CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

CENSUS OF INDUSTRY

MINING, METALLURGICAL & CHEMICAL BRANCH

SUMMARY REVIEW

OF

THE SILVER MINING INDUSTRY

IN

CANADA

1935

(includes data on production of lead, zinc, arsenic and cobalt)

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

Dominion Statistician: R. H. Coats, LL.D., F.R.S.C., F.S.S. (Hon.)
Chief - Mining, Metallurgical and Chemical Branch: W. H. Losee, B.Sc.

THE SILVER MINING INDUSTRY IN CANADA, 1935.

(a) The Silver-Cobalt Mining Industry.
(b) The Silver-Lead-Zinc Mining Industry.

Definition of the Industry - Silver mining in Canada is not a distinct mining industry in as much as silver or silver-bearing minerals usually occur in association with other metals of economic value; with lead and zinc; with cobalt, nickel and arsenic; with lode and placer free gold; in copper-gold and nickel-copper ores, and at Great Bear Lake, N.W.T., with uranium and radium. Silver-lead-zinc mining is a very important industry in British Columbia and, to a lesser extent, in the Yukon Territory. Some years ago the mining of silver-lead-zinc ores in Eastern Canada attained a position of considerable importance in the provinces of Ontario, Quebec and Nova Scotia and it is gratifying to record a renewal during 1935 and 1935 in the mining of these ores in the two provinces last referred to. It is to be noted that in addition to its recovery from silver-lead-zinc ores, zinc is now produced in large quantities from the copper-gold-silver ores of the Flin Flon mine located on the Manitoba-Saskatchewan boundary. Zinc concentrates are also produced in British Columbia from copper-gold-silver ores by the Britannia Mining and Smelting Co. Ltd.; the metal also occurs in commercial quantities with copper-gold-silver ores in Quebec.

PRODUCTION OF SILVER, LEAD, ZINC, COBALT AND ARSENIC.

In 1935 the primary production of these metals from all Canadian sources was as follows:- silver, 16,618,558 fine ounces valued at $10,767,148 as compared with 16,415,282 fine ounces at $7,790,840 in 1934; lead, 339,105,079 pounds worth $10,624,772 as against 346,275,576 pounds valued at $8,436,658 in 1934; zinc, 320,649,859 pounds at $9,936,908 compared with 298,579,683 pounds worth $9,087,571 in 1934; cobalt, 681,419 pounds at $512,705 compared with 594,671 pounds valued at $592,497 in 1934; and arsenic, 2,558,789 pounds at $75,326 as against 1,647,513 pounds worth $56,412 in the preceding year.

For the second year in succession the quantity of zinc produced in Canada established a new all-time high record representing a 7.4 per cent increase over 1934 and the value of the 1935 output comprised 4.5 per cent of that of the entire Canadian metal production. Although the quantity of lead produced showed a decline of 2 per cent below 1934 the value, reflecting an increase in metal prices, was 26 per cent greater. The quantity of silver produced showed relatively little change from 1934 but the higher average price for the metal during 1935 resulted in a 3.8 per cent increase in the total value of silver produced. The value of silver and lead productions during 1935 comprised 4.9 per cent and 4.8 per cent, respectively, of the total value of all metals produced in the Dominion.

As a producer of silver Canada ranked third in 1935 among the silver producing countries of the world being surpassed in the order of their outputs by Mexico and the United States; in the production of metallic zinc the Dominion was credited with third position in 1935 being exceeded only by the United States and Belgium, however, in the production of zinc ore Canada was probably exceeded only by the United States, Belgian production largely representing the recovery of metal from imported ores.

In the order of their production the leading lead producing countries of the world in 1935 were the United States, Australia, Mexico and Canada.

PRICES

The generally upward movement in Canadian zinc prices was accelerated following the change in the basis of British duty on zinc from 10 per cent advalorem to 12½ shillings per ton. Production increased in most countries as no restriction measures were in force, although rumours of the renewal of the zinc cartel were prevalent from time to time.

Zinc, domestic, prime, western or f.o.b. grades averaged $3.99 per cwt. in 1935 against $4.06 per cwt. carlots, f.o.b. Montreal in 1934. The zinc sheet base price in 1 - 10 casks, f.o.b. Montreal was 5.3 cents as against 5.5 cents per pound in 1934.

Price advances in lead came largely as a reaction to an improved statistical position. Consumption increased and the output was limited somewhat by an informal agreement among principal producers. Domestic lead advanced from $3.41 to $4.81 per 100 pounds carlots, f.o.b. Montreal. Lead pipe averaged 11.1 cents per pound net at Montreal in 1935 compared with 11.3 cents per pound in 1934.

Speculative buying was very active in silver markets in the first half of the year. Early in February lows were established at both New York and London which were not again reached till the December collapse. By the middle of the month, a definite reaction was apparent, and the upward movement gained momentum till April 26th when peak prices at 81 cents in New York and 36½ d. per ounce in London were reached. In the meantime (April 24) in order to compete with world markets, the United States Treasury advanced the price of newly mined silver to 77.57 cents per ounce. As no further rise in the official United States price followed the records established on the 26th, weakness developed and the following day quotations at New York and London dropped sharply by 4½ cents and 1 1/8 d., respectively. From then onward prices were influenced greatly by the reformed buying policy of the United States Treasury. Acquisitions by the United States government advanced from 307.1 in 1934 to 543.8 millions in 1935. Fine silver at New York averaged 64.8 cents per ounce (Canadian funds) in 1935 and 47.5 cents per ounce in 1934.

Quotations for arsenic, cobalt and cobalt oxide were nominal in nature and were essentially the same as for 1934.

METAL PRICES, 1931 - 1935.

Item	Market	Unit	1931	1932	1933	1934	1935
			$	$	$	$	$
Arsenic	New York	pound	0.04	0.04	0.04	0.04	0.055
Cobalt	New York	pound	2.50	2.50	2.50	2.50	2.50
Cobalt oxide	New York	pound	1.75	1.35	1.35	1.35	1.37
Lead (x)	London	pound	0.02	0.02	0.02	0.02	0.031
Silver (x)	New York	ounce	0.298	0.317	0.378	0.475	0.648
Zinc (x)	London	pound	0.02	0.02	0.03	0.03	0.031

NOTE - Lead and zinc prices are in Canadian funds as computed from quotations in recognized trade publications and are not comparable with special domestic quotations for carlots, etc., as previously referred to.

(x) In Canadian funds.

THE SILVER-COBALT MINING INDUSTRY

The mining of silver-cobalt-arsenic ores in Canada is confined to Northern Ontario. Since 1921 the annual volume of production has fluctuated to a considerable extent and in 1935 the total silver production of Ontario amounted to 5,161,651 fine ounces of which the cobalt-silver ores contributed 2,466,157 fine ounces and the nickel-copper ores of the Sudbury area 2,243,746 fine ounces.

The Ontario Department of Mines reported that the silver mining industry brightened considerably in Ontario during 1935, due in part to the improved price of the metal and more stable industrial conditions with a consequent better market for the metal cobalt which is associated with the silver in certain Ontario ores. The recovery of silver from nickel-copper ores has increased considerably during recent years and has offset, to a great extent, the decline in the recovery of silver from the cobalt-silver ores.

During 1935 twenty-seven properties shipped silver-cobalt and cobalt ore, 18 of these being located at Cobalt, namely - Cobalt Properties, Temiskaming, O'Brien, Foster, Crown Reserve, Drummond, Beaver, Right-of-Way, Colonial, Nipissing, Cobalt Comet Cobnor, Hudson Bay, Yorkshire Cobalt, Dominion Reduction Company (clean-up), Silver Queen, and Silver Cliff; in South Lorrain, the Wettlauger, Belorrain, Canadian Lorrain, Frontier, Keeley, and Nipissing Lorrain. In Gowganda shipments were reported from the Miller Lake-O'Brien, Tonopah and Morrison. In most cases the these operations were carried on by lessees and the shipments ranged from one ton, a carload lot, or to more than 4,000 tons as in the case of the Nipissing; some of these shipments represented ore treated in local customs mills.

Shipments of silver and cobalt ores over the Temiskaming and Northern Ontario Railway during 1935 totalled 5,036 tons and of these 2,155 tons represented silver ore consigned to Canadian smelters, 2,570 tons of cobalt ore to Canadian smelters or Eastern ports and 312 tons to the United States.

PRINCIPAL STATISTICS OF THE SILVER-COBALT MINING INDUSTRY IN CANADA, 1928 - 1935.

Years	Number of active operators	Number of operating mines	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Value of bullion, ore, concentrates and residues sold
			$		$	$	$
1928	15	19	22,027,683	1,166	1,809,466	430,683	3,938,884
1929	27	32	15,820,435	1,149	1,532,333	407,952	3,918,316
1930	23	28	12,268,322	1,043	1,488,591	352,844	3,637,181
1931	22	26	9,352,520	786	1,149,689	227,467	1,925,593
1932	17	20	3,005,872	369	551,255	124,478	1,735,708
1933	12	14	3,365,755	242	322,281	83,565	1,071,602
1934	15	16	5,102,491	286	361,726	85,685	1,380,318
1935	27	28	6,380,731	402	494,791	114,439	1,070,716(x)

NOTE - The cost of process supplies, explosives, etc., used totalled $131,779 in 1935, the first year these data were recorded, and in 1935, for the first time, this cost together with the cost of fuel and purchased electricity were deducted from the gross value of sales.

(x) Net value.

NUMBER OF WAGE-EARNERS ON PAYROLL OR TIME RECORD ON THE 15th OF EACH MONTH OR NEAREST REPRESENTATIVE DATE IN THE SILVER-COBALT MINING INDUSTRY

Month	1932	1933	1934	1935
January	489	208	234	299
February	435	205	233	297
March	370	201	230	288
April	344	204	219	284
May	333	204	235	319
June	343	206	257	375
July	339	205	262	428
August	312	228	269	441
September	281	236	270	448
October	266	236	308	414
November	257	233	281	408
December	237	225	277	360

STATISTICS OF THE SILVER-COBALT MINES AND MILL OPERATIONS IN CANADA, 1924, 1934 and 1935.

		1924	1934	1935
Number of mines in operation (x)		34	16	28
Ore mined	tons	433,176	54,498	57,287
Ore treated (b)	tons	428,509	52,337	42,934
Concentrates produced	tons	7,360	795	952
Quantity of material cyanided	tons	168,193	...	...
Bullion recovered	fine oz.	5,577,875	8,525(a)	29,563(a)
Bullion sold or shipped (exported)	fine oz.	5,004,992	202,535	1,158,986
Gross value of bullion, ore, concentrates and residues sold	$	3,369,664	1,380,318	2,316,934
Net value of sales	$	...	...	1,070,716

(x) All mines located in Northern Ontario.
(a) From direct smelting of nuggets, etc.
(b) Does not include crude ores shipped direct to smelters.

FUEL and ELECTRICITY USED DURING 1934 and 1935.

Kind	Unit of measure	1934 Quantity	1934 Cost at works	1935 Quantity	1935 Cost at works
			$		$
Bituminous coal - Canadian	ton	6	79	448	4,177
Imported	ton	883	12,261	704	11,066
Anthracite coal - From United States	ton)	133	2,224	139	1,917
Other	ton)			322	4,338
Coke (for fuel only)	ton	...	...	8	60
Gasoline (exclusive of that used in motor cars or trucks)	gal.	1,208	331	2,017	620
Kerosene or coal oil	gal.	40	9	25	6
Fuel oil and diesel oil	gal.	4,118	671	7,818	1,657
Wood (cords of 128 cu.ft. of piled wood)	cord	1,457	2,717	1,159	4,886
Other fuel	$	...	16,954	...	27,772
Electricity purchased, including service charges	K.W.H.	5,276,797	50,439	5,489,117	57,940
TOTAL	$	...	85,685	...	114,439

The value of process supplies (explosives, etc.) used in 1935, other than those reported in the above table, totalled $131,779; these data are not available for previous years.

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ARSENIC - The commercial production of primary arsenic in Canada during 1935 totalled 2,558,789 pounds; this came entirely from the treatment of cobalt-silver-arsenic ores by the Deloro Smelting and Refining Company, Deloro, Ontario. The element was recovered and marketed by this company in the form of arsenious oxide or white arsenic. Auriferous quartz ores containing arsenic were exported for some years from a property located in British Columbia while shipments of a similar nature have also been recorded in Nova Scotia and Ontario.

The United States Bureau of Mines reports in the "Minerals Yearbook" that during 1935 sales of white arsenic in the United States were distributed approximately as follows:- insecticides, 70 per cent; weed killer, 16 per cent; glass industry, 6 per cent; wood preservative, 2 per cent, and exports, 6 per cent. That arsenic may gain in importance as a wood preservative is indicated by the appearance of an arsenic-copper combination developed recently in British India and patented in other countries. The product known as "Asai" is said to be suitable for injection into wood in steel-pressure cylinders (as it does not corrode steel), iron or brass) and to be as effective as creosote in its wood preserving properties. In Sweden the disposal of enormous stocks of arsenic, said to amount to 200,000 metric tons, is still a major problem. Annual production is probably 40,000 to 50,000 tons. An experimental laboratory has been established in Stockholm to work out new uses for arsenic in the control of plant diseases and in the impregnation of timber and concrete, and a larger refining plant has been built. Various concrete mixtures appear to offer the most promising means for disposing of large quantities of arsenic. The Boliden Mining Company has developed an "arsenic concrete" which is said to be especially suitable for protecting piles and other wooden structures exposed to the action of sea water. The Bolideh Mining Company has also patented a new type of hydraulic cement with aluminium arsenate as the principal constituent; lime or lime-bearing substances and silica are also present. By hydration of the cement, the aluminium arsenate reacts with the lime, forming insoluble calcium arsenate which improves the resistance to disintegration of the hardened concrete. The aluminium arsenate also can be added to Portland cement or fused aluminate cement; it is produced by oxidation of arsenic trioxide mixed with bauxite or other material containing aluminium.

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ARSENIC, 1934 and 1935.

	1934 Quantity	1934 Value	1935 Quantity	1935 Value
	pounds	$	pounds	$
PRODUCTION (x) -				
White arsenic and arsenic in other forms	1,647,513	56,412	2,558,789	75,326
TOTAL	1,647,513	56,412	2,558,789	75,326
IMPORTS -				
White arsenic (arsenious oxide)	1,637,382	41,688	11,759	546
Sulphide of arsenic	33,986	4,264	27,777	3,496
Soda, arseniate of, biarseniate and stannate of	638	211	2,128	666
Arsenate of lead	450,748	37,788	324,328	26,388
Arsenate of lime	165,077	9,123	144,023	7,786
TOTAL	...	93,074	...	38,882
EXPORTS - Arsenic - TOTAL	1,291,900	45,012	2,230,600	69,866

(x) Entirely from Ontario.

Consumption of arsenic acid and arsenious acid in the manufacture of insecticides in Canada totalled 2,736,089 pounds valued at $86,983 in 1935 as compared with 4,709,443 pounds worth $168,185 in 1934.

WORLD PRODUCTION OF ARSENIC

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

(Long tons)

Producing country and description	1932	1933	1934
BRITISH EMPIRE			
United Kingdom - White arsenic and arsenic soot	247	121	185
Union of South Africa - White arsenic	4	...	...
Canada (sales) - White arsenic	1,082	655	736
Australia - White arsenic	1,964	1,776	2,230
FOREIGN COUNTRIES			
Belgium (exports) - White arsenic	2,013	2,538	3,498
Czechoslovakia - Ore (As content)	1	55	44
France - Ore (As content)	4,390	5,787	6,899
White arsenic (As content)	8,482	11,350	8,463
Germany - Ore (As content)	193	(a)	1,930
Greece - White arsenic	278	331	(a)
Pyrites (As content)	227	443	(a)
Portugal - White arsenic	10	2	40
Roumania - Pyrites (As content)	27	61	(a)
Sweden - Ore (As content)	19,719	37,839	28,166
White arsenic	...	847	7,288
Mexico - White arsenic	3,707	4,623	7,736
United States - White arsenic	11,343	9,509	11,693
Brazil - White arsenic	372	317	(a)
China (estimated) - Ore (As content)	470	400	(a)
Japan - White arsenic	2,596	2,338	2,691
Korea - White arsenic	(a)	150	327
Turkey - Ore (As content)	3	20	13

White arsenic is also produced in Germany and U.S.S.R. (Russia).
(a) Information not available.
Data for 1935 not yet complete.

COBALT - Production of cobalt in Canada during 1935 totalled 681,419 pounds valued at $512,705; the output of the metal came entirely from mines located in Northern Ontario.

For many years following the discovery in 1903 of cobalt-silver-arsenic ores in Ontario, the greater part of the world's supply of cobalt was derived from Canadian ores. During recent years Canada's production of the metal has decreased greatly as compared with the totals of earlier years. This resulted largely from depletion of ore reserves, also Canadian cobalt has encountered keen competition from the recently developed cobaltiferous ores of Central Africa.

There is at present only one smelter in Canada treating cobalt ores; this is the plant of the Deloro Smelting and Refining Company, Limited, located at Deloro, Ontario. This company conducted continuous operations throughout 1935 producing cobalt metal, cobalt salts and cobalt oxide.

The annual report of the Union Miniere du Haut-Katanga for 1935 states that the market for cobalt continued to expand and a satisfactory price arrangement was maintained between the principal producers of the metal. The latest figures available for the production of this company in the Belgian Congo were those for 1933 in which year 12,160 cwt. represented the cobalt content of metal, oxide and salts produced at Oolen (Belgium) from material shipped from the Belgian Congo.

The Rhodesia Chamber of Mines reported that 918,775 pounds of cobalt valued at £206,725 were produced in Northern Rhodesia during 1935 and the total output of the metal to December 31st, 1935, amounted to 2,459,718 pounds worth £573,790. The British South African Company reports that during the financial year ended June 30th, 1935, the Rhokana Corporation (Northern Rhodesia) sold 711,132 pounds of cobalt.

The "Minerals Yearbook" of the United States Bureau of Mines, 1936 edition, contains the following information relating to cobalt - "In the autumn of 1935 the cobalt syndicate, comprising leading Belgian, Canadian, Northern Rhodesiam, and Moroccan producers, was strengthened by addition of the Association of German Cobalt Producers. The latter association, formed in October, 1934, is composed of 12 concerns, only 2 of which produce cobalt metal, the others being engaged in manufacturing cobalt oxides and salts. The former syndicate controlled about 80 per cent of the world output, and addition of the German producers has increased the percentage substantially. An important contribution to the technology of cobalt was made during the year at the Bureau of Mines, Experiment Station at Rolla, Mo., where flotation concentration of Nevada cobalt ores was worked out successfully. Late in the year the discovery of a 30 foot vein of cobaltite containing 5 per cent cobalt was reported 18 miles northwest of Butte, Montana. After several years of experimenting, the Japan Cobalt Mining Co. succeeded in producing metallic cobalt and cobalt oxide on a commercial scale. Ore supplies are obtained from the Nagatomura cobalt-copper deposits, which are said to be ample to furnish about three tons monthly for thirty years. Encouraged by results obtained in exploiting the cobalt deposits in Narimanov, near Daschkessan, it was proposed early in 1935 to form a Transcaucasian cobalt combination for their further development."

The employment of cobalt in the manufacture of special alloys, including high speed cutting tools, continues to expand and its use in tanning has been recently suggested.

PRODUCTION OF COBALT IN CANADA, 1926 - 1935.

Years	Pounds	Years	Pounds
1926	664,778	1931	521,051
1927	880,590	1932	490,631
1928	956,590	1933	466,702
1929	929,415	1934	594,671
1930	694,163	1935	681,419

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF COBALT, 1934 and 1935.

		1934		1935	
		Quantity	$	Quantity	$
PRODUCTION (in terms of metallic cobalt contained in metal and oxides sold and in ores and residues exported)	pounds	594,671	592,497	681,419	512,705
IMPORTS -					
Cobalt ore	pounds	600	10	...	...
Oxide of cobalt	pounds	362	261	160	173
EXPORTS -					
Cobalt, contained in ore	cwt.	2,193	84,911	4,193	124,679
Cobalt, metallic	pounds	38,595	43,519	1,803	2,253
Cobalt alloys	pounds	31,343	50,027	26,405	44,462
Cobalt oxides and cobalt salts	pounds	479,676	435,907	378,274	370,160

WORLD PRODUCTION OF COBALT

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

(Cwt.)

Producing Country	1932	1933	1934
BRITISH EMPIRE			
Northern Rhodesia	...	2,330	11,429
Canada (c)	4,381	4,167	5,310
India (b)	2,500	2,300	3,477
Australia (metal)	60	125	160
FOREIGN COUNTRIES			
Belgian Congo (d)	6,590	12,160	(a)
French Morocco	1,500	1,500	3,200
United States (e)	...	11	(a)

NOTE - Complex ores containing cobalt are also found in Germany and China, but cobalt content is not available.

(a) Information not available.

(b) Estimated cobalt content of nickel-speiss exported to Hamburg.

(c) Metal recovered from smelter products plus cobalt contained in cobalt residues exported.

(d) Content of metal, oxide and salts produced at Oolen (Belgium) from material shipped from the Belgian Congo.

(e) Recovered at an electrolytic zinc plant.

Data for 1935 not yet complete.

DIRECTORY

OPERATORS IN THE CANADIAN SILVER-COBALT MINING INDUSTRY, 1935.

Name	Head Office Address	Mine Location
Agnico Mines	Box 61, Haileybury, Ont.	South Lorrain
Bellorain Mines Ltd.	Box 206, Cobalt, Ont.	South Lorrain
Brewer, R.	Cobalt, Ont.	Cobalt
Cobalt Properties Ltd.	Box 929, Cobalt, Ont.	Cobalt
Cobnor Silver Mines Ltd.	276 St. James St.W., Montreal, P.Q.	North Cobalt
Comet Leasing Co.	Box 170, Kirkland Lake, Ont.	Coleman Tp.
Dean and Downey	Box 616, Cobalt, Ont.	South Lorrain
Hudson Bay Mines Ltd.	Box 700, New Liskeard, Ont.	Coleman Tp.
Martin, Geo.	Box 659, Cobalt, Ont.	Coleman Tp.
McCready and Press	Box 130, Cobalt, Ont.	Coleman Tp.
Miller, H. G.	Silver Centre, Ont.	South Lorrain
Morganthaler, A. G.	2108 S. 2nd St., Philadelphia, Pa., U.S.A.	Coleman Tp.
Morrison Mines Ltd.	165 Sparks St., Ottawa, Ont.	Gowganda Dist.
Mosher, Richardson & Lafarge	Cobalt, Ont.	Cobalt
Nipissing Mining Co. Ltd.	Excelsior Life Bldg., Toronto, Ont.	Cobalt
O'Brien, M.J., Ltd.	Victoria Chambers, Ottawa, Ont.	Gowganda Dist. Cobalt.
O'Donald, John C.	Box 286, Cobalt, Ont.	Coleman Tp.
Price, C. W.	Box 388, Cobalt, Ont.	Coleman Tp.
Rowe and Stuckey	Cobalt, Ont.	South Lorrain
Sandoe and Moyle	Box 362, Cobalt, Ont.	Coleman Tp.
Silver Cliff Syndicate	Cobalt, Ont.	Cobalt
Silverado Gowganda Mines Ltd.	347 Bay St., Toronto, Ont.	Gowganda
Sirola, Donald E.	Box 169, Cobalt, Ont.	Coleman Tp.
Thornham, J.	Box 385, Cobalt, Ont.	South Lorrain
Yorkshire Cobalt Mining Co.	Cobalt, Ont.	Bucke Tp.
Wood, A.	c-o T. Lindsley, 25 King St. W., Toronto, Ont.	Cobalt

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THE SILVER-LEAD-ZINC MINING INDUSTRY.

Shipments of silver-lead-zinc ores were made during 1935 from mines located in Quebec, British Columbia and Yukon Territory. Zinc or lead ores have also been mined in Ontario at Galetta, near Sudbury, and in Frontenac and Hastings counties. Silver-pitchblende ores are now being mined in the North West Territories, general statistics pertaining to which are included with those for the silver-lead-zinc industry. It is also interesting to note that mining operations were resumed during 1935 at the Sterling mine, Richmond county, Nova Scotia.

In October, 1935, the British Metals Corporation of Canada Ltd., recommenced operations at its property in Sterling, Richmond county. Preparations were made for unwatering the mine and the mill prepared for production. Shipments of lead-zinc concentrates commenced in July, 1936.

QUEBEC - Lead and zinc production in the province of Quebec during 1935 came entirely from the Tetreault mine in Portneuf county. This is the first output of zinc in Quebec in four years and of lead in five years. Both surface and underground operations were conducted throughout the year while the mill was in operation for a total of 308 days; silver-lead-zinc concentrates were consigned to smelters in Belgium.

In addition to the operations conducted at the Tetreault property, there was a considerable amount of surface work carried out on lead-zinc veins occurring in Lemieux township, county of Gaspe. Zinc bearing ores also occur in the Rouyn district of Northwestern Quebec, the metal here being associated with copper and iron pyrites as at the Flin Flon mine in Manitoba and the Britannia mine in British Columbia.

BRITISH COLUMBIA - British Columbia holds a predominant position among the silver-lead-zinc producing provinces of the Dominion. The tonnage of these ores mined in the province during 1935 totalled 2,019,772 or 94.6 per cent of the Canadian total.

The Sullivan mine of the Consolidated Mining and Smelting Company of Canada, Ltd., located in the East Kootenay district, is Canada's greatest producer of silver-lead-zinc ores and the operations of this company are a most important factor in the economic life of the province. Production at the mine during 1935 amounted to 1,861,245 tons comprising 1,859,171 tons of lead-zinc ore shipped to the concentrator at Kimberley and 2,074 tons of crude lead ore to the smelter at Tadanac, an increase of 112,844 tons over the production of 1934. The concentrator treated 1,859,221 tons, an average of 5,959 tons per day and produced 226,837 tons of lead concentrates and 209,078 tons of zinc concentrates. General underground development maintained the fully developed ore reserves of the previous year, which on recalculation indicated a lead-zinc ratio of 1.5554 lead to 1 zinc. Filling operations were commenced during the year, using surface material. Metal production of the company in 1935 was as follows: gold, 65,131 ounces; silver, 7,594,366 ounces; lead, 328,658,528 pounds; copper, 637,084 pounds; zinc, 239,679,806 pounds; cadmium, 551,199 pounds, and bismuth, 6,718 pounds. Dividends and a bonus of four dollars a share, aggregating $4,232,452 were declared and paid to shareholders during the year, the remainder $74,107, being carried to earned surplus account, which amounted to $1,831,108 at the end of 1935.

In the Slocan-Ainsworth camp, the Western Exploration Co. Ltd. commenced milling in July; lead concentrates were at first shipped to Trail and later to Europe. Other noteworthy operations in this area were those conducted by Noble Five Mines Ltd., the Ross Mining Syndicate and the Slocan-Monitor Silver Mines Ltd.

The mill at the Monarch mine of Base Metals Mining Corporation, located at Field, was closed February 16th, 1935, and again started on June 25th and continued in operation until approximately December 5th, 1935. On September 4th, 1935, the direction of Base Metals Mining Corporation was taken over by the Mining Corporation of Canada which announced in July, 1936, that extensive diamond drilling was being conducted at the property.

Other important silver-lead-zinc mining operations conducted in the province during 1935 included those of Allco Silver Mines Ltd., Beaverdell Wellington Syndicate Ltd., Beaver Silver Mines Ltd., Bell Mine Ltd., Bosun; Cunningham Mines Ltd., Dunwell Mines Ltd., Kamloops Homestake Mines Ltd., Highland Lass Ltd., Meridian Mining Co. Ltd., Nicola Mines and Metals Ltd., and Sally Mines Ltd. Ore shipments were also made during the year from numerous small mines operated in various areas throughout the province.

For information relating to mining laws, geology, etc., communicate with the British Columbia Department of Mines, Victoria, B.C.

NORTH WEST TERRITORIES - Eldorado Gold Mines Ltd., operating on silver-pitchblende ores at Great Bear Lake, reported that "during 1935 mining was confined to the development of No. 2 vein on the 125 foot level and the 250 foot level (below the adit level). Underground operations were concentrated largely on the preparation of drifts for stoping the ore above these levels and providing a broken ore reserve above the first level. On the 125 foot level of the No. 2 vein, 583.6 feet of drifting and 139 feet of crosscutting were completed; four stopes were opened up on this level with lengths as follows: 145 feet, 57 feet, 210 feet and 51 feet. Two of these stopes were completed at the end of the year, providing a broken ore reserve of 8,446 tons with a valuation of $622,921 based on the then market prices of silver, radium and uranium compounds. On the 250 foot level there was completed 416 feet of drifting, 56 feet of crosscutting and 44 feet in stations; drifting west of the shaft on this level disclosed two ore shoots with lengths of 66 feet and 58 feet. The company reported broken ore reserves at 8,446 tons with a gross value of $622,921 and 8,920 tons of unbroken ore with a gross value of $1,056,963 (December 31, 1935). The mill treated a total of 14,402 tons during 1935 and of this tonnage 2,560 tons came from development headings. Pitchblende and silver concentrates produced totalled 296 tons valued at $752,918 (December 31, 1935). The treatment of silver was improved with the installation of five Deister tables and the addition of four flotation cells to those already in use. On June 20, 1936, it was announced that additional power was provided for the mill and the tonnage treated increased to 75 tons per day. Also, approximately 160 tons of pitchblende and silver concentrates had been produced to date, which had a value in excess of $480,000 at the then market prices of silver, radium, and uranium compounds."

The Consolidated Mining and Smelting Company of Canada, Ltd., reported in February, 1936, that "development on the 125 foot level of its Great Bear Lake property, N.W.T., was sufficiently encouraging to justify further exploration at greater depth and a lower crosscut tunnel has been driven at the elevation of the 350 foot level. At their intersection by the crosscut, the veins developed on the upper level were rather narrow and no so well mineralized. Drifting on the two more promising veins was under way in the hope of confirming the results obtained on the 125 foot level. Values are in silver, which occurs native and in various compounds associated with chalcopyrite, galena, pyrite and nickelite. Occasional bunches of pitchblende have been encountered but nothing of commercial importance."

El-Bonanza Mining Corp. conducted extensive development work throughout 1935 and reported a small shipment of silver ore to the Trail smelter in British Columbia; Bear Exploration and Radium Ltd. was also in continuous operation during the year, 58 tons of ore were milled but no shipments reported.

YUKON TERRITORY - The Comptroller of the Yukon in his report for the fiscal year ending March 31, 1936, states that there was considerable mining activity in the Mayo district during the latter half of the year. The Treadwell Yukon Company Ltd. again commenced mining on a large scale and were operating and opening up four properties, namely, the "Elsa," "Silver King," and the "Hector" groups on Galena Hill and the Reno Hill Ltd. group of claims on Keno Hill, which were taken last summer under lease. A new 250 ton mill was installed on the "Elsa" claim and is now operating to full capacity, ore being taken from the "Elsa" and also being hauled from the "Silver King" to supply mill feed. Rich shipping ore is being mined and sacked for shipment by this company from all three groups on Galena Hill and, to a lesser extent, from the development operations on Keno Hill.

The Treadwell Yukon Company, Ltd., has increased its holdings in the district and expects that its production in tons of concentrates from its present operations will be far greater than that from its former operations on Keno Hill in the old Wernecke camp.

Considerable individual prospecting and mining was also done in the district and high grade ore was mined and sacked from development conducted at the "No Cash," "Mastiff," "Carol," "Stone," "Twin Sisters," and "Lone Star" mineral claims.

PRINCIPAL STATISTICS OF THE SILVER-LEAD-ZINC MINING INDUSTRY(x) IN CANADA, ALTERNATE YEARS, 1927 - 1933, 1934 and 1935.

Years	Number of active operators	Number of operating plants or mines	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Value of ores and concentrates sold
			$		$	$	$
1927 ...	157	173	28,036,330	3,106	4,807,817	588,520	17,520,130
1929 ...	149	168	50,573,661	4,153	6,482,392	793,139	22,748,089
1931 ...	39	40	31,152,078	1,299	2,149,921	485,106	6,351,975
1933 ...	38	39	13,080,224	1,024	1,369,510	260,621	7,569,867
1934 ...	58(a)	60(a)	12,923,827	1,292	1,935,284	389,276	8,885,081
1935 ...	69(a)	70(a)	16,596,941	1,657	2,431,110	438,126	10,553,086(b)

(x) Since 1931 includes data relating to silver mining in the North West Territories.
(a) In 1934 and 1935 includes a number of small shippers from whom no particulars were received relating to capital, wages, etc.
(b) In 1935, for the first time, the value of fuel, purchased electricity and process supplies was deducted.

The cost of process supplies (explosives, etc.) used totalled $767,696 in 1935.

WAGE-EARNERS, BY MONTHS, IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1932 - 1935.

Month	1932	1933	1934	1935	
				Mine	Mill
January	1,012	832	1,021	952	357
February	1,016	820	1,012	958	327
March	1,031	830	1,069	904	292
April	1,019	797	1,091	906	291
May	1,003	795	1,119	1,036	297
June	980	839	1,128	1,156	320
July	973	853	1,147	1,198	318
August	973	942	1,186	1,328	342
September	966	976	1,237	1,319	353
October	919	1,007	1,270	1,373	365
November	905	1,017	1,266	1,362	352
December	886	944	1,322	1,340	330

FUEL AND ELECTRICITY USED IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1934 and 1935.

		1934		1935	
		Quantity	Value	Quantity	Value
			$		$
Bituminous coal - Canadian	short ton	27,629	115,669	30,111	128,068
Imported	short ton	31	986	1	485
Lignite - Canadian	short ton	...	...	181	1,084
Coke	short ton	8	66	17	157
Gasoline (exclusive of that used in motor cars)	Imp. gal.	21,544	20,299	22,737	18,675
Kerosene	Imp. gal.	238	125	524	237
Fuel oil and diesel oil	Imp. gal.	382,123	58,167	334,990	50,210
Wood (cords of 128 cu.ft.)	cord	762	7,408	1,346	12,295
Electricity purchased, including service charges	K. W. H.	37,600,307	185,606	50,698,860	226,935
Other	xxx	...	950	...	...
TOTAL	xxx	...	389,276	...	438,126
Electricity generated for own use	K.W.H.	...	...	6,740,962	...

ORE MINED AND MILLED IN THE SILVER-LEAD-ZINC MINING INDUSTRY(x) IN CANADA, 1934 and 1935.

		Yukon and North West Territories	British Columbia, Quebec and Nova Scotia	CANADA
1934				
Ore mined	tons	2,988	1,850,480	1,856,256
Ore milled	tons	...	1,836,622	1,839,364
Concentrates produced - Lead.	tons	...	234,404	234,558
Zinc.	tons	...	229,062	229,412
1935				
Ore mined	tons	14,724	2,120,025	2,134,749
Ore milled	tons	14,460	2,103,933	2,118,393
Concentrates produced - Lead.	tons	...	238,891	238,891
Zinc.	tons	...	230,956	230,956
Pitchblende-silver	tons	296	...	296

(x) Includes silver-pitchblende ores mined in North West Territories.

DESTINATION OF SHIPMENTS FROM SILVER-LEAD-ZINC MINES OF CANADA, 1934 and 1935.

Products shipped	Tons shipped	Value at shipping point	Total metal content as determined by settlement assay: Gold fine oz.	Silver fine oz.	Lead lb.	Zinc lb.
1934						
To Canadian smelters -						
Lead ore	9,479	435,969	529	982,292	3,746,086	1,173,828
Lead concentrates	222,921	6,029,344	158	6,015,793	315,207,427	16,316,514
Zinc ore	...	...	...	...	...	...
Zinc concentrates(x).	192,821	1,764,463	...	427,558	14,341,082	196,681,577
Dry ore (a)	471	75,437	215	109,964	17,839	...
Total	425,692	8,305,213	902	7,535,607	333,312,434	214,171,919

DESTINATION OF SHIPMENTS FROM SILVER-LEAD-ZINC MINES OF CANADA, 1934 and 1935 (concluded)

Products shipped	Tons shipped	Value at shipping point	Total metal content as determined by settlement assay: Gold fine oz.	Silver fine oz.	Lead lb.	Zinc lb.
1934 (concluded)						
To Foreign Smelters -						
Lead ore	2,225	175,348	111	494,284	1,818,569	6,348
Lead concentrates	11,918	238,608	...	132,971	19,142,746	...
Zinc ore	...	...	...	...	...	...
Zinc concentrates(x)	22,223	165,912	...	2,715	71,293	26,901,816
Total	36,366	579,868	111	629,970	21,032,608	26,908,164
1935						
To Canadian smelters -						
Lead ore	11,597	518,957	1,279	782,229	3,777,338	968,513
Lead concentrates	225,939	8,662,762	5,718	6,352,259	316,672,349	16,271,062
Zinc ore	...	...	...	...	...	...
Zinc concentrates(x)	200,437	1,819,968	...	442,332	13,690,945	204,829,152
Dry ore (a)	7,731	170,477	79	316,072	293,299	2,940
Total	445,704	11,172,164	7,076	7,892,892	334,433,931	222,071,667
To Foreign Smelters -						
Lead ore	154	22,086	7	40,109	138,594	...
Lead concentrates	8,752	387,166	1,196	354,676	11,204,157	223,490
Zinc ore	...	...	...	...	...	...
Zinc concentrates(x)	20,379	176,524	511	97,546	220,218	20,823,340
Dry ore	16	968	...	1,495	1,946	...
Total	29,301	586,744	1,714	493,826	11,564,915	21,046,830
GRAND TOTAL - 1935	...	11,758,908	...	...	...	...
Cost of fuel, purchased electricity and process supplies	...	1,205,822(b)	...	...	...	...
NET VALUE - 1935	...	10,553,086	...	...	...	...

(x) Does not include zinc concentrates produced from copper-gold-zinc ores in Manitoba, Saskatchewan or British Columbia.

(a) Includes shipments of silver-pitchblende ores or concentrates from North West Territories. Information relating to radium content of pitchblende is not available for publication.

(b) Deducted for the first time in 1935.

NOTE - In addition to the metal contained in shipments listed above, there are important quantities of lead and silver contained in ores shipped from certain gold mines in British Columbia.

SILVER - By virtue of two Presidential Proclamations, the United States Government's buying price for newly mined domestic silver was raised to 77.57 cents an ounce on April 24, 1935. The proclamation, establishing that price, followed one made on April 10, that fixed the price at 71.11 cents. Necessity for the second proclamation, states the Engineering and Mining Journal, New York, developed when the world price of the metal advanced on April 24 to a level higher than that paid domestic producers. This last proclamation was the third made by President Roosevelt for the purpose of fixing the price of newly mined domestic silver, the first having been made on December 21, 1933; this earlier proclamation fixed the price of the metal at 64.64 cents an ounce.

The United States Bureau of Mines in a review of silver for 1935 states: "The open market price for silver was extremely erratic during the year. Sales of silver by oriental countries were reported to be heavy, and the policy of the United States Treasury in purchasing silver almost exclusively on the London Exchange was changed to one of buying "in many different places." Considerable confusion resulted in the principal markets and silver prices declined precipitously."

In their 1935 review of the silver market "Handy and Harmon", New York, commented as follows: "In spite of the fact that we favour the principal of a market governed by the law of supply and demand, we appreciate that it would prove disastrous, under present conditions, to have the United States withdraw its support entirely. It is our hope, therefore, that the government in revising its policy will gradually relinquish its domination of the market with attendant purchases which such a position demands, and make every effort to create a world situation in which silver would again be absorbed for its various uses through the customary channels. A revision or repeal of the Silver Purchase Act may be necessary to accomplish this result. Time alone will tell whether our legislators at Washington will take such action; but if they do not, let us hope they will permit the Secretary of the Treasury to administer the present Act as its terms direct - for the "public interest" and not for those "silver interests" which are seeking $1.29 per ounce."

E. Baliol Scott, in a "Review of Silver in 1935" (The Mining Journal, London) concludes as follows:- "Silver has a value, but whether the current price fairly represents it in the opinion of sufficiently large number of the world's capitalists, great and small, is a point which can only be answered by experience. On that must turn the question whether the price of silver will remain stable or fall yet more heavily. Short of some further fantastic effort at valorisation we cannot see it holding out much prospect of improvement."

CANADIAN GOVERNMENT ACTION REGARDING SILVER.

At the London Monetary and Economic Conference of July, 1933, important action was taken with a view to mitigating fluctuations in the price of silver. The Monetary and Financial Sub-Commission unanimously adopted a resolution recommending to all Governments, parties to the Conference, that, among other things, they refrain from further debasement of their silver coinage below a fineness of 800/1000 and that where possible they substitute silver coins for low-value paper currency.

In addition to the above recommendations of general applicability, definite agreements were entered into beween the chief silver-holding countries and the main silver-producing nations. Under the Eight-Power Agreement, signed July 22, 1933, India and Spain agreed to limit total sales during the ensuing four years to 140 million and 20 million ounces respectively, while China undertook during the same period to cease entirely selling silver from demonetized coins. On the other hand, the chief producing countries - Australia, Canada, Mexico, Peru and the United States - agreed not to sell any silver but to make aggregate purchases from (or otherwise arrange for withholding from market) domestic production totalling 35 million ounces annually. Under a separate Five-Power Agreement, of the same date, Canada accepted the quota of 1,671,802 ounces as her share of the total amount to be so purchased (or otherwise withheld from sale). The action of the delegate of Canada in signing this agreement at London was approved by Parliament on February 26, 1934.

In 1934 the Minister of Finance purchased 1,671,802 ounces of newly mined Canadian silver. This silver was purchased by tender or by agreement from the mines at the price prevailing for silver at the time of purchase. This silver was held as additional security for the redemption of Dominion notes in accordance with an amendment to the Dominion Notes Act of June 26, 1934.

On March 11, 1935, when the Bank of Canada commenced operations the silver then held by the Government was transferred to that institution, which assumed the liability of the Dominion notes outstanding. The silver transferred to the Bank of Canada and future purchases by it will form part of the reserve of the Bank of Canada (Section 26(a), Bank of Canada Act). In 1935 the Bank of Canada purchased the required quota of silver, viz., 1,671,802 fine ounces. On August 31, 1936, the Bank of Canada reported in its monthly statement silver bullion held as $1,822,462.74, valued at the current market price.

It is of interest to note that the Royal Canadian Mint, Ottawa, coined and issued the first Canadian silver dollars on April 17, 1935; the weight of this coin is 360 grains, 8/10 fine silver.

CANADIAN COMMODITY EXCHANGE

Silver Market - 1935. (x)

A total of 9,094 contracts, representing 90,940,000 ounces of silver 999 fine were sold on the Canadian Commodity Exchange, Inc., during 1935. May, July, September and December were the most heavily traded options with 1,406, 1,662, 2,410 and 1,843 contracts respectively. Turnover was highest during April and May.

The main development in the market for the metal was the heavy buying by the American Treasury in the spring of the year, when on two occasions the price paid by the American Treasury for newly-mined domestic silver was raised, on April 24th being fixed at 77.57 cents an ounce. The open market price as a result touched 81-1/2 cents on the Canadian Commodity Exchange for delivery in the current month.

As no further advance in price was made the market grew quieter and prices declined gradually, the current option price at the end of November being 65.92 cents bid.

A crisis occurred in December when the U.S. Treasury withdrew its support from the London market, prices broke sharply and London for a time ceased to fix a forward price. The price for December delivery on Canadian Commodity Exchange dropped from a high of 66.03 cents to a low of 45.50 cents, and forward months were at a sharp discount. Prices steadied somewhat in the last days of the year and closed around 45 cents for current deliveries

NEW USES

Commenting on a possible new market for silver "The Miner", Vancouver, states: "Among those industries which, it is expected, will benefit greatly through the introduction of television, is silver mining. Silver, as is well known, enters largely into the manufacture of photographic film, and for some time at least television broadcasting will be mainly from film because of the prohibitive cost of installing the photographic equipment in studios which would be necessary if original subject matter were used. Thus the demand for film in this new field will be enormous. It is estimated that the quantity of film required for television reproduction will be twenty-six times that at present consumed in the motion picture industry. As at present ten million ounces of silver is consumed in the production of motion picture film in America, it will be realized what so great a demand for film would mean to the silver producer."

(x) Contributed by the Canadian Commodity Exchange, Inc., Montreal, P.Q.

James A Lee, American Institute of Chemical Engineers, describing metals and alloys used in the construction of chemical plants refers to silver as follows: "Silver has been used to a limited extent for chemical equipment for many years; but the recent changes which have taken place in the economic position of the metal, particularly their influence on its price, have broadened its use in the industry. It can be easily fabricated by spinning, drawing, or other operations, soldered either with soft solder or silver solder and joined by autogeneous gas welding.

"Silver equipment is generally made entirely of the one metal. Fine silver (999 fine) is preferred; sterling and coin silver are not so resistant although their strength is greater. Pure acetic acid stills and alkali fusion vessels are sometimes made entirely of silver ... In the manufacture of certain tar products and in the recovery of solvents in the rayon industry, silver condensers are used. An American tannery employs silver and silver-lined vacuum pans. Silver equipment is used for processing foods more often in Europe than it is in America; jams, jellies and similar products are made in pure silver or silver-lined autoclaves, evaporating pans, vacuum stills and other equipment."

PRODUCTION OF SILVER IN CANADA, BY PROVINCES AND BY SOURCES, 1934 and 1935.

	1934 Quantity fine oz.	1934 Value $	1935 Quantity fine oz.	1935 Value $
NOVA SCOTIA -				
In gold bullion - TOTAL	321	152	372	241
QUEBEC -				
In gold ores, in blister copper, and in copper and silver-lead zinc ores exported - TOTAL	470,254	223,187	668,836	433,338
ONTARIO -				
In silver bullion and nuggets	2,681,104	1,272,476	2,022,296	1,310,244
In gold bullion	418,528	198,637	441,982	286,360
In blister copper produced; and in ores, concentrates, residues and matte exported or treated in smelters outside the province	2,221,528	1,054,357	2,697,373	1,747,625
TOTAL	5,321,160	2,525,470	5,161,651	3,344,229
MANITOBA -				
In gold bullion and in blister copper - TOTAL	1,252,920	594,647	1,206,454	781,660
SASKATCHEWAN -				
In copper-gold-silver ores shipped to Canadian smelters - TOTAL	87,551	41,552	201,608	130,622
ALBERTA -				
In alluvial gold - TOTAL	35	17	16	10
BRITISH COLUMBIA -				
In alluvial gold	4,533	2,152	5,567	3,607
In gold bullion	44,707	21,278	44,992	29,150
In blister copper	344,425	163,467	282,050	182,740
In base bullion and in ores exported	8,336,056	3,956,367	8,845,791	5,731,180
TOTAL	8,729,721	4,143,204	9,178,400	5,946,677

PRODUCTION OF SILVER IN CANADA, BY PROVINCES AND BY SOURCES, 1934 and 1935 (concluded)

	1934 Quantity fine oz.	1934 Value $	1935 Quantity fine oz.	1935 Value $
YUKON AND NORTH WEST TERRITORIES -				
In alluvial gold	8,708	4,133	8,034	5,205
In ores exported or shipped to Canadian smelters	544,612	258,478	193,187	125,166
TOTAL	553,320	262,611	201,221	130,371
CANADA	16,415,282	7,790,840	16,618,558	10,767,148

For 1934 fine silver was valued at 47.4609 cents per ounce, the average price for the metal on the New York market expressed in Canadian funds; for 1935 the corresponding price was 64.78991 cents.

Production of silver in Canada during the first six months of 1936 totalled 8,737,157 fine ounces valued at $3,956,272 as compared with an output of 7,859,490 ounces at $5,020,430 for the first half of 1935. The average price of silver in Canadian funds declined from 63.88 cents for the first six months of 1935 to 45.28 cents for the corresponding period of 1936.

AVERAGE COMMERCIAL RATIO OF SILVER TO GOLD FOR EACH SPECIFIED YEAR SINCE 1700.
(Supplied by United States Mint)

Year		Year		Year	
1700	14.81	1890	19.75	1925	29.78
1750	14.55	1895	31.60	1930	53.74
1800	15.68	1900	33.33	1931	71.25
1850	15.70	1905	33.87	1932	73.29
1875	16.64	1910	38.22	1933	59.06
1880	18.05	1915	40.48	1934	72.49
1885	19.41	1920	20.28	1935	54.31(x)

(x) Estimated on averages in Canadian funds.

IMPORTS INTO CANADA AND EXPORTS OF SILVER, 1934 and 1935.

	1934 Quantity fine oz.	1934 Value $	1935 Quantity fine oz.	1935 Value $
IMPORTS -				
Silver in bars, etc., unmanufactured	...	2,193,201	...	5,584,906
Silver, manufactures of, n.o.p., and articles consisting wholly or in part of sterling or other silverware	...	67,425	...	64,596
Silver and other coin except gold	...	...	...	...
TOTAL	...	2,260,626	...	5,649,502
EXPORTS -				
Silver contained in ore, concentrates, etc.	1,745,152	714,444	1,364,008	882,106
Silver bullion - Domestic (a)	10,664,182	4,933,690	16,963,181	10,953,083
TOTAL	12,409,334	5,648,134	18,327,189	11,835,189

IMPORTS INTO CANADA AND EXPORTS OF SILVER, 1934 and 1935 (concluded)

	1934 Quantity	1934 Value	1935 Quantity	1935 Value
	fine oz.	$	fine oz.	$
EXPORTS (concluded)				
Silver bullion - Foreign (b)	...	...	7,098,435	4,501,088
Silver coin - Foreign	...	615,665	...	896,010
Silver coin - Canadian	...	30,250	...	38,198

(a) Of the quantity exported, 5,229,377 ounces in 1934 and 15,013,972 ounces in 1935 went to the United States.
(b) Of these exports, 7,071,784 ounces went to the United States.

PRODUCTION OF SILVER IN CANADA FOR YEARS SPECIFIED, 1887-1934.

Year	Ounces	Cents per ounce	Year	Ounces	Cents per ounce
1887	355,083	98.00	1925	20,228,988	69.06
1891	414,523	98.00	1926	22,371,924	62.11
1896	3,205,343	67.06	1927	22,736,698	56.37
1901	5,539,192	58.95	1928	21,936,407	58.18
1906	8,473,379	66.79	1929	23,143,261	52.99
1910 (x)	32,869,264	53.49	1930	26,443,823	38.15
1911	32,559,044	53.30	1931	20,562,247	29.87
1916	25,459,741	65.66	1932	18,347,907	31.67
1919	16,020,657	111.122(a)	1933	15,187,950	37.83
1920	13,330,357	100.90	1934	16,415,282	47.46
			1935	16,618,558	64.79

(x) Year of maximum output.
(a) Highest price per ounce recorded since 1887.

From 1887 to 1935 inclusive the silver production in Canada amounted to 696,969,927 fine ounces valued at $417,065,960.

SOURCE OF CANADIAN SILVER PRODUCTION BY PERCENTAGES, 1932 - 1935.

	1932	1933	1934	1935
In silver-cobalt ores	28.5	20.4	18.7	15.0
(x) In base bullion	29.2	34.6	45.1	47.9
In gold ores (bullion and placer)	2.5	3.0	7.2	7.4
In blister copper	15.5	19.5	23.4	26.1
In matte, copper ores and silver-lead ores, etc. exported	24.3	22.5	5.6	3.6
	100.0	100.0	100.0	100.0

(x) Chiefly from silver-lead ores.

COMPARATIVE COPPER, SILVER AND LEAD PRODUCTIONS IN CANADA FOR YEARS SPECIFIED.

Year	Total Copper Production CANADA	Silver ONTARIO(z)	Total Lead Production CANADA	Total Silver Production CANADA
	Pounds	Fine oz.	Pounds	Fine oz.
1904	41,383,722	(x) 206,875	37,531,244	3,577,526
1907	56,979,205	10,023,311	47,738,703	12,779,799
1911	55,648,011	(a)31,507,791	23,784,969	32,559,044
1915	100,785,150	24,746,534	46,316,450	26,625,960
1919	75,053,581	11,214,317	43,827,699	16,020,657
1923	86,881,537	10,377,846	111,234,466	18,601,744
1924	104,457,447	9,935,902	175,485,499	19,736,323
1925	111,450,518	10,707,235	253,590,578	20,228,988
1926	133,094,942	10,543,473	283,801,265	22,371,924
1927	140,147,440	8,543,513	311,423,161	22,736,698
1928	202,696,046	6,745,401	337,946,688	21,936,407
1929	248,120,760	7,781,429	326,522,566	23,143,261
1930	303,478,356	9,225,610	332,894,163	26,443,823
1931	292,304,390	5,998,482	267,342,482	20,562,247
1932	247,679,070	4,659,304	255,947,378	18,347,907
1933	299,982,448	3,641,930	266,475,191	15,187,950
1934	364,761,062	3,029,638	346,275,576	16,415,282
1935	418,997,700	(b) 2,466,157	339,105,079	16,618,558

(z) Shipments from silver-cobalt camps as recorded by Ontario Department of Mines - Total output from these fields 427,075,482 ounces, 1904-1935 inclusive.
(x) First production. (a) Year of maximum production. (b) Subject to revision.

WORLD SILVER CONSUMPTION, PRODUCTION AND OTHER SUPPLIES(x), 1934 and 1935.

CONSUMPTION	1934	1935	PRODUCTION and SUPPLIES	1934	1935
	(In millions of fine ounces)				
U. S. Government Acquisitions:			Production:		
Domestic production	21.4	37.9	United States	26.4	38.4
Nationalized stocks	111.2	2.0	Mexico	74.1	72.2
Open market purchases	174.5	503.9	Canada	16.4	16.4
	307.1	543.8	South America	16.0	25.0
Other Government Purchases under the Eight Nation Silver Pact:			All other countries	52.5	54.5
			TOTAL PRODUCTION	185.4	206.5
Mexico	7.2	7.2			
Canada	1.7	1.7	Other Supplies:		
Peru	1.1	1.1	Sales by China, including smuggled silver not reported	200.0	190.0
Australia	.6	.6			
Coinage:					
Cuba	7.8	15.5	Sales by Indian Government	33.0	35.0
Colombia	3.6	...			
Venezuela	...	1.8	Sales by Soviet Government	25.0	19.0
Hong Kong	9.0	...			
Others	.6	.3	Other Demonetization:		
Indian consumption	15.0	5.0	Peru	...	.5
German consumption	12.4	12.0	Austria	...	2.0
Arts and Industries -			Persia	...	3.4
In United States and Canada	25.0	23.5	Indo-China	...	3.5
In England	13.0	10.0	Netherland India	...	2.0
Unallocated demand probably representing increased speculative holdings	39.3	...	Unallocated supplies	...	160.6
TOTAL	443.4	622.5		443.4	622.5

(x) As estimated and supplied by Handy and Harman, New York.

SILVER CONSUMED IN SPECIFIED CANADIAN INDUSTRIES, 1934.

Industry	Fine ounces	Value $
Scientific equipment (a)	751,175	357,020
Fountain pens and pencils	2,204	818
Jewellery and Silverware –		
Jewellery	...	41,917
Refiners (b)	...	12,081
Silverware	...	248,827
Medicinal and pharmaceutical preparations	53,156	23,185
Miscellaneous chemicals	19,144	9,502

(a) Consumed largely in the manufacture of photographic film.
(b) Probably duplicated in some of the figures shown for other industries.

SILVER PRODUCTION OF THE WORLD, 1929, 1934 and 1935. (a)

(Supplied by American Bureau of Metal Statistics)
(in fine ounces)

Country	1929	1934	1935
NORTH AMERICA:			
United States	60,180,000	26,441,000	38,322,000
Canada	23,143,261	16,415,282	16,624,426
Mexico	108,701,000	74,143,301	75,587,447
Newfoundland	576,000	1,103,091	1,125,000
Total North America	192,600,261	118,102,674	131,658,873
CENTRAL AMERICA AND WEST INDIES	2,796,890	3,500,000	3,000,000(x)
SOUTH AMERICA:			
Bolivia	6,214,531	5,216,297	5,800,000
Chile	1,570,270	1,051,112	1,315,385
Colombia	60,000	127,461	125,000(x)
Ecuador	96,511	110,815	115,000
Peru	21,495,169	10,381,397	16,000,000
Other South America	47,545	95,000	100,000
Total South America	29,484,026	16,982,082	23,455,385
EUROPE:			
Czechoslovakia	722,989	971,338	975,000
France	445,278	303,978	350,000(x)
Great Britain	35,976	138,974	140,000(x)
Germany	5,513,725	5,944,535	6,751,500
Greece	245,000	256,000	180,000
Italy	518,676	365,600	370,000(x)
Jugoslavia	79,989	1,748,000	1,729,220
Norway	282,920	177,339	247,555
Poland	376,026	21,155	50,000
Rumania	90,740	417,661	354,000
Russia	300,000	1,322,000	2,200,000
Spain and Portugal	2,659,223	1,788,289	1,450,000
Sweden	145,736	754,496	845,000
Other Europe	10,578	40,000	50,000(x)
Total Europe	11,426,856	14,249,365	15,692,275

(a) SILVER PRODUCTION OF THE WORLD, 1929, 1934 and 1935 (concluded)
(Supplied by American Bureau of Metal Statistics)
(in fine ounces)

Country	1929	1934	1935
OCEANIA:			
New South Wales	8,455,581	8,207,520	8,600,000(x)
Queensland	52,663	2,259,574	2,409,165
Tasmania	864,354	284,687	323,901
New Zealand	451,545	382,615	440,000(x)
Other Oceania (b)	101,949	150,000	150,000(x)
Total Oceania	9,926,092	11,284,396	11,923,066
ASIA:			
India	7,298,327	6,850,000	6,860,000
China	50,000	100,000(x)	100,000(x)
Chosen (Korea)	60,143	650,000(x)	800,000(x)
Netherlands East Indies	1,967,934	773,998	750,000(x)
Japan	5,163,419	6,882,011	8,124,000
Turkey	220,000	200,000(x)	200,000(x)
Other countries	16,147	165,000	120,000
Total Asia	14,775,970	15,621,009	16,954,000
AFRICA:			
Algeria	186,955	50,000(x)	50,000(x)
Nigeria	6,400	81,000	85,000(x)
Rhodesia	89,482	128,568	132,252
Transvaal, Cape Colony and Natal	1,031,779	1,002,203	1,042,203
Belgian Congo	...	3,399,541	3,900,000
Other countries	500,000	44,000	65,000(x)
Total Africa	1,794,616	4,705,312	5,274,455
TOTAL FOR WORLD	262,804,711	184,444,838	207,958,054

(a) In compiling this table free use has been made of the reports of the Director of the Mint, especially for early years. The 1935 compilation contains some preliminary data and conjectural figures (x) have been inserted where necessary. Production of the Philippine Islands is included with the United States.
(b) Includes New Guinea.

WORLD'S MONETARY STOCKS OF SILVER AT THE CLOSE OF 1934 (c)
(Supplied by United States Mint and subject to revision)

(stated in United States money, 000's omitted)

Country	Silver stock in banks and treasuries(a)	1934 Per capita	1933 Per capita
	$	$	$
United States	1,064,593	8.45	6.73
Canada	47,215	4.39	2.71
Mexico	98,748	5.61	3.66
Chile	4,532(1)(4)	1.02	.73
Columbia	22,133(1)	2.45	1.27
Peru	9,929(1)	1.48	.81
Venezuela	26,679(1)(4)	8.08	5.02
Austria	12,464(1)	1.85	1.49
Belgium	20,458(4)	2.48	1.16
France	38,666(9)	0.92	2.62
Germany	538,785(1)	8.24	4.98

WORLD'S MONETARY STOCKS OF SILVER AT THE CLOSE OF 1934 (c) (concluded)
(Supplied by United States Mint and subject to revision)

(stated in United States money, 000's omitted)

Country	Silver stock in banks and treasuries(a)	1934 Per capita	1933 Per capita
	$	$	$
Great Britain	432,168(1)	9.27	5.64
Greece	2,847(1)	0.43	0.39
Irish Free State	10,793(1)(5)	3.60	2.05
Italy	...	...	2.06
Latvia	14,045(1)	7.24	4.32
Netherlands	94,845(1)	11.44	1.29
Norway	3,176(1)	1.11	0.67
Poland	59,256(1)	1.79	0.98
Rumania	2,388	0.13	0.05
Russia (Soviet Union)	8,007(3)(6)(7)	0.05	0.02
Spain	221,225	9.13	5.27
Switzerland	1,633	0.39	9.15
Yugoslavia	29,800(1)	2.05	1.26
Ceylon	16,764(1)	3.07	1.87
China	802,340(2) (8)	1.78	1.45
India - British	1,951,141(1)	5.37	3.90
Iraq (Mesopotamia)	...	...	7.60
Japan (including Chosen, Taiwan, Kwantung)	407,573(1)	4.23	0.44
Netherlands East Indies	93,135(1)	1.47	0.22
Philippine Islands	18,886(1)	1.47	1.51
Siam	41,865	3.30	2.05
Straits Settlements	...	...	19.18
Egypt	38,041(1)	2.50	1.45
Ethiopia	21,784(1)(2)	3.11	1.13
Kenya, Uganda and Tanganyika	22,248(1)	1.89	1.82(b)
Sudan-Anglo Egyptian	14,801(1)	2.58	1.56
Union of South Africa	22,093(1)	2.62	1.46
Australia	...	...	5.47
Tanganyika	(see above)		1.81
Others	207,503	...	...
TOTAL	6,422,559	3.19	2.20

NOTE - The amount of silver in circulation in many countries is not obtainable, and in some countries that held by private banks cannot be given.

(1) Estimated silver circulation included.
(2) Valued at $0.48283 per fine ounce of silver.
(3) Prior years figures at new valuation.
(4) Includes base metal coin.
(5) British currency still circulates in Irish Free State.
(6) On January 1, 1935.
(7) Includes platinum.
(8) Incomplete.
(9) On December 26, 1934.

NOTE - Numbered footnotes refer to 1934 only.

(a) At par equivalent of stated value.
(b) Not including Tanganyika.
(c) Compiled from such data as are available.

SILVER CONTENT OF PRINCIPAL WORLD COINS.

Coin	Country	Fine silver content - grains
Pesa (old)	Mexico	185.188
Dollar	United States	371.250
Dollar	Canada	288.000
Shilling (new)	Great Britain	43.636
5 Lira (new)	Italy	64.430
2 Zloty (new)	Poland	50.927
Schilling (new)	Austria	59.260
10 Franc (new)	France	104.940
Mark (a)	Germany	38.581
Rouble (new)	Russia	277.782
Rupee	India	165.000
Yuan	China	362.559
Peseta (old)	Spain	64.430

(a) Legislation in 1933 provided for the replacement of the one-mark silver coins by nickel coins, and the mintage of new silver coins in denominations of two- and five-marks, with correspondingly proportionate silver content.

LEAD

The Consolidated Mining and Smelting Company of Canada, Limited, reported that "during the early part of the year an accord was reached by the Empire producers of lead and zinc with the British fabricators of these metals, resulting in the substitution of small but specific duties for the ad valorem ones provided in the Ottawa agreements, and in the elimination of the obligation to supply British fabricators at world prices, and resulting too, in what was much more important, the establishment of friendly and mutually helpful relations between Empire producers and British fabricators. World lead production and consumption in 1935 was in better volume than for the preceding four years. The improvement in demand and price continued without any pronounced setback until the high for the year of £ 19. 15. 0 was registered on the 7th of October. This was the peak price since February, 1930."

The United States Bureau of Mines in a review of lead for 1935 states: "World smelter production of lead increased 6 per cent in 1935 and was equivalent to 78 per cent of the record output in 1929. Production increased 5 per cent over 1934 in the United States and 7 per cent elsewhere. The United States output amounted to only 46 per cent of the 1929 total, whereas that of the rest of the world was 96 per cent. The United States continued as the leading producer and contributed 21 per cent of the 1935 total.

World consumption of lead in 1935 was estimated at 1,426,700 metric tons an increase of 6 per cent over 1934. The increase in the United States, after allowance for changes in stocks and including secondary and antimonial lead produced at primary refineries, was 17 per cent compared with 3 per cent elsewhere. In Europe there was a marked decline in the use of lead in Belgium and France, while Germany, Italy and the U.S.S.R. (Russia) recorded large increases. Consumption in the United Kingdom declined only slightly from the record of 1934. Japan also took less lead in 1935 than in 1934. The United States used 25 per cent of the total amount consumed in 1934 and again ranked first in lead consumption after having yielded its premier position to the United Kingdom in 1934. The leading consumers, besides the United States, and the percentage of the total each absorbed in 1935 were as follows: United Kingdom, 23; Germany, 12; Japan, 7; France, 6; U.S.S.R. (Russia), 5; Italy, 4; and Belgium, 3."

PRODUCTION OF NEW LEAD IN CANADA, 1924-1935.

Year	Pounds	$	Price per pound (Canadian funds)
			¢
1924	175,485,499	14,221,345	8.104
1925 (x)	253,590,578	25,127,460	9.120
1926	283,801,265	19,240,661	6.751
1927	311,423,161	16,477,139	5.256
1928	337,946,688	15,553,231	4.576
1929	326,522,566	16,544,248	5.054
1930	332,894,163	13,102,635	3.927
1931	267,342,482	7,260,183	2.710
1932	255,947,378	5,409,704	2.114
1933	266,475,191	6,372,998	2.392
1934 (a)	346,275,576	8,436,658	2.436
1935	339,105,079	10,624,772	3.133

(x) Year of maximum value of Canadian lead production.
(a) Year of maximum output of Canadian lead.

Lead production during the first six months of 1936 totalled 180,866,815 pounds valued at $6,366,512, an increase of 13 per cent in quantity and 53 per cent in value over the corresponding period of 1935. The average price in Canadian funds for the first half of the current year was 3.52 cents as against 2.60 cents for the first six months of 1935

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF LEAD, 1934 and 1935.

	1934		1935	
	Pounds	Value	Pounds	Value
		$		$
PRODUCTION -				
Quebec	...	...	2,047,624	64,156
Ontario	21,558	525	22,532	706
Manitoba	...	...	19,179	601
British Columbia	344,467,138	8,392,597	336,784,326	10,552,059
Yukon and North West Territories	1,786,880	43,536	231,418	7,250
TOTAL	346,275,576	8,436,658	339,105,079	10,624,772
IMPORTS -				
Old and scrap, pig and block	102,294	3,921	108,863	5,472
Bars and sheets	59,877	2,500	69,794	2,959
Litharge	1,689,100	91,975	1,750,400	100,689
Acetate of lead (not ground)	151,635	11,860	216,600	16,504
Nitrate of lead (not ground)	243,110	12,504	201,160	11,447
Other manufactures of lead, n.o.p.	...	78,475	...	70,988
Pipe lead	7,254	336	4,022	301
Shots and bullets	14,187	939	9,824	696
Tea lead	...	...	3,410	252
Lead arsenate	450,748	37,788	324,328	26,388
Lead tetraethyl, compounds of	1,821,083	1,053,503	2,381,734	1,249,477
Lead capsules for bottles	...	34,724	...	44,965
Lead pigments -				
Dry white lead	152,409	9,827	16,196	1,089
White lead, ground in oil	16,258	1,706	16,788	1,424
Dry red lead and orange mineral	551,597	33,077	595,584	35,392
TOTAL	...	1,338,411	...	1,523,078

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF LEAD, 1934 and 1935 (concluded)

	1934		1935	
	Pounds	Value $	Pounds	Value $
EXPORTS -				
Lead, contained in ore, etc. -				
To - United States	1,918,300	76,726	114,300	4,570
Belgium	21,726,500	432,780	11,182,300	285,081
Total Lead in Ore	23,644,800	509,506	11,305,100	289,955
Pig lead, refined lead, etc. -				
To - United Kingdom	162,055,700	2,963,356	187,815,800	4,482,586
United States	...	...	1,800	98
Japan	90,887,500	1,706,885	69,257,200	1,751,691
Netherlands	2,195,200	44,120	672,100	23,099
China	9,963,200	181,222	6,689,900	157,764
Brazil	6,184,000	114,712	3,456,900	95,766
Germany	1,797,200	35,155	10,800	350
Other countries	10,076,200	192,783	15,009,000	360,115
Total Pig Lead	283,159,000	5,238,203	282,913,500	6,871,469
TOTAL LEAD EXPORTS	306,803,800	5,747,709	294,218,600	7,161,424

Production of lead from Canadian ores from 1887 to 1935 inclusive totals 4,771,442,194 pounds valued at $227,134,681.

WORLD PRODUCTION OF LEAD, 1929, 1934 and 1935(a)
(Supplied by American Bureau of Metal Statistics)
(in short tons - 2,000 lb.)

Country	1929	1934	1935
United States (c)	688,000	330,911	371,212
Canada (b)	159,162	159,833	165,357
Mexico	274,232	193,547	204,172
Other North America (d)	...	3,224	4,102
Total North America	1,121,394	687,515	744,843
Argentina	9,943	)	)
Peru (b)	21,595	10,692)	9,458)
Other South America (b)	2,500	)	)
Total South America	34,038	10,692	9,458
Austria	7,241	6,205	9,755
Belgium	68,577	73,468	74,956
Czechoslovakia	4,924	4,141	4,960
France	22,597	18,739	6,393
Germany	107,915	132,276	134,811
Great Britain	11,948	16,498	28,133
Greece	5,908	8,702	5,095
Italy	24,984	46,241	39,870
Jugoslavia	9,959	10,829	8,760
Poland	39,451	11,409	14,093
Russia	6,834	29,985	40,565
Spain	146,894	82,516	78,068
Other Europe	1,047	5,512	6,063
Total Europe	458,279	446,521	451,522

WORLD PRODUCTION OF LEAD, 1929, 1934 and 1935(a) -(concluded)
(Supplied by American Bureau of Metal Statistics)
(in short tons - 2,000 lb.)

Country	1929	1934	1935
Turkey	7,164	...	...
India (Burma)	89,860	80,437	80,707
Japan	3,719	8,504	8,867
Total Asia	100,743	88,941	89,574
Australia	195,403	226,336	243,046
Africa	22,663	30,105	27,236
Totals, ex U.S.A.	1,244,520	1,159,199	1,194,467
GRAND TOTALS	1,932,520	1,490,110	1,565,679

(a) In general, reported in terms of base bullion, allocated so far as possible according to origin of ore.
(b) Does not include lead exported to European countries.
(c) Lead in smelters' original production from domestic ore, inclusive of some secondary.
(d) Production of Newfoundland for 1930 and 1933 included in Belgium and Germany as unable to allocate. In 1934-1935, a part was treated in United States and reported separately.

The following data supplied by the American Bureau of Metal Statistics is included as indicative of current trends in lead consumption:

USE OF LEAD IN THE UNITED STATES, BY PERCENTAGE

Purpose	1929	1933	1934	1935
Ammunition	4.23	7.14	7.08	5.38
White lead	12.31	15.06	13.13	14.73
Red lead and litharge	3.09	8.39	8.55	8.74
Storage batteries	21.60	32.47	33.18	32.22
Cable covering	22.63	6.85	6.94	6.96
Building	9.87	5.74	6.11	5.89
Automobiles	1.85	1.10	1.48	1.84
Foil	4.09	4.97	3.30	2.93
Bearing metal	3.39	3.31	3.36	3.20
Solder	3.81	3.54	3.26	3.68
Typemetal	1.85	2.43	2.65	2.76
Calking	3.24	2.65	2.03	2.21
Other uses	8.04	8.35	8.93	9.46
TOTAL	100.00	100.00	100.00	100.00

AVAILABLE STATISTICS ON THE CONSUMPTION OF LEAD METAL IN SPECIFIED CANADIAN MANUFACTURING INDUSTRIES, 1933 and 1934. (Data for 1935 not yet complete)

Industries	Items Used	1933	1934
		Pounds	Pounds
Brass and copper products	Pig lead	204,153	631,928
	Scrap and other lead	71,000	119,275
Paints and pigments	Pig lead	10,771,975	12,569,302
White metal alloys	Pig lead, etc.	7,138,622	8,759,089
	Scrap lead	13,593,415	9,760,366
Electrical Apparatus	Pig lead	9,480,166	13,211,023
	Scrap lead	185,202	166,684
Iron and steel	Lead sheets, etc.	612,993	556,427
	Lead	1,072,660	915,285
GRAND TOTAL		45,150,186	46,689,579

ZINC

The Consolidated Mining and Smelting Company of Canada reported in February, 1936, that "good consumption continued until well into December, when unsettled economic conditions and seasonal slackening lowered the price to £14. 11. 3, which was only slightly above the average for the year. Estimated world production was about 13 per cent above 1934 but consumption was sufficient to absorb the increase, leaving stocks practically unchanged. Statistically, we consider this metal to be in a better position than it was a year ago and, from the continued steady demand during January and February of 1936, we expect the current year to show price improvement."

A European view was expressed at the same time by O. W. Roskill, in "The Mining Journal" in part, as follows: "In the absence of any control of production since the dissolution of the Zinc Cartel, world output of zinc has shown a steady rising tendency, at any rate during the second half of the year, which has not been absorbed by a corresponding increase in consumption. Although the consumption of zinc for brass has expanded, the galvanizing industry has shown few signs of recovery. It is not surprising therefore, that there should have been reported rumours of a possible reformation of the Zinc Cartel. In fact, the Vieille Montagne Co. attempted to reconstitute the Cartel at the beginning of the year ... It is clear that in the absence of any restriction scheme there is a strong probability that world production of zinc will increase still further during 1936. In addition to the countries already mentioned the allocation of a subsidy to the more efficient mines in France and North Africa, coupled with the French import duty on metallic zinc, must increase production in France, while the devaluation of the Belga has strengthened the competitive position of the Belgian industry. In fact the only important producing country which does not shown an expanding tendency is Poland. There is therefore a strong incentive towards some form of control, if the price is to be maintained even at its present level, whatever may be the difficulties of instituting such control."

It is interesting to note in view of the comments referred to above that the average price of zinc in Canadian funds was estimated at 3.31 cents for the first six months of 1936 as compared with 2.80 cents for the corresponding period of 1935 also the production of the metal in Canada totalled 157,869,552 pounds valued at $5,225,482 during the first half of the current year as against 154,678,039 pounds at $4,245,286 during the first six months of 1935, or an increase of 2 per cent in quantity and 23 per cent in value.

PRODUCTION OF ZINC FROM CANADIAN ORES, 1924 - 1935.

Year	Pounds	$	Price per pound (Canadian funds)
1924	98,909,077	6,274,791	6.70
1925	109,268,511	8,328,446	7.96
1926(x)	149,938,105	11,110,413	7.41
1927	165,495,525	10,250,793	6.19
1928	184,647,374	10,143,050	5.49
1929	197,267,087	10,626,778	5.39
1930	267,643,505	9,635,166	3.60
1931	237,245,451	6,059,249	2.55
1932	172,283,558	4,144,454	2.41
1933	199,131,984	6,393,132	3.21
1934	298,579,683	9,087,571	3.04
1935 (a)	320,649,859	9,936,908	3.10

(x) Year of maximum value of Canadian zinc production.
(a) Year of maximum Canadian zinc production.

The total value of Canadian zinc production since the first recording of Canadian zinc statistics in 1898 and to 1935 totalled $127,653,764.

NOTE - The metal content of zinc ores shipped during some of the earlier years is not known.

AVAILABLE STATISTICS ON THE CONSUMPTION OF ZINC METAL IN SPECIFIED CANADIAN MANUFACTURING INDUSTRIES, 1933 and 1934.

Industry	Items Used	1933	1934
Brass and copper products	(Zinc castings . .....) (Zinc ingots and bars . .....) (Zinc plates, slabs and sheets)	3,807,210	3,920,176
	(Zinc scrap	20,506	22,904
White metal alloys	(Zinc spelter	389,491	1,100,791
	(Zinc scrap	396,837	283,278
Electrical apparatus	(Zinc ingots and bars	293,851	448,343
	(Zinc sheets	1,491,941	1,587,233
Paints and pigments	Zinc and zinc ore	1,003,896	1,762,565
Iron and steel	Zinc	16,400,446	19,017,095
GRAND TOTAL		23,804,178	28,142,385

NOTE - Corresponding data for 1935 not yet complete.

The following data are supplied by the American Bureau of Metal Statistics and are included as indicative of the current trend in zinc consumption:-

MANUFACTURE OF ZINC IN THE UNITED STATES, BY PERCENTAGE

Purpose	1924	1929	1935
Galvanizing	46.88	45.71	42.30
Brass making	30.27	29.17	24.30
Rolled zinc	11.91	10.77	12.25
Die castings	(a)	5.68	12.04
Other purposes	10.94	8.67	9.11
TOTAL	100.00	100.00	100.00

(a) Included in "other purposes."

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ZINC, 1934 and 1935.

	1934		1935	
	Pounds	Value $	Pounds	Value $
PRODUCTION -				
Quebec	...	...	5,322,844	164,955
Manitoba	47,264,342	1,438,538	51,129,980	1,584,513
Saskatchewan	2,162,938	65,831	8,974,720	278,126
British Columbia	249,152,403	7,583,202	255,222,315	7,909,314
TOTAL	298,579,683	9,087,571	320,649,859	9,936,908

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ZINC, 1934 and 1935. (concluded)

	1934		1935	
	Pounds	Value	Pounds	Value
		$		$
IMPORTS -				
Zinc dust	1,067,300	61,135	1,648,100	80,857
Zinc in blocks, pigs, bars and rods, and zinc plates, n.o.p.	18,300	1,282	18,100	2,111
Zinc in sheets and strips, and zinc plates for marine boilers	3,964,900	260,449	5,579,000	349,013
Zinc spelter	3,100	200	115,300	4,254
Zinc white (zinc oxide)	11,754,090	520,911	11,768,314	460,122
Zinc sulphate	1,844,821	27,091	2,042,284	29,459
Zinc, chloride of	1,462,592	41,712	1,869,056	55,942
Zinc, manufactures of, n.o.p.	...	82,883	...	128,536
Lithopone	14,530,612	510,558	17,383,273	620,615
TOTAL	...	1,506,221	...	1,730,889
EXPORTS -				
Zinc, contained in ore -				
To - Belgium	9,388,800	175,550	6,329,300	124,118
Japan	8,947,500	140,657	2,175,500	23,486
United Kingdom	4,980,100	86,000	2,935,700	48,750
France	12,129,600	196,052	3,030,800	53,555
Germany	3,591,300	56,300	5,128,300	87,800
United States	6,100	276	600	23
Total	39,043,400	654,835	19,600,200	337,732
Zinc, scrap, dross and ashes -				
To - United Kingdom	942,600	16,511	669,300	14,144
United States	18,000	529	210,000	2,480
Japan	2,970,200	28,484	3,385,000	21,851
Other countries	359,800	3,015	2,003,200	25,244
Total	4,290,600	48,539	6,267,500	63,719
Zinc, spelter -				
To - United Kingdom	181,075,000	5,251,861	222,213,700	6,406,584
United States	127,000	2,928	1,246,400	36,130
British India	4,167,100	117,383	2,744,100	69,185
Argentina	1,108,100	37,804	...	...
Belgium	11,119,900	339,655	9,427,200	264,996
Brazil	459,500	14,639	1,198,900	37,749
China	2,089,100	68,250	3,671,100	109,437
France	1,669,700	42,709	3,103,600	87,416
Germany	851,700	26,443	44,800	1,618
Italy	2,240,900	64,202	1,120,100	29,692
Japan	30,842,300	958,823	25,436,900	745,229
Netherlands	1,792,600	56,062	...	...
Other countries	351,500	10,080	712,000	21,655
Total	237,894,400	6,990,639	270,918,800	7,809,691
GRAND TOTAL - EXPORTS	281,228,400	7,694,013	296,786,500	8,211,142

WORLD'S PRODUCTION OF ZINC, 1929, 1934 and 1935(a)
(Supplied by American Bureau of Metal Statistics)

(in short tons - 2,000 lb.)

Country	1929	1934	1935
United States	631,601	366,933	451,499
Mexico	29,954	40,354	44,084
Canada	86,049	134,926	149,103
Belgium	218,145	192,792	201,346
Czechoslovakia	12,604	9,773	10,283
France	100,984	56,410	56,729
Germany	112,435	80,358	136,906
Great Britain	65,294	57,344	67,717
Italy	17,421	26,921	28,950
Jugoslavia	8,061	4,450	3,752
Netherlands	28,342	21,948	15,153
Norway	6,080	49,604	49,604
Poland	186,324	102,522	93,688
Russia	3,789	29,929	50,706
Spain	13,035	9,016	8,429
Sweden	5,201	...	...
Australia	56,001	59,880	74,856
Japan	24,360	35,433	37,206
French Indo-China	4,196	4,575	4,250
Rhodesia	13,575	21,884	23,122
TOTALS	1,623,451	1,305,052	1,487,583

(a) The statistics in this table are the summaries of production as made by the metallurgical works of the world whose principal business is the reduction of ore. Insofar as they produce slab zinc from secondary material such is included. The quantity of such inclusion is, however, relatively small. Production is not allocated according to the origin of the ore except in the instances of the United States and Mexico beginning 1929. Slab zinc produced in the United States from Mexican ore has been separated and credited to Mexico in that year and subsequently. Other production from Mexican ore is included in figures of countries where treated.

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OPERATORS IN THE CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1935.

Name of Operator	Head Office Address	Plant Location
NOVA SCOTIA -		
(x)The British Metal Corporation (Canada) Ltd.	Dominion Square Bldg., Montreal, P.Q.	Richmond Co.
QUEBEC -		
(x)Federal Zinc and Lead Co. Ltd.	608 Drummond Bldg., Montreal	Gaspe Co.
(x)Lyall and Beidelman	608 Drummond Bldg., Montreal	Gaspe Co.
Tetreault, Pierre, Estate of	70 Holyrood Ave., Montreal	Montauban les Mines.

OPERATORS IN THE CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1935 (continued)

Name of Operator	Head Office Address	Plant Location
BRITISH COLUMBIA -		
Ainslie, Roy,F.	Slocan City	Slocan City M.D.
(x)Alloo Silver Mines Ltd.	708 Yorkshire Bldg., Vancouver	W. Kootenay M.D.
Base Metals Mining Corp. Ltd.	350 Bay St., Toronto, Ont.	Golden M.D.
Beaverdell Wellington Syndicate Ltd.	Greenwood	Greenwood M.D.
Beaver Silver Mines Ltd.	708-525 Seymour St.,Vancouver	Greenwood M.D.
Bell Mine Ltd.	Box 464, Penticton	Beaverdell
Black Colt Leasers	Box 371, New Denver	Sandon
Bombini, S.	Greenwood	Grand Forks M.D.
(x)Brown and Curwen	Ymir	Ymir
Campbell, Colin J.	New Denver	Slocan M.D.
Clements, Wm.	Slocan	Slocan M.D.
Consolidated Mining and Smelting Co. of Canada, Ltd.	C. P. R. Bldg., Montreal, P.Q.	Kimberley
Cunningham Mines Ltd.	Alamo	Sandon
Davidson, L. S.	Stewart	Glacier Creek Area
Doney, E.	Box 17, Sandon	Slocan
Dunwell Syndicate	Stewart	Stewart
Dunwell Mines Ltd.	101 Pemberton Bldg., Victoria	Stewart
Erickson, A.	Silverton	Slocan Dist.
Ewing, A. G.	Slocan City	Slocan Dist.
Excelsior Prospecting Synd. Ltd.	548 Bastion St., Victoria	Portland Canal Dist.
Falconer, T. W.	Alice Arm	Naas River M.D.
Fanchin, Joe	Sandon	Slocan Dist.
Farnham, J., & Co.	Slocan	Slocan Dist.
Fife, H. L.	Slocan	Slocan Dist.
Fisher Maiden Mining Co. Ltd.	1024 - 20th Ave., Spokane, Wash., U.S.A.	Silverton
Galena Farm Cons. Mines Ltd.	615 Stock Exchange Bldg., Vancouver	Silverton
Greenwood, Wm.	Slocan City	Slocan City Dist.
Henderson, Geo.	Slocan City	Slocan City Dist.
Highland Lass Ltd.	Box 782, Kelowna	Greenwood M.D.
(x)Invermay Annex Mining Co. Ltd.	828 W. Hastings St., Vancouver	Yale Dist.
Jackson Mines Ltd.	616 Stock Exchange Bldg., Vancouver	Silverton
Jarvis, A.	Silverton	Silverton
Jenny Long Gold Mines	914 Hall Bldg., Vancouver	Stump Lake
Kamloops Homestake Mines Ltd.	902 - 475 Home St., Vancouver	Kamloops M.D.
Lakeview Mine	Sandon	Nelson M D.
McArthur, W. E.	Box 629, Greenwood	Greenwood M.D.
Meridian Mining Co. Ltd.	555 Howe St., Vancouver	Camborne
Michaely Silver Lead Mines Ltd.	c-o L. A. Read, Trail	Nelson M.D.
Molly Hughes Mining Co.	New Denver	Slocan Dist.
Nicola Mines & Metals Ltd.	1015 Rogers Bldg., Vancouver	Nicola M.D.
Noble Five Mines Ltd.	Nelson	Sandon
Nordnan, J. L.	Beaverdell	Beaverdell
Northwestern Aerial Prospectors Ltd.	Victoria	Stewart
O'Neail, B. E.	Slocan City	Slocan City M.D.

OPERATORS IN THE CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1935 (concluded)

Name of Operator	Head Office Address	Plant Location
BRITISH COLUMBIA (concluded)		
Reco Mining & Milling Co. Ltd.	Sandon	Slocan City M.D.
Roberts, W. R.	Silverton	Slocan Dist.
Ross Mining Syndicate Ltd.	Nelson	Retallack, Rambler Sta.
Ruth-Hope Mining Co. Ltd.	616 Stock Exchange Bldg., Vancouver	Sandon
Sally Mines Ltd.	Box 220, Penticton	Greenwood M.D.
Spiers, S. A., & Co.	Slocan	Slocan Dist.
Stevenson and Johanson	Sandon	Three Forks
(x)Thunderbird Mines Ltd.	c-o E. C. Wragge, Nelson	Invermere
Utica Mines Ltd.	415 Bank of Nova Scotia Bldg., Vancouver	Kalso
Waterloo Gold Mines Ltd.	Penticton	Greenwood M.D.
Western Exploration Co. Ltd.	Silverton	Silverton
White, Geo.	Greenwood	Greenwood
YUKON -		
Formo, H. E.	1045 Pacific St., Vancouver,B.C.	Mayo Dist.
Gordon, Alex.	Keno, Yukon Territory	Mayo Dist.
(x)Treadwell Yukon Co. Ltd.	920 Crocker Bldg., San Francisco, California, U.S.A.	Mayo Dist.
NORTH WEST TERRITORIES -		
(x)Bear Exploration and Radium Ltd.	1112 - 85 Richmond St. W., Toronto, Ont.	Great Bear Lake Dist.
Consolidated Mining and Smelting Co. of Canada, Ltd.	C. P. R. Bldg., Montreal, P.Q.	Great Bear Lake "
El-Bonanza Mining Corp. Ltd.	2001 Star Bldg., Toronto, Ont.	Great Bear Lake "
Eldorado Gold Mines Ltd.	2001 Star Bldg., Toronto, Ont.	Great Bear Lake "
(x)White Eagle Silver Mines Ltd.	1006 Concourse Bldg.,Toronto,Ont.	Camsell River.

(x) Operating but not producing.

NOTE - Operators listed under the North West Territories are essentially producers of silver or silver-pitchblende ores.