters	6,975,623	5,807,695	5,697,233	5,023,820
Total	6,992,279	5,821,562	5,712,219	5,037,035
Canada	31,117,949	25,907,870	27,984,204	24,676,472

Note. For 1954 silver was valued at 83.26 cents per fine ounce, the overage price of domestic sales; for 1953 the corresponding price was 84.01 cents.

1. Complete data relating to recovery of silver from pitchblende ores are not available.

TABLE 15. Source of Silver Production, by Percentages, 1951-1955

Source	1951	1952	1953	1954	1955
	Per cent				
In silver-cobalt ores	12.80	19.21	12.50	11.99	14.53
In base bullion ¹	51.89	48.01	45.65	38.53	37.41
In gold ores (bullion and placer)	3.21	2.83	2.21	2.16	2.38
In blister and anode copper ²	21.88	18.66	14.32	15.61	18.73
In matte, copper ores and silver-lead ores, etc., exported (other than silver-cobalt ores)	10.22	11.29	25.32	31.71	26.95
	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 16. Estimated Consumption of Fine Silver in Canada, for Industrial Purposes, 1946-1955

Year	In anodes for plating	In making sterling silver and other silver alloys (except lead-silver alloys)	In making silver nitrate	In lead-silver alloys	Miscellaneous	Total
	Ounces					
1946	1,301,000	3,490,000	937,000	40,000	404,000	6,172,000
1947	1,155,000	1,384,000	874,000	37,000	253,000	3,703,000
1948	1,365,000	1,800,000	956,000	5,000	248,000	4,374,000
1949	2,463,000	2,903,000	969,000	2,500	196,000	6,533,500
1950	1,166,000	2,708,000	1,025,000	5,000	304,000	5,208,000
1951	907,000	2,134,000	1,166,000	3,000	279,000	4,489,000
1952	1,116,500	1,181,000	1,083,000	26,000	379,500	3,786,000
1953	1,132,000	1,820,500	1,282,000	8,500	420,000	4,663,000
1954	978,000	1,436,000	1,249,000	9,000	569,000	4,241,000
1955	1,117,000	1,643,000	1,324,000	10,000	538,000	4,642,000

Note. Amounts used for coinage not included in above figures.

TABLE 17. Imports and Exports of Silver and Silver Products, 1954 and 1955

	1954		1955	
	Quantity	Value	Quantity	Value
	Ounces	\$	Ounces	\$
Imports:				
Silver, unmanufactured	60,165	50,403	87,128	75,345
Silver, manufactures of, n.o.p. ....	...	604,852	...	737,255
Toilet articles of which the most important component, in value, is sterling silver .....	...	29,151	...	26,176
Coin, foreign, except gold	—	—	—	—
Total accounted for .....	...	684,406	...	838,776
Exports:				
Silver contained in ore, concentrates, etc.	8,672,340	6,961,088	5,873,873	4,857,943
Silver bullion	14,467,015	11,991,817	16,598,577	14,485,037
Silver manufactures .....	...	54,245	...	54,482
Total accounted for .....	...	18,007,150	...	19,397,467

TABLE 18. Silver Production of the World, 1951-1955

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

Country	1951	1952	1953	1954	1955
	Troy ounces				
North America:					
United States.....	39,967,000	40,245,000	34,697,000	38,059,000	33,101,000
Canada.....	23,125,825	25,222,227	28,299,335	31,117,949	27,724,427
Mexico.....	43,796,723	50,352,398	47,886,437	39,895,546	47,956,548
Total North America.....	106,889,548	115,819,625	110,882,772	109,072,495	108,781,975
Central America and West Indies.....	4,200,000	4,744,000	6,933,000	4,290,000	2,982,000
South America:					
Argentina.....	1,253,879	962,948	895,474	1,639,688	1,414,633
Bolivia.....	7,156,590	7,065,413	6,112,808	5,043,563	5,851,107
Brazil.....	20,315	17,301	18,000	18,000	—
Chile.....	1,191,061	1,246,327	1,497,804	1,488,995	1,714,495
Colombia.....	130,028	123,175	117,385	112,354	112,036
Ecuador.....	33,600	82,297	86,750	32,670	43,710
Peru.....	17,378,747	18,385,717	19,650,241	20,405,412	20,954,823
Total South America, as reported.....	27,164,220	27,883,178	28,378,462	28,740,682	
Europe:					
Austria.....	5,466	3,858	5,144	5,787	—
Finland.....	157,278	150,076	235,788	239,453	224,568
France.....	546,550	353,650	344,005	305,425	257,200
Germany, West.....	1,819,957	1,877,700	2,314,435	2,401,660	—
Italy.....	869,690	838,022	832,331	884,897	859,884
Norway.....	89,184	144,132	107,866	122,398	75,876
Portugal.....	117,346	61,739	88,528	243	29,593
Spain (refined).....	735,914	553,109	1,144,926	1,062,718	—
Sweden.....	1,145,890	2,196,231	1,571,428	2,215,553	2,369,455
United Kingdom.....	26,777	30,734	28,914	32,000	—
Yugoslavia.....	3,031,938	2,576,983	3,047,949	2,829,329	2,983,520
Total Europe, as reported.....	8,545,990	8,786,234	9,721,314	10,099,463	
Oceania:					
Australia.....	10,792,032	11,425,872	12,402,963	13,827,038	15,368,000
Fiji.....	24,869	25,838	19,328	20,000	—
New Guinea ¹	33,603	51,275	50,000	48,977	—
New Zealand.....	133,291	51,016	75,888	33,049	27,930
Total Oceania.....	10,983,795	11,554,001	12,548,179	13,929,064	
Asia:					
Burma.....	280,720	242,307	579,239	1,074,555	1,268,231
India.....	14,612	17,675	16,864	...	...
Japan.....	4,609,924	5,288,707	6,560,400	6,889,520	6,757,351
Korea, Republic of.....	5,401	11,381	52,177	50,200	79,636
Philippines.....	274,602	693,751	572,046	527,160	502,069
Saudi Arabia.....	109,912	111,945	150,626	63,681	...
Taiwan (Formosa).....	26,388	30,000	40,700	20,062	...
Total Asia, as reported.....	5,321,559	6,395,766	7,972,052	8,625,178	
Africa:					
Algeria.....	8,681	8,648	...	...	...
Belgian Congo.....	3,795,179	4,726,050	4,961,581	4,533,254	4,083,144
French Morocco.....	1,391,902	1,914,147	2,054,803	1,914,340	2,250,500
Gold Coast (exports).....	52,542	44,116	44,949	48,214	39,284
Kenya.....	2,150	17,315	21,758	1,325	1,170
Northern Rhodesia.....	100,702	348,954	514,699	38,279	109,130
Southern Rhodesia ²	79,731	81,356	84,566	81,657	76,837
South West Africa.....	759,667	1,064,335	795,702	900,542	1,318,012
Tanganyika (exports).....	35,697	35,900	41,580	42,672	43,292
Tunisia.....	61,119	69,412	39,094	106,095	96,450
Union of South Africa.....	1,162,588	1,176,433	1,193,152	1,235,418	1,461,336
Total Africa, as reported.....	7,449,958	9,486,666	9,751,884	8,901,796	9,479,155
Russia ³	24,000,000	24,000,000	25,000,000	25,000,000	—
Total world, as reported.....	194,555,070	208,669,470	211,187,663	208,658,678	
Estimated world total⁴.....	199,600,000	215,100,000	221,600,000	213,400,000	

1. Year ended May 31, of year following that stated.

2. Recovered from an accumulation of refinery slimes.

3. Conjectural.

4. This estimate includes the following countries which also produce silver and from which definite figures are not available: Bechuanaland, Bulgaria, China, Cyprus, Czechoslovakia, Greece, Hong Kong, Hungary, Indonesia, Malaya, Mozambique, Nigeria, North Korea, Poland, Rumania, Sarawak, Sierra Leone, Swaziland, Turkey and Uganda.

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.

During 1955 the production of lead in all forms amounted to 202,762 tons valued at \$58,314,500 compared with 218,495 tons worth \$58,250,831 in the preceding year. The price range during the year was from 14.25 cents to 14.75 cents per pound; the arithmetical weekly average was 14.38 cents.

Output of refined lead, which included some recovered from imported ores, amounted to 148,811 tons in 1955 compared with 166,005 tons in 1954.

TABLE 19. Production¹ of New Lead, 1946-1955

Year	Tons	\$	Average price per pound (Canadian funds)	Year	Tons	\$	Average price per pound (Canadian funds)
			¢				¢
1946	176,987	23,893,230	6.75	1951	158,231	58,229,146	18.4
1947	161,668	44,200,124	13.67	1952	168,842	54,671,021	16.19
1948	167,251	60,344,146	18.04	1953	193,706	50,076,822	12.93
1949	159,775	50,488,879	15.8	1954	218,495	58,250,831	13.33
1950	165,697	47,886,452	14.45	1955	202,762	58,314,500	14.38

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

TABLE 20. Production of Lead, by Months, 1954 and 1955

Month	Lead (all forms)		Refined lead ¹	
	1954	1955	1954	1955
	Tons (2,000 pounds)			
January	17,711	18,959	13,085	12,129
February	16,913	15,018	12,276	12,498
March	17,099	19,113	14,168	13,494
April	19,447	17,889	14,595	13,190
May	19,949	16,808	14,975	13,631
June	19,068	18,050	14,338	13,323
July	18,583	16,900	9,658	7,045
August	18,394	16,926	11,079	10,531
September	17,317	16,191	14,328	13,913
October	16,621	13,863	17,583	14,561
November	18,305	15,279	15,312	12,224
December	19,088	17,766	14,608	12,272
Total	218,495	202,762	166,005	148,811

1. Includes lead refined from foreign ores.

TABLE 21. Production, Imports and Exports of Lead, 1953-1955

	1953		1954		1955	
	Pounds	Value \$	Pounds	Value \$	Pounds	Value \$
Production:						
Newfoundland	35,403,172	4,576,214	37,052,168	4,939,054	35,709,911	5,135,085
Nova Scotia	3,652,126	472,074	4,186,143	558,013	3,979,230	572,213
New Brunswick	—	—	—	—	1,532,706	220,403
Quebec	18,473,850	2,387,930	15,635,942	2,084,271	11,216,005	1,612,862
Ontario	656,755	84,892	2,815,611	375,321	3,853,603	554,148
British Columbia	297,634,712	38,472,263	343,535,334	45,793,259	322,984,797	46,445,214
Yukon	31,590,973	4,083,449	33,765,290	4,500,913	26,248,786	3,774,575
Total	387,441,588	50,076,822	436,690,488	58,250,831	405,525,038	58,314,500
Imports:						
Pig and block	510,657	62,427	296,633	38,677	195,337	30,883
Old and scrap	52,704	9,912	24,200	2,907	107,244	5,632
Bars and sheets	61,102	10,921	60,083	9,573	135,713	21,498
Lead pipe	—	—	1,160	239	—	—
Acetate of lead	44,832	8,517	89,478	13,967	160,084	26,602
Nitrate of lead	150,337	21,917	237,984	34,516	313,885	48,219
Other manufactures .....	...	255,067	...	200,784	...	191,090
Shots and bullets	2,827	1,207	5,020	1,731	1,917	646
Lead tetraethyl, compounds of ..	26,859,098	10,456,800	30,590,786	11,429,398	35,058,685	12,707,249
Lead capsules for bottles .....	...	97,384	...	113,894	...	59,935
Lead pigments:						
Litharge	1,643,300	274,654	2,004,300	326,260	2,150,900	364,946
Dry white lead	71,200	10,883	48,800	7,353	74,918	10,280
White lead, ground in oil	1,018	314	1,014	308	—	—
Dry red lead and orange mineral	210,813	34,212	188,503	30,449	303,560	49,936
Total accounted for .....	...	11,244,215	...	...	...	...
Exports:						
Lead, scrap	1,045,100	74,488	1,739,800	158,761	1,253,100	80,686
Lead, contained in ore	123,365,700	14,884,744	119,510,600	14,568,258	116,327,700	15,034,498
Pig lead	205,758,600	22,976,167	232,818,300	25,802,738	185,408,500	22,078,426
White lead	1,500	248	11,000	2,018	13,500	2,431
Lead manufactures, n.o.p. ....	...	24,937	...	22,974	...	14,899
Lead pipe	126,200	29,205	54,900	10,719	44,200	8,851
Total accounted for .....	...	37,889,789	...	...	...	...

TABLE 22. Production, Imports, Exports and Domestic Consumption of Refined Lead, 1946-1955

Year	Production in Canada	Domestic consumption	Exports ²	Imports	Stock ¹ at end of period
Tons of 2,000 pounds					
1946	165,744	62,784	102,000	6	21,230
1947	162,000	64,131	118,214	—	9,134
1948	160,025	59,542	108,302	53	3,866
1949	146,149	51,281	99,010	2,154	10,959
1950	170,023	54,723	115,864	1,237	11,061
1951	162,000	60,348	104,893	1,227	10,365
1952	182,943	62,466	132,406	521	10,281
1953	165,752	67,718	98,686	540	21,184
1954	166,005	67,947	114,427	178	16,971
1955	148,811	69,380	89,512	165	12,330

1. Producers' and consumers' stocks.
2. Producers' shipments for export.

TABLE 23. Consumption of Refined Lead by Principal End-uses, 1951-1955

Use	1951	1952	1953	1954	1955
	Tons				
Solders and alloys.....	9,466	13,274	16,128	12,727	16,544
White lead, red lead and litharge.....	8,289	7,438	6,602	6,739	7,767
Storage batteries.....	23,373	19,291	20,685	22,041	20,905
Foil and collapsible tubes.....	81	3	1	349	171
Ammunition.....	1,318	3,006	3,784	5,266	5,288
Iron and steel.....	1,982	1,626	1,635	515	609
Cable covering.....	14,269	15,959	17,635	19,368	15,395
Miscellaneous.....	1,570	1,869	1,248	942	2,701
Total	60,348	62,466	67,718	67,947	69,380

TABLE 24. World Production of Lead on Mine Basis, 1951-1955

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

Country	1951	1952	1953	1954	1955
	Tons of 2,000 pounds				
United States ³	388,164	390,162	341,872	325,427	333,428
Canada ^{2,3}	158,231	168,842	193,706	218,495	201,583
Mexico.....	248,533	271,196	244,213	238,785	232,381
Total North America	794,928	830,200	779,791	782,707	767,392
Argentina.....	26,500	22,000	17,500	21,000	25,500
Bolivia ¹	33,105	32,262	26,222	20,092	21,080
Chile.....	8,599	4,500	3,500	3,500	3,500
Peru.....	90,774	105,571	126,302	121,326	122,902
Total South America	158,978	164,333	173,524	165,918	172,982
Austria.....	4,985	5,763	5,677	5,432	5,286
Finland.....	238	238	239	292	852
France.....	11,105	13,024	12,710	11,486	9,323
Germany ⁵	55,522	56,875	69,351	74,420	74,396
Greece.....	5,348	6,122	7,152	4,131	5,900
Italy ³	42,620	44,293	45,553	45,300	52,500
Poland.....	20,000	22,500	23,500	24,000	24,200
Spain ³	43,188	45,622	57,973	59,877	67,096
Sweden.....	21,708	22,700	28,146	32,131	36,376
United Kingdom ³	4,585	5,295	7,439	7,708	6,798
Yugoslavia.....	86,807	87,048	93,864	92,736	99,298
Total Europe	296,106	309,480	351,604	358,113	382,025
Burma ⁴	5,474	2,949	7,731	12,722	15,794
India ⁴	962	1,268	1,897	1,974	2,502
Japan.....	14,187	19,482	20,006	25,175	28,758
Korea, Republic of.....	—	157	164	200	700
Philippines.....	629	2,535	2,683	2,014	2,555
Total Asia	21,252	26,391	32,481	42,085	50,309
Algeria.....	3,261	4,987	8,662	11,564	11,023
Belgian Congo.....	...	...	72	184	200
French Equatorial Africa.....	2,760	3,916	4,877	3,833	3,673
French Morocco.....	75,100	92,161	88,559	90,812	97,664
Northern Rhodesia ⁴	15,646	14,112	12,891	16,800	17,976
South West Africa ³	37,636	50,324	55,022	65,308	80,983
Tunisia.....	23,331	25,638	26,455	30,388	29,211
Total Africa	157,734	191,138	196,538	218,889	240,730
Australia ³	238,578	247,719	258,521	295,056	309,113
Russia.....	141,500	170,000	202,000	228,500	255,000
Total ⁶	1,809,076	1,939,261	1,996,459	2,091,268	2,177,551

1. Exports.

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

3. Calculated as recoverable.

4. Same as pig lead production.

5. Federal Republic of Germany.

6. A.B.M.S. totals are exclusive of any estimate for the Soviet Zone of Germany, 1947-1954; North Korea, 1947-1954.

Besides the productions tabulated above, there are small productions in Ecuador, Guatemala, Bulgaria, Hungary, Norway, Portugal and several other countries.

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 1955 amounted to 433,357 short tons valued at \$118,306,466 compared with 376,491 tons valued at \$90,207,285 in 1954. Refined zinc output, including zinc refined from foreign ores, amounted to 256,542 tons in 1955 and 213,775 tons in 1954.

Zinc concentrates from Buchans Mines in Newfoundland, from Mindamar Metals in Nova Scotia

and from Keymet Mines in New Brunswick were exported for treatment. In Quebec zinc concentrates were produced from ores classified as copper-gold-silver, of the East Sullivan, Quemont, Normetal, Weedon Pyrite and Waite Amulet mines. Other zinc producers were classified as lead-zinc mines.

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 the United States for refining.

TABLE 25. Production¹ of Zinc From All Types of Canadian Ores, 1946-1955

Year	Tons	\$	Average price per pound (Canadian funds)	Year	Tons	\$	Average price per pound (Canadian funds)
			¢				¢
1946	235,310	36,755,450	7.81	1951	341,112	135,762,643	19.90
1947	207,863	46,686,010	11.23	1952	371,802	129,833,285	17.46
1948	234,164	65,237,956	13.93	1953	401,762	96,101,386	11.96
1949	288,262	76,372,147	13.25	1954	376,491	90,207,285	11.98
1950	313,227	98,040,145	15.65	1955	433,357	118,306,466	13.65

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

TABLE 26. Production of Zinc, by Months, 1954 and 1955

Month	Primary zinc in all forms		Refined zinc ¹	
	1954	1955	1954	1955
	Tons of 2,000 pounds			
January	27,096	36,488	17,155	22,002
February	25,336	32,068	15,199	19,825
March	29,136	36,674	16,540	22,175
April	31,788	34,719	16,249	21,261
May	30,400	37,368	16,530	21,559
June	30,123	33,553	17,007	20,525
July	32,361	33,468	17,917	21,729
August	32,822	37,329	18,755	21,989
September	31,495	37,032	18,013	20,858
October	35,013	40,447	18,871	22,166
November	34,578	38,140	19,622	21,358
December	36,343	36,071	21,917	21,095
Total	376,491	433,357	213,775	256,542

1. Includes zinc refined from foreign ores.

TABLE 27. Zinc Production According to Types of Ores, by Provinces, 1954 and 1955

Year and province	Recovered from copper-gold-silver ores	Recovered from silver-lead-zinc and other ores	Total	Value
1954		Tons of 2,000 pounds		\$
Newfoundland.....	—	30,002	30,002	7,188,595
Nova Scotia.....	—	8,493	8,493	2,034,810
Quebec.....	36,910	70,091	107,001	25,637,532
Ontario.....	—	710	710	170,122
Manitoba.....	16,253	—	16,253	3,894,226
Saskatchewan.....	50,670	—	50,670	12,140,475
British Columbia.....	8,828	142,711	151,539	36,308,784
Yukon.....	—	11,823	11,823	2,832,741
Canada.....	112,661	263,830	376,491	90,207,285
1955				
Newfoundland.....	—	28,636	28,636	7,817,635
Nova Scotia.....	—	8,018	8,018	2,188,957
New Brunswick.....	—	—	—	—
Quebec.....	44,916	56,515	101,431	27,690,668
Ontario.....	—	1,548	1,548	422,555
Manitoba.....	17,966	—	17,966	4,904,725
Saskatchewan.....	48,960	—	48,960	13,366,168
British Columbia.....	8,381	207,505	215,886	58,936,877
Yukon.....	—	10,912	10,912	2,978,881
Canada.....	120,223	313,134	433,357	118,306,466

TABLE 28. Imports and Exports of Zinc, 1954 and 1955

	1954		1955	
	Tons	Value \$	Tons	Value \$
Imports:				
Zinc dust.....	298	82,708	419	127,357
Zinc in blocks, pigs, bars and rods and zinc plates, n.o.p.....	98	31,538	50	27,928
Zinc in sheets and strips, and zinc plates for marine boilers.....	1,257	526,408	1,841	788,994
Zinc slugs for dry batteries.....	...	386,829	...	346,078
Zinc white (zinc oxide).....	1,035	262,149	805	208,784
Zinc sulphate.....	1,407	123,535	1,415	143,508
Zinc chloride.....	148	27,722	129	28,299
Zinc, manufactures of n.o.p.....	...	1,740,685	...	2,108,492
Lithopone.....	2,541	350,149	1,894	265,224
Exports:				
Zinc, manufactures of.....	...	76,945	...	162,188
Zinc contained in ore.....	180,172	18,838,888	190,585	22,988,483
Zinc, scrap, dross and ashes.....	5,114	364,866	5,466	462,214
Zinc, slab or cake.....	206,038	39,188,377	212,837	47,107,303
Zinc oxide.....	1,190	271,112	1,194	277,360

TABLE 29. Production, Exports and Domestic Consumption of Refined Zinc, 1946-1955

Year	Production	Domestic consumption	Exports	Stocks ¹ at end of period
Tons of 2,000 pounds				
1946.....	185,683	54,969	151,885	23,265
1947.....	178,264	51,065	127,036	21,275
1948.....	196,575	46,899	147,454	13,849
1949.....	206,045	45,669	159,353	12,101
1950.....	204,367	54,370	148,205	13,048
1951.....	218,578	61,023	152,661	18,742
1952.....	222,200	51,581	166,864	25,116
1953.....	250,961	50,717	158,388	60,959
1954.....	213,775	46,735	206,038	22,349
1955.....	256,542	58,062	213,837	17,745

1. Producers' and consumers' stocks.

TABLE 30. Consumption of Refined Zinc ¹, by End-uses, 1952-1955

Use	1952	1953	1954	1955
	Tons			
Brasses	11,983	9,485	6,706	9,277
Galvanizing	23,091	21,975	24,333	27,876
Die castings	7,909	9,064	6,696	10,759
Zinc oxide	5,189	7,012	7,154	7,050
Zinc sheet	1,257	1,206	942	1,078
Miscellaneous	2,152	1,975	904	2,022
Total accounted for	51,581	50,717	46,735	58,062

1. Secondary zinc is not included.

TABLE 31. World Production of Zinc Ore, by Countries

(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	1951	1952	1953	1954	1955
United States ^{1,2}	681,189	666,001	547,430	466,842	503,800
Canada ^{1,3}	341,112	371,802	401,762	376,491	428,474
Mexico ⁴	198,485	250,635	238,691	246,638	250,000
Total North America	1,220,786	1,288,438	1,187,883	1,089,971	1,182,274
Argentina ⁴	17,058	16,971	17,735	20,852	23,401
Bolivia ⁸	33,659	39,262	26,427	22,485	23,509
Peru ⁴	111,504	139,423	151,759	172,631	166,718
Total South America	162,221	195,656	195,921	215,968	213,628
Austria ⁴	3,698	4,696	4,826	5,140	5,787
Finland	3,391	1,523	3,555	4,964	23,337
France ⁴	11,489	13,203	10,128	9,259	9,921
Germany ⁵	80,398	88,933	100,579	103,877	101,557
Greece ¹	9,298	9,988	12,327	5,506	7,600
Italy ¹	94,086	103,002	90,270	110,759	110,658
Norway ⁴	6,028	6,160	5,661	5,917	6,504
Poland ⁶	95,000	105,000	120,000	137,500	142,000
Spain ⁴	79,298	84,635	89,532	92,054	98,737
Sweden ⁴	42,238	51,987	49,706	64,406	64,925
Yugoslavia	43,453	52,679	66,106	63,052	65,835
Other Europe ⁷	2,400	3,000	3,500	4,000	5,300
Total Europe	470,777	524,806	565,190	606,434	642,161
Burma	—	1,437	4,756	7,112	9,156
India	1,176	2,255	2,650	2,493	2,942
Philippines	171	1,759	823	...	...
Japan ⁴	71,010	96,417	105,891	120,579	119,479
Other Asia	200	300	500	600	1,000
Total Asia	72,557	102,168	114,620	130,784	132,577
Algeria ⁴	10,886	13,052	20,976	31,538	34,185
Belgian Congo ⁴	97,780	108,556	138,665	92,925	74,700
French Equatorial Africa ⁴	571	369	—	—	—
French Morocco ⁴	21,421	31,252	38,895	37,908	47,619
Northern Rhodesia ⁸	36,555	37,026	39,023	34,811	34,262
South West Africa ¹	11,110	14,001	14,672	17,939	18,612
Tunisia ⁴	3,897	3,905	4,022	5,707	5,985
Total Africa	182,220	208,161	256,253	220,828	215,363
Australia ¹	179,507	185,557	223,004	237,701	241,241
Russia	163,000	205,000	233,500	250,000	300,000
Total, as reported	2,451,068	2,709,786	2,776,371	2,751,686	2,927,244

1. Calculated as recoverable.

2. U.S. Bureau of Mines.

3. Dominion Bureau of Statistics.

4. Calculated as zinc content by assay.

5. Federal Republic of Germany starting 1949.

6. Smelter production.

7. No estimates have been made for Soviet sphere countries.

8. Exports.

Note. Estimates for Russia and to some extent countries grouped under "Other" have been based on U.S.B.M. and other publications.

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 1955 was 1,919,081 pounds compared with 1,086,780 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 in All Forms, From Canadian Ores, 1946-1955

Year	From copper-gold-silver-zinc ores	From silver-lead-zinc ores	Total
1946	166,333	636,315	802,648
1947	172,896	545,638	718,534
1948	148,864	617,226	766,090
1949	181,092	665,449	846,541
1950	141,456	706,950	848,406
1951	147,168	1,179,752	1,326,920
1952	205,911	742,676	948,587
1953	157,997	960,288	1,118,285
1954	154,596	932,184	1,086,780
1955	191,691	1,727,390	1,919,081

TABLE 33. Production, Exports and Domestic Consumption of Cadmium Metal, 1946-1955

Year	Production	Domestic consumption	Exports
1946	401	96	296
1947	359	72	309
1948	383	92	275
1949	423	113	279
1950	419 ¹	116	349
1951	633 ¹	146	460
1952	410 ¹	116	310
1953	489 ¹	133	485
1954	529 ¹	113	392
1955	857 ¹	174	694

1. Includes cadmium recovered from foreign ores.

(b) The Silver-Cobalt Mining Industry

The silver-cobalt mining industry is centred 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 industry employed an average of 762 persons to whom \$2,598,437 were paid as salaries and wages. Fuel cost \$115,372 and 23,146,450 kwh. of electricity were purchased for \$148,643. Process supplies which were used cost \$470,270.

TABLE 34. Principal Statistics of the Silver-Cobalt Mining Industry, Significant Years, 1921-1955

Year	Estab- lishments ¹	Em- ployees	Earnings	Cost of fuel and electricity at plant	Cost at plant of process supplies	Gross value of products	Net value ² added
	No.	No.	\$	\$	\$	\$	\$
1921	39	1, 224	1, 739, 706	448, 897	N.A.	6, 316, 812	N.A.
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
1952	19	696	2, 161, 894	279, 709	474, 083	4, 770, 635	3, 556, 975
1953	13	739	2, 204, 274	301, 297	428, 963	4, 623, 407	3, 235, 891
1954	15	808	2, 614, 266	273, 024	466, 390	5, 294, 499	4, 103, 256
1955	14	762	2, 598, 437	264, 015	470, 270	5, 534, 895	4, 350, 174

1. Includes lessees shipping from dumps.

2. 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, 1953-1955

	1953	1954	1955
Ore mined..... tons	268, 837	289, 101	302, 821
Ore salvaged from surface ² tons		7, 937	17, 447
Ore and tailings treated (milled) ³ tons		391, 262	290, 813
Concentrates produced..... tons	8, 205	10, 415	9, 481

- 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. Mine and Mill Shipments of Canadian Silver-Cobalt Ores and Concentrates, 1954 and 1955

	Gross weight	Metal content			
		Silver	Cobalt	Nickel	Copper
	Tons	Ounces	Pounds	Pounds	Pounds
1954					
To Canadian smelters and to the government stockpile at Deloro, Ontario	11, 083	4, 358, 999	1, 458, 033	441, 539	227, 362
To foreign plants.....	66	50, 083	9, 700	—	—
Total	11, 149	4, 409, 082	1, 467, 733	441, 539	227, 362
1955					
To Canadian smelters and to the government stockpile at Deloro, Ontario	9, 490	4, 252, 268	1, 447, 043	412, 411	171, 559
To foreign plants.....	—	—	—	—	—
Total	9, 490	4, 252, 268	1, 447, 043	412, 411	171, 559

TABLE 37. Employees and Earnings in the Silver-Cobalt Mining Industry, 1951-1955

Year	Administrative		Workmen		Total employees	Man-hours worked	Earnings		Total earnings
	Male	Female	Male	Female			Administrative	Workmen	
	Number						\$	\$	\$
1951	64	4	441	5	514	1,221,781	228,781	1,178,162	1,406,783
1952	71	5	613	7	696	1,605,890	242,036	1,919,858	2,161,894
1953	81	9	644	5	739	1,554,897	286,506	1,918,128	2,204,274
1954	113	15	677	3	808	1,772,748	363,338	2,250,928	2,614,266
1955	92	7	658	5	762	1,706,610	424,348	2,174,089	2,598,437

TABLE 38. Number of Workmen on the Payroll at End of the Month in the Silver-Cobalt Mining Industry, 1954 and 1955

Month	1954					1955				
	Mine			Mill	Total	Mine			Mill	Total
	Surface		Under-ground			Surface		Under-ground		
	Male	Female	Male	Male	Male	Female	Male	Male		
January	158	3	429	69	659	131	5	417	110	663
February	159	3	390	61	613	135	5	433	115	688
March	154	3	414	51	622	132	5	411	119	667
April	156	3	403	52	614	136	5	384	122	647
May	145	3	427	109	684	138	5	384	130	657
June	121	3	440	112	676	154	5	374	111	644
July	128	3	460	121	712	157	5	398	123	683
August	137	3	466	120	726	189	5	407	110	711
September	131	3	445	123	702	183	5	391	114	693
October	127	3	444	119	692	144	5	396	114	659
November	124	3	445	120	692	143	5	359	106	613
December	166	3	416	111	636	149	5	359	96	609
Average	136	3	431	110	680	149	5	395	114	663
Man-hours of labour	1,586,619					1,504,762				

TABLE 39. Specified Miscellaneous Expenditures by the Silver-Cobalt Mining Industry, 1952-1955

	1952	1953	1954	1955
	\$	\$	\$	\$
Workmen's compensation	56,086	62,277	73,837	67,112
Silicosis assessment	40,383	46,267	49,564	51,743
Unemployment insurance	15,629	17,275	17,680	21,146
Aggregate cost of all supplies purchased	1,018,663	1,220,658	1,500,105	1,191,439
Aggregate cost of plant and equipment purchased	800,173	240,376	349,594	163,733
Cost of buildings, machinery and equipment erected or installed during the year	688,286	229,912	447,022	344,525

TABLE 40. Estimated Capital and Repair Expenditures, 1951-1955

Year	Capital expenditures			Repair expenditures			Capital and repair expenditures		
	Con- struction	Machinery	Total	Con- struction	Machinery	Total	Con- struction	Machinery	Total
	Thousands of dollars								
1951.....	285	263	548	1	1	177	...	...	725
1952.....	353	375	728	1	1	1	...	...	815
1953.....	532	138	670	164	180	344	696	318	1,014
1954.....	904	1	932	122	139	261	1,026	...	1,193
1955 ²	881	1	953	129	147	276	1,010	...	1,229

1. Less than \$100 thousand.
2. Preliminary estimates.

Cobalt

Ores from the cobalt area were treated by Deloro Smelting and Refining Co. Ltd., which produced metallic cobalt and cobalt compounds at Deloro, Ontario. At Port Colborne the International Nickel Company of Canada produced electrolytic cobalt in addition to the production of cobalt oxide

from the nickel-copper ores of the Sudbury area. Cobalt is recovered from the nickel-copper matte shipped to Norway by the Falconbridge Nickel Mines Ltd. Cobalt was recovered from the nickel-copper ores from Lynn Lake, Manitoba, by Sherritt-Gordon Mines Ltd. at the firm's refinery in Alberta.

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, 1946-1955

Year	Quantity	Value	Year	Quantity	Value
	Pounds	\$		Pounds	\$
1946.....	73,900	70,215	1951.....	951,607	1,999,612
1947.....	572,673	875,644	1952.....	1,421,923	3,226,903
1948 ¹	1,544,852	2,029,178	1953.....	1,602,545	4,013,077
1949.....	619,065	952,469	1954.....	2,252,965	5,912,997
1950.....	583,806	964,003	1955.....	3,318,637	8,563,700

1. Includes shipments from stockpiled ores which were mined in earlier years.

TABLE 42. Production of Cobalt from Canadian Ores, Imports and Exports, 1954 and 1955

	1954		1955	
	Quantity	\$	Quantity	\$
	Pounds		Pounds	
Production: (In terms of metallic cobalt and cobalt in oxides and salts sold and in ores exported).....	2,252,965	5,912,997	3,318,637	8,563,700
Imports:				
Cobalt ore.....	10,400	1,321	37,800	10,898
Oxide of cobalt.....	6,935	14,395	8,000	20,490
Exports:				
Cobalt contained in ore.....	3,300	5,693	—	—
Cobalt, metallic.....	1,139,039	3,778,413	1,542,988	3,461,575
Cobalt alloys.....	4,926	22,302	12,357	56,098
Cobalt oxides and cobalt salts.....	836,205	1,454,648	1,640,282	2,894,384

TABLE 43. World Production of Cobalt

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

Country	1951	1952	1953	1954	1955
	Pounds				
Canada ¹	951,607	1,421,923	1,602,545	2,252,965	2,999,650
Northern Rhodesia ²	1,568,972	1,037,120	1,032,640	940,800	271,040
Belgian Congo ²	12,599,289	15,432,200	18,249,679	18,979,401	18,886,808
French Morocco ³	1,596,130	2,200,191	1,327,169	1,622,586	1,653,450
United States ³	902,629	1,363,251	1,258,924	1,996,488	2,601,771

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

2. Cobalt content of alloys.

3. Content of ore.

Principal Operators in the Silver-Lead-Zinc Mining Industry, 1955

Name of operator	Head office address	Location of mine
Newfoundland:		
Buchans Mining Co. Ltd.	Water St., St. John's	Buchans
Independent Mining Corp. Ltd.	15 Toronto St., Toronto, Ontario	Cornier Brook
Nova Scotia:		
Cape Breton Metals Ltd.	25 Adelaide St. W., Toronto, Ontario	Cape Breton
Dawmac Mining and Oils Ltd.	1519 Pine Ave. W., Montreal, Quebec	Cobeguid
Mina-Nova Mines Ltd.	217 Bay St., Toronto, Ontario	Boisdale Hills
Mindamar Metals Corp. Ltd.	50 King St. W., Toronto, Ontario	Stirling
Minda-Scotia Mines Ltd.	217 Bay St., Toronto, Ontario	Middle Stewiacke
New Brunswick:		
Anacon Lead Mines Ltd.	330 Bay St., Toronto, Ontario	Bathurst (New Larder "U")
American Metal Co. Ltd.	25 Adelaide St. W., Toronto, Ontario	Newcastle
Astrabrun Mines Ltd.	44 King St. W., Toronto, Ontario	Nepisquit River
Asarco Exploration Co. of Can. Ltd.	King & Yonge Sts., Toronto, Ontario	Nine Mile Brook
Brunhurst Mines Ltd.	100 Adelaide St. W., Toronto, Ontario	Bathurst
Brunswick Mining and Smelting Corp. Ltd.	Box 260, Bathurst	Gloucester Co.
Celta Development and Mining Co. Ltd.	465 St. John St., Montreal, Quebec	Gloucester Co.
Coniagas Mines, Ltd.	330 Bay St., Toronto, Ontario	Little River
Conwest Exploration Co. Ltd.	Spencerville, Ontario	Bathurst
Coulee Lead and Zinc Mines Ltd.	67 Yonge St., Toronto, Ontario	Bathurst
Dominion Gulf Co.	Box 2038, Pittsburgh 30, Pa., U.S.A.	Bathurst
Fab Metal Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Gloucester Co.
Glenbunk Mines Ltd.	357 Bay St., Toronto, Ontario	Northesk
Glencona Mining Co. Ltd.	132 St. James St. W., Montreal, Quebec	Point Roche
Headway Red Lake Gold Mines Ltd.	67 Yonge St., Toronto, Ontario	Bathurst
Joburke Gold Mines Ltd.	357 Bay St., Toronto, Ontario	Bathurst
Kerromac Mining Co. Ltd.	132 St. James St. W., Montreal, Quebec	Bathurst
Keyboycon Mines Ltd.	330 Bay St., Toronto, Ontario	Bathurst
Keymet Mines Ltd.	330 Bay St., Toronto, Ontario	Petit Rocher Nord
Lencourt Gold Mines Ltd.	360 St. James St. W., Montreal, Quebec	Northumberland
Nudujama Mines Ltd.	330 Bay St., Toronto, Ontario	Bathurst
Nipiron Mines Ltd.	302 Bay St., Toronto, Ontario	Bathurst
O'Brien, M.S., Ltd.	900 Victoria Bldg., Ottawa, Ontario	Beresford
Oakwood Mines Ltd.	25 King St. W., Toronto, Ontario	Albert Co.
Rio Canadian Exploration Ltd.	200 Bay St., Toronto, Ontario	Bathurst
Selco Exploration Co. Ltd.	77 York St. Toronto, Ontario	Charlotte
Timmins, N.A., (1938) Ltd.	1010 Canada Cement Bldg., Montreal, Quebec	Northumberland
Titanic Mine Holdings Ltd.	215 St. James St. W., Montreal, Quebec	Gloucester

Principal Operators in the Silver-Lead-Zinc Mining Industry, 1955 - Continued

Name of operator	Head office address	Location of mine
Quebec:		
Absam Mines Ltd.	465 St. John St., Montreal	Barraute
Anacon Lead Mines Limited	330 Bay St., Toronto, Ontario	Montauban Les Mines
Ascot Metals Corporation Ltd.	P.O. Box 307, Sherbrooke	Moulton Hill
Barvue Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Barraute Twp.
Belfort Mines Ltd.	5 St. James St. E., Montreal	Barraute Twp.
Chatelet Mines Ltd.	McWatters	Carpentier Twp.
Consolidated Candego Mines Ltd.	1434 Ste. Catherine St. W., Montreal	Marsoui, Gaspé North
Golden Manitou Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Bourlamaque Twp.
Grandines Mines Ltd.	330 Bay St., Toronto, Ontario	Portneuf
Lachance Mines Ltd.	161 Notre Dame St. S., Thetford Mines	Thetford Mines
MacDonald Mines Ltd.	1434 Ste. Catherine St. W., Montreal	Dufresnoy Twp.
New Calumet Mines Ltd.	355 St. James St., Montreal	Calumet
New Inesco Mines Ltd.	355 St. James St., Montreal	Dufresnoy Twp.
St. Roberts Metals Corp.	132, ouest rue St-Jacques, Montreal	Risborough Twp.
Suffield Metals Corporation Ltd.	P.O. Box 307, Sherbrooke	Ascot
United Montauban Mines Ltd.	330 Bay St., Toronto, Ontario	Montauban Les Mines
Vendome Mines Ltd.	5 St. James St. E., Montreal	Piedmont
West Macdonald Mines Ltd.	1434 Ste. Catherine St. W., Montreal	Dufresnoy
Ontario:		
Consolidated Sudbury Basin Mines Ltd.	25 King St. W., Toronto	Errington
Jardun Mines Ltd.	Box 1600, Sault Ste. Marie	Jarvis Twp.
McCombe Mining and Exploration Ltd.	330 University Ave., Toronto	Kenora
British Columbia:		
American Metal Co. Ltd.	25 Adelaide St. W., Toronto, Ontario	Hope
American Zinc, Lead Smelting Co.	927 Old National Bank, Spokane, Wash., U.S.A.	Nelson
Atlin-Ruffner Mines (B.C.) Ltd.	302 Bay St., Toronto, Ontario	Atlin
Base Metals Mining Corp. Ltd.	62 Richmond St., Toronto, Ontario	Golden, Kaslo
B.C. Metal Mines Ltd.	614 W. Pender St., Vancouver	Lardeau
Beatrice Mining Co. Ltd.	744 W. Hastings St., Vancouver	Revelstoke
Berens River Mines Ltd.	173 Portage Ave., Winnipeg, Manitoba	Fort Steele
Burgess and Burgess	Ymir	Ainsworth
Camoose Mines Ltd.	357 Bay St., Toronto, Ontario	Kamloops
Cassiar Consolidated Mines Ltd.	850 W. Hastings, Vancouver	Stewart
Canadian Exploration Limited	Royal Bank Bldg., Vancouver	Salmo
Carnegie Mines of B.C. Ltd.	1126 Sherbrooke St. W., Montreal, Quebec	Slocan
Cooper, J.A.	Kaslo	Kaslo
Cody-Reco Mines Ltd.	330 Bay St., Toronto, Ontario	Slocan
Consolidated Mining and Smelting Co. of Canada Ltd., The	Trail	Kimberley, Riondel, Salmo, Tulsequah
Deer Horn Mines Ltd.	44 King St. W., Toronto, Ontario	Burns Lake
Dumas, F.J.	Ainsworth	Ainsworth
Fairview Mining Co. Ltd.	626 Pender St. W., Vancouver	Osoyoos
F.C.L. Mines Ltd.	Louis Creek	Kamloops
Gallo, John	Hazelton	Omineca
Great North Mining Co. Ltd.	789 W. Pender St., Vancouver	Portland Canal
Giant Mascot Mines Ltd.	908 Royal Bank Bldg., Vancouver	Spillimachien
Hayes, D.I.	Spokane, Wash., U.S.A.	Nelson
Highland-Bell Limited	789 West Pender St., Vancouver	Greenwood
Isaacs and Pittman	Box 3651, Kaslo	Slocan
Jardine, J.A.	Kaslo	Kaslo
Jackson Basin Mining Co. Ltd.	413 Granville St., Vancouver	Slocan
Kelowna Mines Headley Ltd.	Hedley	Sandon
Kootenay Belle Gold Mines Ltd.	916 Stock Exchange Bldg., Vancouver	Slocan, Ainsworth
Kootenay Exploration Ltd.	425 Baker St., Nelson	Kinbasket Lake
Kootenay Base Metals Ltd.	525 Seymour St., Vancouver	Fort Steele
Lane, W.E.	Ainsworth	Ainsworth
Luning, S.A.	311 Douglas Bldg., Seattle, Wash., U.S.A.	Slocan
Magnuson Mines Ltd.	629 Spokane St., Trail	Fruitvale
MacDonald and Laib	Bayonne	Nelson
McCready, G.E.	Kaslo	Ainsworth
McVicar Mining Co. Ltd.	475 Howe St., Vancouver	Squamish
Mills, Pengelly and Cooper	Silverton	Slocan
McCready and Gibbs	Box 375, New Denver	Slocan
Mollie Mac Mines Ltd.	850 W. Hastings, Vancouver	Revelstoke
Merrel & Lyon	Silverton	Slocan
Newmont Mining Corp. of Can. Ltd.	173 Portage Ave., Winnipeg, Manitoba	Cariboo

Principal Operators in the Silver-Lead-Zinc Mining Industry, 1955 - Concluded

Name of operator	Head office address	Location of mine
British Columbia -- concluded:		
Nicholson Creek Mining Corp.	Seattle, Wash., U.S.A.	Usk
New Jersey Zinc Explorations Ltd.	525 Seymour St., Vancouver	Nelson
New Arlington Mines Ltd.	Box 387, Nelson	Nelson
Nooday Mine	Nelson	Slacan
Norcross & Endersley	Nelson	Ainsworth
Noranda Exploration Co. Ltd.	Noranda, Quebec	Alberni
Northwestern Explorations Ltd.	25 King St. W., Toronto, Ontario	Fort Steele
Paycheck Mining and Development Co. Ltd.	302 Baker St., Nelson	Lightning Peak
Pacific Mining Services Ltd.	844 W. Hastings St., Vancouver	Nelson
Petersen, E. H.	Sandon	Slocan
Pioneer Gold Mines of B.C. Ltd.	525 Seymour St., Vancouver	Ainsworth
Plateau Metals Ltd.	525 Seymour St., Vancouver	Kamloops
Reeves MacDonald Mines Ltd.	413 Granville St., Vancouver	Nelson
Renata Group	Box 353, Castlegar	Trail Creek
Rose Mining Corp.	850 W. Hastings St., Vancouver	Lytton
Sheep Creek Gold Mines Ltd.	490 Baker St., Nelson	Invermere
Silbak Premier Mines Ltd.	718 Granville St., Vancouver	Skeena
Sil-Van Consolidated Mining & Milling Ltd.	602 West Hastings St., Vancouver	Omineca
Silver Ridge Mining Co. Ltd.	373 Baker St., Nelson	Slocan
Silver Standard Mines Ltd.	702 West Hastings St., Vancouver	Omineca
Silver Ridge Mining Co. Ltd.	373 Baker St., Nelson	Sandon
Slocan Van Roi Mines Ltd.	532 Burrard St., Vancouver	Silverton
Skeena Silver Mines Ltd.	850 West Hastings St., Vancouver	Skeena Crossing
Sunshine Lardeau Mines Ltd.	525 West Pender St., Vancouver	Revelstoke
Torbrit Silver Mines Ltd.	44 King St. W., Toronto 1, Ontario	Portland Canal
Trojan Explorations Ltd.	25 Adelaide St. W., Toronto, Ontario	Kamloops
Thickett, Archibald & Boisvert	Slocan City	12 Mile Creek
Utica Mines (1937) Ltd.	413 Granville St., Vancouver	Ainsworth
Violamac Mines (B.C.) Ltd.	25 Adelaide St. W., Toronto, Ontario	Slocan
Vancouver Island Base Metals Ltd.	850 W. Hastings St., Vancouver	Duncan
Vigilante Mine	Ainsworth	Ainsworth
Wanke, E.A., and C. Johnson	Box 61, Greenwood	Greenwood
Western Exploration Co. Ltd.	Silverton	Slocan
Western Mines Ltd.	1768 E. Hastings St., Vancouver	Ainsworth
Yale Lead and Zinc Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Ainsworth
Yankee Dundee Mines Ltd.	918 Rogers Bldg., Vancouver	Nelson
Northwest Territories:		
Pine Point Mines Ltd.	Yellow Knife	Slave Lake
Yukon:		
Consolidated Bellekeno Mines Ltd.	25 Adelaide St., Toronto, Ontario	Mayo
MacKeno Mines Ltd.	100 Adelaide St. W., Toronto, Ontario	Mayo
Silden Mines Ltd.	Keno Hill	Keno Hill
United Keno Hill Mines Ltd.	85 Richmond St. W., Toronto, Ontario	Mayo
Yukeno Mines Ltd.	100 Adelaide St. W., Toronto, Ontario	Mayo

List of Operators in the Silver-Cobalt Mining Industry, 1955

Name of operator	Head office address	Location of mine
Quebec:		
Quebec Cobalt and Exploration Ltd.	88 Metcalfe St., Ottawa, Ontario	Basin of Pekans
Touton Mining & Exploration Co. Ltd.	Fabre Station	Fabre Twp.
Ontario:		
Big Agaunco Mines Ltd.	Box 99, Haileybury	Bucke Twp.
Castle-Trethewey Mines Ltd.	25 King St. West, Toronto	O'Brien
Cobalt Consolidated Mining Corp. Ltd.	100 Adelaide St. W., Toronto	Coleman Twp.

List of Operators in the Silver-Cobalt Mining Industry, 1955 - Concluded

Name of operator	Head office address	Location of mine
Ontario - concluded:		
Cotley Mines Ltd.	Drawer 369, Halleybury	Elk Lake
Glenrock Gold Mines Ltd.	80 King St. W., Toronto	Palmer Twp.
Hamason Mines Ltd.	65 Macpherson Ave., Toronto	Ingram Twp.
Juno Metals Corp.	2005 Belanger St., Montreal, Quebec	Cobalt
Harrison Minerals Ltd.	145 Yonge St., Toronto	Bucke Twp.
Langis Silver & Cobalt Mining Co. Ltd.	265 Craig St. W., Montreal, Quebec	New Liskeard
Mayfair Mines Ltd.	331 Bay St., Toronto	Coleman Twp.
New Morrison Mines Ltd.	Cornwall	O'Brien
McAllister, R.C.	Box 283, Cobalt	Coleman Twp.
Nipissing-O'Brien Mines Ltd.	360 Bay St. W., Toronto	Coleman Twp.
Morgan Silver Cross Mines Ltd.	377 St. James St., Montreal, Quebec	Coleman Twp.
Silver Claim Lake Mines Ltd.	Rexdale P.O., Toronto	Nickle Twp.
Silver Crater Mines Ltd.	696 Yonge St., Toronto	Coleman Twp.
Silver Miller Mines Ltd.	357 Bay St. W., Toronto	Coleman Twp.
Siscoe Metals of Ontario Ltd.	Cornwall	Nicol Twp.
Tiara Mines Ltd.	100 Adelaide St. W., Toronto	Elk Lake

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

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