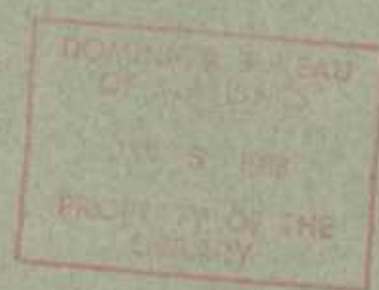


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CANADA
DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS

SUMMARY REVIEW
OF
THE SILVER MINING INDUSTRY
IN
CANADA
1934



Published by Authority of the HON. R. B. HANSON, K.C., M.P.,
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OTTAWA
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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, 1934.

- (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. There is no production of silver-lead-zinc ores in Eastern Canada at the present time; this industry, however, has attained a position of importance during past years in the provinces of Ontario, Quebec and Nova Scotia. 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 1934 the total primary production of these metals from all Canadian sources was as follows:- silver, 16,415,282 fine ounces valued at \$7,790,840; lead, 346,275,576 pounds valued at \$8,436,658; zinc, 298,579,683 pounds valued at \$9,087,571; cobalt, 594,671 pounds valued at \$592,497; and arsenic, 1,659,513 pounds at \$56,652.

Of the total value of metal production in Canada during 1934 that of lead comprised approximately 4.35 per cent; zinc, 4.70 per cent, and silver, 4 per cent. The year under review witnessed a distinct improvement in lead-zinc-silver production with the output of the first two metals being the highest ever recorded in the history of the Canadian mining industry. Silver production for the year realized an 8.1 per cent gain over 1933 and its value at \$7,790,840 reflects the 25.5 per cent increase in the price per ounce of fine silver over that for the preceding year.

PRICES -- The average monthly price for lead on the London market in 1934 was £10.935 per long ton as compared with £11.670 in 1933. London lead prices have shown almost continuous declines since 1930 in which year the average price of the metal was recorded at £18.077. The average London January price for lead in 1934

was £11.304: the price remained fairly steady until mid-year from which period it declined gradually to an average of £10.316 for December.

Zinc in London averaged £13.657 per long ton in 1934, representing a considerable decrease from the average of £15.666 for the preceding year. In 1930, on the same market, the price was £16.570 which, when compared with 1934, constitutes a 21.3 per cent decrease during the period specified. The average price for the metal in London for January, 1934, was £14.688; the monthly quotations remained fairly constant until June following which an almost continuous decline was recorded to December in which month the average price was £11.730 per long ton.

Silver prices showed a decided improvement in 1934. The average price for the year based on the New York market was 47.973 cents per fine ounce as compared with 34.727 cents in 1933. The metal averaging 44.188 cents in January showed little monthly fluctuations until July when, following the signing, on June 19th, by President Roosevelt, of the Silver Purchase Act, the price rose steadily to 54.390 cents as the average for December. The average price for 1934 was the highest recorded since 1929.

Quotations for white arsenic on the New York market remained, as during recent years, at a nominal price of 4 cents per pound. Cobalt metal and cobalt oxide prices remained unchanged as compared with the previous year.

PRICES (In Canadian Funds) 1929-1934.

| | | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 |
|-------------------|-----|---------|---------|----------|----------|---------|---------|
| | | \$ | \$ | \$ | \$ | \$ | \$ |
| Cobalt (x) | lb. | 2.52 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| Cobalt oxide (x). | lb. | 2.10 | 2.00 | 1.75 | 1.35 | 1.35 | 1.35 |
| Lead (London) ... | lb. | 0.05054 | 0.03927 | 0.027101 | 0.021136 | 0.02391 | 0.02436 |
| Silver (New York) | oz. | 0.52993 | 0.38154 | 0.2987 | 0.31672 | 0.37832 | 0.47461 |
| Zinc (London) ... | lb. | 0.05387 | 0.03600 | 0.02554 | 0.024056 | 0.03210 | 0.03044 |

(x) of a nominal nature.

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 1934 the total silver production of Ontario amounted to 5,321,160 fine ounces of which the cobalt-silver ores contributed 3,067,216 fine ounces. The Ontario Department of Mines reports that a revival of activity has recently been observed in the old Cobalt camp which was so famous for many years as a silver producer. Advancing prices for silver and a keener demand for cobalt ores indicate some measure of prosperity for this old district. During 1934 twelve properties at Cobalt and one at Gowganda made shipments totalling 2,899 tons. The properties, some of which were operated under lease, were as follows: Beaver, Cobalt Properties, Crown Reserve, Drummond lease, Dominion Reduction Co. lease, Foster lease, Hudson Bay lease, Mining Corporation lease, McKinley-Darragh lease, Nipissing, O'Brien and Temiskaming; the Miller Lake O'Brien shipped from Gowganda and in addition to these shippers development work was conducted by the Smith Cobalt Mines Ltd. and Windsor Cobalt Silvers Ltd., both located at Cobalt.

The shipments of ores and concentrate from the Cobalt area in 1934 as reported by the Temiskaming and Northern Ontario Railway were 940.27 tons to Deloro; 210.5 tons to Trail, B.C.; 821.63 tons to the Noranda smelter; and 926.11 tons for export; a total of 2,898.51 tons. In 1933 ore shipments as reported by the railway were only 1,445.09 tons and the increase is proportional to the revival in silver-cobalt mining operations.

PRINCIPAL STATISTICS OF THE SILVER-COBALT MINING INDUSTRY IN CANADA, 1928 - 1934.

| Years | Number of active operators | Number of operating mines | Capital employed | Number of employees | Salaries and wages | Cost of fuel and electricity | Net 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 |

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 |
|-----------------|------|------|------|
| January | 489 | 208 | 234 |
| February | 435 | 203 | 233 |
| March | 370 | 201 | 230 |
| April | 344 | 204 | 219 |
| May | 333 | 204 | 235 |
| June | 343 | 206 | 257 |
| July | 339 | 205 | 262 |
| August | 312 | 228 | 269 |
| September | 281 | 236 | 270 |
| October | 266 | 236 | 308 |
| November | 257 | 233 | 281 |
| December | 237 | 225 | 277 |

STATISTICS OF THE SILVER-COBALT MINES AND MILL OPERATIONS IN CANADA, 1924, 1933 and 1934.

| | 1924 | 1933 | 1934 |
|---|--------------------|-----------|-----------|
| Number of mines in operation (x) | 34 | 14 | 16 |
| Ore mined | 433,176 tons | 60,326 | 54,498 |
| Ore treated | 428,509 tons | 59,304 | 52,337 |
| Concentrates produced | 7,360 tons | 1,063 | 795 |
| Quantity of material cyanided | 168,193 tons | | |
| Bullion recovered | 5,577,875 fine oz. | 11,616(b) | 8,525(b) |
| Bullion sold or shipped | 5,004,992 fine oz. | 39,781(a) | 202,535 |
| Value of bullion, ore, concentrates and residues sold | \$ 3,369,664 | 1,071,602 | 1,380,318 |

(x) All mines located in Northern Ontario.

(a) Base bullion from clean-up.

(b) From direct smelting of nuggets, etc.

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FUEL AND ELECTRICITY USED IN THE SILVER-COBALT MINING INDUSTRY, 1928, 1933 and 1934.

| | 1928 | 1933 | 1934 |
|---|---------|--------|--------|
| | \$ | \$ | \$ |
| Bituminous coal - (a) From Canadian mines | 46 | ... | 79 |
| (b) Imported | 89,500 | 12,445 | 12,261 |
| Anthracite | 12,300 | 4,610 | 2,224 |
| Gasoline (exclusive of that used in motor vehicles) | 944 | 459 | 331 |
| Fuel oil and diesel oil | 12,994 | 1,200 | 671 |
| Wood | 6,252 | 2,472 | 2,717 |
| Electricity purchased including service charges ... | 282,405 | 51,019 | 50,439 |
| Other fuel | 26,242 | 11,360 | 16,963 |
| TOTAL | 430,683 | 83,565 | 85,685 |

PURCHASES OF MINING AND MILLING EQUIPMENT AND GENERAL SUPPLIES BY THE SILVER-COBALT MINES OF CANADA IN 1934. (x)

| | Value f.o.b. plant \$ |
|--|-----------------------------|
| Belting of all kinds, including elevator, conveyor, transmission, etc., and fasteners for same | 526 |
| Bolts, nuts, rivets, studs, washers, coach, set and machine screws, etc. | 181 |
| Castings:- unfinished iron and steel | 265 |
| Unfinished brass castings; brass and copper rods and sheets, babbitt and non-ferrous metals of all kinds | 219 |
| Cars and locomotives and mechanical parts for same | 865 |
| Track materials:- rails and fittings, switches, spikes, bolts, etc. | 793 |
| Explosives:- powder, fuse and detonators | 30,700 |
| Rock drills and parts | 10,147 |
| Drill and tool steels | 4,590 |
| Pipe and fittings, plumbing supplies and valves | 4,928 |
| Iron and steel bars, sheets, plates, and all structural steel | 803 |
| Wire rope and fittings | 916 |
| Diamonds and bort for drilling | 3,673 |
| Safety equipment and apparel:- safety hats, boots, gloves, goggles, respirators, etc.; miners' lamps and accessories and lamp rentals | 226 |
| Fuel:- coal, coke, charcoal and wood | 9,523 |
| Fuel oil, kerosene and gasoline | 5,606 |
| Lubricants:- oil, grease and waste | 2,427 |
| Lumber and timber of all kinds | 6,124 |
| Building materials:- cement, brick, tile, roofing and building paper, insulating material, building hardware, glass, putty, paints, varnishes and brushes, wood screws, nails, screw hooks and eyes, sand, lime, and miscellaneous | 6,622 |
| Electrical equipment and supplies:- motors, batteries, wire and cable, etc. | 2,833 |
| Crushing, grinding and screening machinery and parts: ball and tube mill liners, roll shells, etc. | 1,975 |
| Filter cloth, rotor covers and ore dressing blankets | ... |
| Balls and rods for grinding | 3,410 |
| Machinery, mill, n.o.p. and parts | 3,958 |
| Machinery, mine, n.o.p. and parts: steel shop equipment, hoists, mine pumps, etc. | 4,834 |
| Machinery, smelter, n.o.p. and parts | ... |
| Machinery, miscellaneous, and parts: machine, blacksmith, carpenter shop and general surface equipment | 1,214 |

PURCHASES OF MINING AND MILLING EQUIPMENT AND GENERAL SUPPLIES BY THE SILVER-COBALT
MINES OF CANADA IN 1934 (x) (concluded)

| | Value f.o.b. plant \$ |
|---|-----------------------------|
| Motor cars, trucks and accessories | 2,121 |
| Tools:- brooms, picks, shovels, hammers, handles, saws, wrenches, machinists' tools, etc. | 2,102 |
| Welding and cutting equipment and accessories:- oxygen, acetylene welding, rods, tips, etc. | 197 |
| Rubber goods, suits, boots, hose and accessories, pump valves, launder linings, etc. (not including belts) | 1,686 |
| Flotation reagents | 456 |
| Cyanide and cyanide plant chemicals | 38 |
| Acids and chemicals, n.o.p. | 27 |
| Refractories:- brick, cement, fireclay, etc. | 87 |
| Smelter fluxes:- fluorspar, limestone, quartz, sand, etc. | ... |
| Hospital equipment and medical supplies | 20 |
| Stationery, office equipment and supplies, survey and drafting equipment and supplies | 1,437 |
| Miscellaneous materials, n.o.p. Includes all materials not otherwise provided for in any other item | 83,838 |
| Power - electric | 49,723 |
| Freight - (a) incoming - only amounts paid direct to Railway Company. | 13,924 |
| (b) outgoing | 18,858 |
| Express - (a) incoming - only amounts paid direct to Express Company. | 394 |
| (b) outgoing | 76 |
| Insurance - (a) Fire | 9,782 |
| (b) Sickness and accident | ... |
| (c) Group | 2,745 |
| (d) Workmen's compensation | 6,500 |
| (e) Bullion | ... |
| (f) Other | 758 |
| TOTAL | 302,127 |

NOTE - Does not include data for silver-cobalt smelters.

(x) Preliminary.

ARSENIC - Almost the entire production of primary arsenic in Canada comes from the treatment of cobalt-silver-arsenic ores by the Deloro Smelting and Refining Company, Deloro, Ontario. The element was shipped by this company during 1934 in the form of arsenious oxide or white arsenic. In 1934, for the first time in some years, arsenical gold concentrates were exported from Nova Scotia; these went to European plants for metallurgical treatment. The treatment of arsenical gold ores in the province of Quebec has been investigated but no commercial recovery of arsenic has been thus far reported. Arsenic bearing gold ores were exported for some years from British Columbia by the Hedley Gold Mining Company.

The Chemical Trade Journal, London, comments as follows on the outlet for arsenic: "With world supplies of, and production capacity for arsenic considerably exceeding consumption, research directed specifically to finding new uses for the material is doubtlessly being carried out in various parts of the world. New bulk tonnage possibilities are, however, at the moment not unduly numerous. Fortunately, from the viewpoint of arsenic producers, the arsenates of lime and lead do not look

like being displaced as yet from their position as the leading insecticides of the stomach-poison group, whilst the value which powdered sodium arsenite has been shown to possess, should mean a useful regular outlet for arsenic. In Sweden where the arsenic disposal problem is most acute, research is being directed towards arsenical wood preservatives and to the employment of white arsenic in cements and concretes. The latter-mentioned new use, about which very little of a detailed nature has been published, has the advantage of being one of the few cases in which arsenic may be safely employed for purposes depending upon factors other than its toxicity."

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

| | 1933 | 1934 | 1933 | 1934 |
|--|----------|--------|-----------|--------|
| | Quantity | Value | Quantity | Value |
| | lb. | \$ | lb. | \$ |
| <u>PRODUCTION (x) -</u> | | | | |
| White arsenic and arsenic in other forms | ... | 56,534 | ... | 56,652 |
| TOTAL | ... | 56,534 | ... | 56,652 |
| <u>IMPORTS -</u> | | | | |
| White arsenic (arsenious oxide) | 164,642 | 5,674 | 1,637,382 | 41,688 |
| Sulphide of arsenic | 27,694 | 3,117 | 33,986 | 4,264 |
| Soda, arsenate, biarsenate and stannate of. | 390 | 101 | 638 | 211 |
| Arsenate of lead | 498,673 | 44,256 | 450,748 | 37,788 |
| Arsenate of lime | 287,420 | 17,426 | 165,077 | 9,123 |
| TOTAL | ... | 70,574 | ... | 93,074 |
| <u>EXPORTS - Arsenic - TOTAL</u> | 934,400 | 33,778 | 1,291,900 | 45,012 |

(x) Production in 1933 came entirely from Ontario, also in 1934 with the exception of a small quantity in Nova Scotia.

The consumption of arsenic acid and arsenious acid in the production of insecticides in Canada during 1934 amounted to 2,984,443 pounds valued at \$99,185 as compared with 3,116,401 pounds at \$110,011 in 1933. The consumption of calcium arsenate in the same industry during 1934 totalled 128,273 pounds worth \$7,786 as against 40,879 pounds valued at \$2,522 in 1933.

WORLD PRODUCTION OF ARSENIC, 1932 and 1933.
(Imperial Institute - London)
(Long tons)

| | 1932 | 1933 |
|---|-------|-------|
| <u>BRITISH EMPIRE</u> | | |
| United Kingdom - White arsenic and arsenic soot | 247 | 121 |
| Union of South Africa - White arsenic | 4 | ... |
| Canada (Sales) - White arsenic | 1,082 | 655 |
| Australia - White arsenic | 1,964 | 1,776 |
| <u>FOREIGN COUNTRIES</u> | | |
| Belgium (Exports) - White arsenic | 2,013 | 2,538 |
| Czechoslovakia - Ore (As content) | 1 | 55 |
| France - Ore (As content) | 4,390 | (a) |
| White arsenic | 6,233 | (a) |
| Germany - Ore (As content) | 193 | (a) |
| Greece - White arsenic | 278 | 251 |
| Pyrites (As content) | 227 | (a) |
| Portugal - White arsenic | 10 | 2 |
| Roumania - Pyrites (As content) | 27 | 61 |

WORLD PRODUCTION OF ARSENIC, 1932 and 1933 (concluded)

(Imperial Institute - London)

(Long tons)

| | 1932 | 1933 |
|--|--------|--------|
| <u>FOREIGN COUNTRIES (concluded)</u> | | |
| Sweden - Ore (As content) | 19,719 | 37,839 |
| White arsenic | ... | 847 |
| Mexico - White arsenic | 3,707 | 4,623 |
| United States - White arsenic | 11,343 | 9,509 |
| Brazil - White arsenic | (a) | (a) |
| China (estimated) - Ore (As content) | 470 | 400 |
| Japan - White arsenic | 2,596 | 2,338 |
| Korea - White arsenic | (a) | 150 |
| Turkey - Ore (As content) | 3 | 750 |

NOTE - About 5,000 tons of ore were recorded as produced in U.S.S.R. (Russia) during 1927 - later figures are not available.

White arsenic is produced in Germany.

(a) - Information not available.

COBALT - For many years following the discovery in 1903 of cobalt ores in Northern Ontario, the greater part of the world's supply of cobalt was derived from Ontario mines. During recent years Canada's production of the metal has decreased sharply as compared to the totals of earlier years. This resulted largely from depletion of ore reserves and in addition the Canadian produced metal has encountered keen competition from the recently developed cobaltiferous ores of Central Africa.

There is at present only one metallurgical works in Canada treating cobalt ores; this is the plant of the Deloro Smelting and Refining Company, Ltd., located at Deloro, Ontario. This company conducted continuous operations throughout 1934 producing cobalt metal, cobalt salts, and cobalt oxide.

"Cobalt has shown very substantial progress in the last two or three years, and the production is in excess of 1929, which is still the high-level year for most mine products. The chief use of cobalt was formerly in the ceramic business, and there is now a possibility of an important development as a drier in paint. In metallurgy there has been a large advance in the use of stellite (tungsten-cobalt-chromium alloy) of which cobalt is an ingredient. It is also employed in the production of ferro-magnetic alloys, but its uses in this respect fluctuate with progress of experimental research. The world production at the present time is probably of the order of 1,400 tons as compared with, say, 1,200 tons of the element in 1929. Detailed figures, however, are impossible to obtain. Sales are controlled by an association of producers, the metal being generally recovered as a by-product, principally from silver and copper ores. With the extension of uses and the consequent expansion of production it has been possible to reduce prices from 7s. or 8s. per pound in 1933 to 4s. 6d. and the policy of producers is to encourage experiments in the uses of the metal in every possible way. The leading producers today are Katanga, Del Oro, Rhokana and certain French interests in Morocco, which latter at present ship their product in the form of picked ore, while the older producers turn out a ferro-alloy. Quite recently a combine has been formed in Germany, where production is derived from a number of small producers, of which the Burma Corporation

appears to be the largest, and this group forms a fifth element in the association... the cobalt in the ore on the Mindola section (Rhodesia) of Rhokana is significant; according to a recent statement by Sir Edmund Davis, for the fourteen months to the end of August, 1934, the by-product cobalt recovered was 1,217,925 pounds valued at £318,310 13s. Od." (The Mining Journal, London).

The Union Miniere du Haut Katanga states in its annual report for 1934 that the cobalt market has developed substantially, the tonnage of sales being heavier than for any previous year.

PRODUCTION OF COBALT IN CANADA, 1925 - 1934.

| Years | Pounds | Years | Pounds |
|------------|-----------|------------|---------|
| 1925 | 1,116,492 | 1930 | 694,163 |
| 1926 | 664,778 | 1931 | 521,051 |
| 1927 | 880,590 | 1932 | 490,631 |
| 1928 | 956,590 | 1933 | 466,702 |
| 1929 | 929,415 | 1934 | 594,671 |

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

| | 1 | 9 | 3 | 3 | 1 | 9 | 3 | 4 |
|---|----------|---------|---------|---------|----------|---|----|---|
| | Quantity | | \$ | | Quantity | | \$ | |
| PRODUCTION (in terms of metallic cobalt contained in metal and oxides sold and in ores and residues exported) | pounds | 466,702 | 597,732 | 594,671 | 592,487 | | | |
| IMPORTS - | | | | | | | | |
| Cobalt ore | pounds | ... | ... | 600 | 10 | | | |
| Oxide of cobalt | pounds | 764 | 601 | 362 | 261 | | | |
| EXPORTS - | | | | | | | | |
| Cobalt, contained in ore | cwt. | 537 | 19,147 | 2,195 | 84,911 | | | |
| Cobalt, metallic | pounds | 48,168 | 49,516 | 38,595 | 43,516 | | | |
| Cobalt alloys | pounds | 27,347 | 53,941 | 31,343 | 50,027 | | | |
| Cobalt oxide and cobalt salts | pounds | 467,012 | 429,848 | 479,876 | 455,807 | | | |

WORLD PRODUCTION OF COBALT, 1931 - 1933.

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

(Cwt.)

| Producing Country | 1 9 3 1 | 1 9 3 2 | 1 9 3 3 |
|-------------------------|---------|---------|---------|
| BRITISH EMPIRE | | | |
| Northern Rhodesia | ... | ... | 2,330 |
| Canada (a) | 4,882 | 4,381 | 4,167 |
| India (b) | 2,000 | 2,500 | 2,500 |
| Australia (metal) | ... | 60 | 125 |

WORLD PRODUCTION OF COBALT, 1931 - 1933 (concluded)

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

(Cwt.)

| Producing Country | 1931 | 1932 | 1933 |
|----------------------------|-------|--------|--------|
| <u>FOREIGN COUNTRIES</u> | | | |
| Belgian Congo (d) | 7,280 | 6,590 | 12,160 |
| French Morocco (ore) | ... | 11,220 | 12,000 |
| United States (e) | ... | ... | 11 |

Note:- Complex ores containing cobalt are also found in Germany and China, but cobalt content is 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 ores raised in the Belgian Congo.

(e) Recovered at an electrolytic zinc plant.

DIRECTORY

OPERATORS IN THE CANADIAN SILVER-COBALT MINING INDUSTRY, 1934.

| <u>Name</u> | <u>Head Office Address</u> | <u>Mine Location(a)</u> |
|------------------------------------|-------------------------------------|-------------------------|
| Beaver Mine | 10 Silver St., Cobalt, Ont. | Cobalt |
| Cobalt Properties Ltd. | Box 929, Cobalt, Ont. | Cobalt |
| (x) Cobnor Silver Mines Ltd. | North Cobalt, Ont. | Cobalt |
| Daniell, E.O. (McKinley Darragh) | Kirkland Lake, Ont. | Cobalt |
| Hudson Bay Mines Ltd. | New Liskeard, Ont. | Cobalt |
| Martin, Geo. (Crown Reserve) | Box 659, Cobalt, Ont. | Cobalt |
| McKinley Mines Securities Ltd. | 80 King St. W., Toronto, Ont. | Cobalt |
| Mining Corporation of Canada, Ltd. | 350 Bay Street, Toronto, Ont. | Cobalt |
| Nipissing Mining Co. Ltd. | Excelsior Life Bldg., Toronto, Ont. | Cobalt |
| O'Brien, M.J., Ltd. | Victoria Bldg., Ottawa, Ont. | Cobalt and Gowganda |
| Peterson Cobalt Mines Ltd. | 301 Royal Bank Bldg., Toronto, Ont. | Cobalt |
| Price, C. W. (Foster) | Box 388, Cobalt, Ont. | Cobalt |
| Sandoe & Moyle | Box 362, Cobalt, Ont. | Cobalt |
| (x) Smith Cobalt Mines Ltd. | Cobalt, Ont. | Cobalt |
| (x) Windsor Cobalt Silvers Ltd. | 213 - 414 Bay St., Toronto, Ont. | Cobalt |
| Wood, A. (Dominion Reduction Co.) | Cobalt, Ont. | Cobalt |

(x) Active but not producing.

(a) All properties located in Ontario.

THE SILVER-LEAD-ZINC MINING INDUSTRY.

The shipment of silver-lead-zinc ores in Canada during 1934 was confined to British Columbia and the Yukon. Ores of this type occur at several places in Eastern Canada and have been mined on a commercial scale at Sterling, Cape Breton Island; Notre Dame des Anges, Quebec; and at Galetta, Sudbury and in Frontenac and Hastings Counties in Ontario. Silver-pitchblende ores are now being mined in the Northwest Territories, general statistics pertaining to which are included with those for the silver-lead-zinc mining industry.

QUEBEC - No shipments of lead-zinc ores or concentrates were made from Quebec mines in 1934. However, considerable development and exploratory work was conducted on deposits located in Lemieux township, Gaspé County, and at Montauban les Mines.

BRITISH COLUMBIA - The British Columbia Department of Mines' annual report for 1934 contains the following information relating to silver-lead-zinc mining operations "During the period under review the Trail plants of the Consolidated Mining and Smelting Company were operated on the largest scale in their history. Lead and zinc production established an all-time high volume record, with an accompanying large increase in silver. This is due primarily to the greater output of the Sullivan mine at Kimberley to meet the requirements of the smelter. The Monarch mine of the Base Metals Mining Corporation at Field contributed substantially to the production of these metals, lead and zinc concentrates having gone forward regularly to European smelters. Customs shipments to the Trail smelter, chiefly gold ores and concentrates, show a substantial increase, with contributions from thirty-four properties in the Nelson division, twenty-eight in the Slocan camp (including portions of the Ainsworth and Slocan City divisions), eleven in the Trail Creek division (exclusive of the large output made by lessees at the Rossland mines of the Consolidated Mining and Smelting Company), and three in the Lardeau, Arrow Lake and Fort Steele divisions. The Slocan camp shipments, with few exceptions where the ores contained gold, consisted of silver-lead-zinc ore and concentrates chiefly derived from leasing operations ... It is worthy of note that in the peak years of silver production in the Slocan the value of lead produced was not far below that of silver. Under existing conditions, little or nothing can be obtained for the lead content of these ores, so that for the immediate future production will have to be estimated on the silver content only. Even under such conditions an appreciable increase in silver production may be anticipated the volume of lead production is likely to remain about the same. The present price of the metal is low beyond reason, and while the price of 1925 may never again be reached, a reasonable appreciation in value should be attained within the next few years... while it is anticipated that the volume of zinc will be maintained, due to a demand for electrolytic zinc, and the position which the British Columbia metal has won in world markets in spite of keen competition, it is not anticipated that any appreciable increase in the price of the metal will be realized."

The total production of the Sullivan mine in 1934 amounted to 1,748,401 tons, comprising 1,745,992 tons of lead-zinc ore, shipped to the concentrator at Kimberley and 2,409 tons of crude lead ore to the smelter at Tadanac, an increase of 335,023 tons over the shipments of the previous year. The concentrator treated 1,745,992 tons and produced 241,680 tons of lead concentrates and 192,552 tons of zinc concentrates. The average feed to the ball mills contained .5 ozs. per ton more silver, 9 lbs. more lead and 5.2 lbs. less zinc than in the previous year. The Consolidated Mining and Smelting Company reports that consumption in Canada was higher than for several years past and sales in the United Kingdom - our largest market - reached record volume in both lead and zinc. However, foreign production, being in excess of foreign demand, has precipitated distress selling by foreigners in the British market and an effort is

row being made to have "world prices" interpreted in the spirit of the Ottawa agreements.

Following is the metal production and tonnage treated at Kimberley and Trail plants together, from 1894 to date, and for 1934:-

| | 1894 to 1934 (inclusive) | 1934 |
|-------------------------------|-----------------------------|-------------|
| Tons ore treated | 24,463,646 | 1,792,298 |
| Gold produced ounces | 2,381,581 | 35,328 |
| Silver produced ounces | 113,951,029 | 7,316,231 |
| Lead produced pounds | 3,797,121,176 | 315,346,312 |
| Copper produced pounds | 184,673,769 | 1,567,078 |
| Zinc produced pounds | 2,020,575,232 | 221,955,701 |
| Cadmium produced pounds | 2,650,668 | 293,611 |
| Bismuth produced pounds | 576,871 | 246,092 |

The company announced that the further downward extension of the Sullivan mine orebody was confirmed by diamond drilling from the 3,350 and 3,200 stations and indicated as maintaining average width and satisfactory grade.

The Monarch mine of Base Metals Mining Corporation, Ltd., was operated at full mill capacity during 1934, except for a short delay in February to push forward the production drift. Another temporary closedown for the same reason was made in February, 1935. Advantage is being taken of this temporary closedown to get all under way with an extensive development programme which has been in contemplation for some time past. This company milled in 1934 94,880.4 dry tons of ore assaying 2.02 ounces of silver, 10.9 per cent lead and 14.7 per cent zinc. The costs of milling, including all overhead, office, insurance and contingencies were equivalent to \$1.16 per ton milled.

NORTH WEST TERRITORIES - In April, 1934, it was officially announced that the concentrator of Eldorado Gold Mines located at Great Bear Lake would be increased to 75 tons per day. It was stated that on the 125 foot level of the company's mine, 393 feet of drifting, up to the end of May, 1935, had exposed two important orebodies. West of the shaft 210 feet of ore was exposed and east of the shaft 145 feet of ore. Both exposures compare in width and grade with that on the adit level. On the 250 foot level, up to May 31, 1935, 175 feet of drifting had been completed, the last 50 feet of which, it is reported, disclosed an important silver and pitchblende deposit. In 1934 the Port Hope Radium Refining plant of the company received from the Great Bear Lake mine 77 tons of pitchblende and silver ore and 7 tons of silver concentrates. It was announced in the press that twenty-six tons of ore were treated during the year with a recovery of radium, uranium, silver and lead amounting to \$210,000.

Consolidated Mining and Smelting Company of Canada, Ltd., reports that underground development was continued on its Echo Bay group, with somewhat favourable results. The main crosscut intersected a vein, not previously located on the surface, but parallel in strike to number two vein, which carried fair values in silver for 85 feet, with some sections of high grade composed of leaves, wires and plates of silver. No pitchblende ore was encountered and no shipments of silver ore made. Other important mining operations in this territory included those of Bear Exploration and Radium Ltd., Great Bear Lake Mines, Ltd., and White Eagle Silver Mines, Ltd.

YUKON - The Comptroller of the Yukon Territory reports that during the fiscal year ending March 31, 1935, the Treadwell Yukon Company, Ltd., carried on mining operations during the early part of the year on the "Silver King" claim. There were 2,985 tons of ore produced from which 1,610 tons of shipping ore was sorted. The number of tons of ore shipped during the year was 2,242 of which 632 tons were produced during 1933. The metal content of ore shipped was 506,058 ounces of silver, 1,832,117 pounds of lead, and the market value was \$326,621. In addition, 177 tons of ore were shipped by this company for individual operators, the metal content of which was 72,967 ounces silver, 108,660 pounds of lead, and the market value, \$46,367. This company plans to dismantle its mill at Wernecke and move it to one of their properties on Galena Hill during the summer of 1935. Considerable development work was also carried out on the "Bunny" and "Highlander" claims on Keno Hill; this was conducted by the York Investment Company of Vancouver.

It is anticipated that there will be renewed activity in silver mining generally throughout the Mayo district during the coming year.

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

| Years | Number of active operators | Number of operating plants or mines | Capital employed | Number of employees | Salaries and wages | Cost of fuel and electricity | Net 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 | 793,159 | 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 | 1,074 | 1,695,510 | 260,621 | 7,569,867 |
| 1934 .. | 58(a) | 60(a) | 12,923,627 | 1,292 | 1,935,284 | 389,276 | 8,855,081 |

(x) Since 1931 includes data relating to silver mining in the North West Territories.

() In 1934 includes a number of small shippers from whom no particulars were received relating to capital, wages, etc.

AGE-EARNINGS, BY MONTHS, IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1932, 1933 and 1934.

| Month | 1932 | 1933 | 1934 |
|-----------------|-------|-------|-------|
| January | 1,012 | 832 | 1,021 |
| February | 1,016 | 820 | 1,012 |
| March | 1,031 | 830 | 1,069 |
| April | 1,019 | 797 | 1,091 |
| May | 1,003 | 795 | 1,119 |
| June | 980 | 839 | 1,128 |
| July | 973 | 853 | 1,147 |
| August | 973 | 942 | 1,186 |
| September | 966 | 976 | 1,237 |
| October | 919 | 1,007 | 1,270 |
| November | 905 | 1,017 | 1,266 |
| December | 886 | 944 | 1,322 |

FUEL AND ELECTRICITY USED IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1933 and 1934.

| | 1 | 9 | 3 | 3 | 1 | 9 | 3 | 4 |
|---|------------|---|---------|----|------------|---|---------|----|
| | Quantity | | Value | | Quantity | | Value | |
| | | | | \$ | | | | \$ |
| Bituminous coal - Canadian .. short ton | 16,921 | | 71,229 | | 27,629 | | 115,669 | |
| Imported .. short ton | 4 | | 98 | | 31 | | 986 | |
| Coke short ton | ... | | ... | | 8 | | 66 | |
| Gasoline (exclusive of that used in motor cars) Imp. gal. | 9,726 | | 3,231 | | 21,544 | | 20,299 | |
| Kerosene Imp. gal. | 348 | | 102 | | 238 | | 125 | |
| Fuel oil and diesel oil Imp. gal. | 167,547 | | 21,837 | | 382,123 | | 58,167 | |
| Wood (cords of 128 cu.ft.)... cords | 60 | | 263 | | 762 | | 7,408 | |
| Electricity purchased including service charges K.W.H. | 39,040,970 | | 163,861 | | 37,600,307 | | 185,606 | |
| Other xxx | ... | | ... | | ... | | 950 | |
| TOTAL xxx | ... | | 260,621 | | ... | | 389,276 | |

PURCHASES OF MINING AND MILLING EQUIPMENT AND GENERAL SUPPLIES BY THE SILVER-LEAD-ZINC MINES IN CANADA, 1934 (x)

| | Value f.o.b. plant |
|--|-----------------------|
| | \$ |
| Belting of all kinds, including elevator, conveyor, transmission, etc., and fasteners for same | 5,863 |
| Bolts, nuts, rivets, studs, washers, coach, set and machine screws, etc. | 4,792 |
| Castings:- unfinished iron and steel | 587 |
| Unfinished brass castings; brass and copper rods and sheets, babbitt and non-ferrous metals of all kinds | 1,054 |
| Cars and locomotives and mechanical parts for same | 8,752 |
| Track materials:- rails and fittings, switches, spikes, bolts, etc. | 6,352 |
| Explosives:- powder, fuse and detonators | 146,402 |
| Rock drills and parts | 39,908 |
| Drill and tool steels | 10,468 |
| Pipe and fittings, plumbing supplies and valves | 15,431 |
| Iron and steel bars, sheets, plates, and all structural steel | 22,663 |
| Wire rope and fittings | 7,212 |
| Diamonds and bort for drilling..... | 727 |
| Safety equipment and apparel:- safety hats, boots, gloves, goggles, respirators, etc.,; miners' lamps and accessories and lamp rentals ... | 5,007 |
| Fuel:- coal, coke, charcoal and wood | 133,822 |
| Fuel oil, kerosene and gasoline | 42,810 |
| Lubricants:- oil, grease and waste | 17,022 |
| Lumber and timber of all kinds | 27,522 |
| Building materials:- cement, brick, tile, roofing and building paper, insulating material, building hardware, glass, putty, paints, varnishes and brushes, wood screws, nails, screw hooks and eyes, sand, lime, and miscellaneous | 21,920 |
| Electrical equipment and supplies:- motors, batteries, wire and cable, etc. | 30,702 |
| Crushing, grinding and screening machinery and parts: ball and tube mill liners, roll shells, etc. | 32,028 |
| Filter cloth, rotor covers and ore dressing blankets | 1,187 |
| Balls and rods for grinding | 4,423 |
| Machinery, mill, n.o.p. and parts | 14,299 |
| Machinery, mine, n.o.p. and parts:- steel shop equipment, hoists, mine pumps, etc. | 17,300 |

PURCHASES OF MINING AND MILLING EQUIPMENT AND GENERAL SUPPLIES BY THE SILVER-LEAD-ZINC MINES IN CANADA, 1934(x) (concluded)

| | Value f.o.b. plant |
|--|-----------------------|
| Machinery, smelter, n.o.p. and parts | ... |
| Machinery, miscellaneous, and parts: machine, blacksmith, carpenter shop and general surface equipment | 11,949 |
| Motor cars, trucks and accessories | 11,327 |
| Tools:- brooms, picks, shovels, hammers, handles, saws, wrenches, machinists' tools, etc. | 10,987 |
| Welding and cutting equipment and accessories: oxygen, acetylene welding, rods, tips, etc. | 4,789 |
| Rubber goods, suits, boots, hose and accessories, pump valves, launder linings, etc., (not including belts) | 4,835 |
| Floation reagents | 187,961 |
| Cyanide and cyanide plant chemicals | 6,546 |
| Acids and chemicals, n.o.p. | 11,039 |
| Refractories:- brick, cement, fireclay, etc. | 3,929 |
| Smelter fluxes:- fluorspar, limestone, quartz, sand, etc. | 46 |
| Hospital equipment and medical supplies | 565 |
| Stationery, office equipment and supplies, survey and drafting equipment and supplies | 7,791 |
| Miscellaneous materials, n.o.p. Includes all materials not otherwise provided for in any other item | 31,514 |
| Power - electric | 148,375 |
| Freight (a) incoming - only amounts paid direct to Railway Company | 158,629 |
| (b) outgoing | 362,482 |
| Express (a) incoming - only amounts paid direct to Express Company ... | 2,755 |
| (b) outgoing | 194 |
| Insurance (a) Fire | 5,362 |
| (b) Sickness and accident | 190 |
| (c) Group | 23,880 |
| (d) Workmen's compensation | 19,497 |
| (e) Bullion | ... |
| (f) Other | 2,132 |
| TOTAL - CANADA | 1,635,027 |

(x) Preliminary

ORE MINED AND MILLED IN THE SILVER-LEAD-ZINC MINING INDUSTRY IN CANADA, 1933 and 1934.

| | Yukon and North West Territories | British Columbia | CANADA |
|--|-------------------------------------|---------------------|-----------|
| <u>1933</u> | | | |
| Ore mined | 4,909 tons | 1,451,078 | 1,455,987 |
| Ore milled | ... tons | 1,435,357 | 1,435,357 |
| Concentrates produced - Lead | ... tons | 178,379 | 178,379 |
| Zinc | ... tons | 182,142 | 182,142 |
| Others (data not available) |xxx | ... | ... |
| <u>1934</u> | | | |
| Ore mined | 2,988 tons | 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 |

Totals for Canada in 1934 include 2,788 tons mined and 2,742 tons milled in Quebec but concentrates not shipped.

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

Note -Data relating to purchases by silver-lead-zinc smelters not included as these are compiled under non-ferrous smelting and refining.

DESTINATION OF SHIPMENTS FROM SILVER-LEAD-ZINC MINES OF CANADA, 1933 and 1934.

| Products shipped | Tons Shipped | Net value | Total metal content as determined by | | | |
|------------------------|-----------------|-------------------|--------------------------------------|--------------------|-------------|-------------|
| | | at | settlement assay: | | | |
| | | Shipping Point | Gold fine oz. | Silver fine oz. | Lead lb. | Zinc lb. |
| \$ | | | | | | |
| <u>1933</u> | | | | | | |
| To Canadian smelters - | | | | | | |
| Lead ore | 17,315 | 351,754 | 2,563 | 747,107 | 8,960,712 | 1,561,005 |
| Lead concentrates ... | 172,882 | 4,598,533 | 4,749 | 4,312,318 | 245,193,821 | 14,803,258 |
| Zinc ore | ... | ... | ... | ... | ... | ... |
| Zinc concentrates(x) . | 175,240 | 1,767,130 | 2 | 344,193 | 11,969,713 | 179,473,005 |
| Dry ore (a) | 596 | 23,207 | 183 | 54,457 | 23,787 | ... |
| Total | 366,033 | 6,740,624 | 7,497 | 5,458,075 | 266,148,033 | 195,837,268 |
| To Foreign Smelters - | | | | | | |
| Lead ore | 2,619 | 371,363 | 253 | 1,273,199 | 1,764,243 | ... |
| Lead concentrates ... | 7,274 | 411,563 | 67 | 1,018,241 | 10,580,155 | ... |
| Zinc ore | ... | ... | ... | ... | ... | ... |
| Zinc concentrates (x) | 6,966 | 46,317 | ... | ... | ... | 8,408,405 |
| Dry ore | ... | ... | ... | ... | ... | ... |
| Total | 16,859 | 829,243 | 320 | 2,291,440 | 12,344,398 | 8,408,405 |
| <u>1934</u> | | | | | | |
| 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 |
| 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 |

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

(a) Includes shipments of silver ores and pitchblende from North West Territories.

Information relating to radium content of pitchblende is not available for publication.

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 Mining Journal, London, comments on the silver situation as follows:- "One effect which deserves to be noted is that by nationalizing silver and putting a 50 per cent tax on all speculative transactions, the New York market has been entirely destroyed. The first development was the establishment of a silver exchange in Montreal, but as a result of the large amount of silver dealing which took place in London, a silver market was opened here (London) on the 1st of May, and with peculiar advantages which London offers as a centre for dealing in all the metals, it is probable that the open market which existed here up to 1913 may now become the recognized international centre for the silver trade." It is interesting to note that the London Metal Exchange has now adopted a "fine price" as the basis of its silver quotations, formerly the exchange quoted the price per troy ounce of standard silver based on the old standard of English coins (925 per mille).

The opinion of "Handy and Harman" New York, is that "the silver market will show great steadiness so long as the United States remains a buyer, and prices should tend to advance. It is impossible, however, to predict with accuracy the future price level, since this depends largely upon the volume and rate of United States Treasury Department purchases."

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 between 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). On July 24, 1935, the Bank of Canada reported in its weekly statement silver bullion held as \$1,211,642.30.

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.

PRODUCTION OF SILVER IN CANADA, BY PROVINCES AND BY SOURCES, 1933 and 1934.

| | 1933 | | 1934 | |
|---|------------|-----------|------------|-----------|
| | Quantity | Value | Quantity | Value |
| | fine oz. | \$ | fine oz. | \$ |
| <u>NOVA SCOTIA -</u> | | | | |
| In gold bullion - TOTAL | 104 | 39 | 321 | 152 |
| <u>QUEBEC -</u> | | | | |
| In gold ores, in blister copper, and in copper ores exported - TOTAL .. | 471,419 | 178,351 | 470,254 | 223,187 |
| <u>ONTARIO -</u> | | | | |
| In silver bullion and nuggets | 2,762,748 | 1,045,225 | 2,681,104 | 1,272,476 |
| In gold bullion | 404,744 | 153,126 | 418,528 | 198,637 |
| In blister copper produced; and in ores, concentrates, residues and matte exported or treated in smelters outside the province | 1,368,188 | 517,624 | 2,221,528 | 1,054,357 |
| TOTAL | 4,535,680 | 1,715,975 | 5,321,160 | 2,525,470 |
| <u>MANITOBA -</u> | | | | |
| In gold bullion and in blister copper - TOTAL | 1,101,578 | 416,758 | 1,252,920 | 594,647 |
| <u>SASKATCHEWAN -</u> | | | | |
| In ores shipped to Canadian smelters - TOTAL | 114,604 | 43,358 | 87,551 | 41,552 |
| <u>ALBERTA -</u> | | | | |
| In alluvial gold - TOTAL | 32 | 12 | 35 | 17 |
| <u>BRITISH COLUMBIA -</u> | | | | |
| In alluvial gold | 4,307 | 1,629 | 4,533 | 2,152 |
| In gold bullion | 26,579 | 10,056 | 44,707 | 21,278 |
| In blister copper | 346,120 | 130,947 | 344,425 | 163,467 |
| In base bullion and in ores exported | 6,360,051 | 2,406,185 | 8,336,056 | 3,956,367 |
| TOTAL | 6,737,057 | 2,548,817 | 8,729,721 | 4,143,204 |
| <u>YUKON AND NORTH WEST TERRITORIES -</u> | | | | |
| In alluvial gold | 8,814 | 3,335 | 8,708 | 4,132 |
| In ores exported or shipped to Canadian smelters | 2,218,662 | 839,382 | 544,612 | 258,478 |
| TOTAL | 2,227,476 | 842,717 | 553,320 | 262,610 |
| <u>CANADA</u> | 15,187,950 | 5,746,027 | 16,415,282 | 7,790,840 |

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 1933 the corresponding price was 37.8328 cents.

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(x) | 72.69 |
| 1885 | 19.41 | 1920 | 20.28 | | |

(x) Estimated on averages in Canadian funds.

IMPORTS INTO CANADA AND EXPORTS OF SILVER, 1933 and 1934.

| | 1 | 9 | 3 | 3 | | 1 | 9 | 3 | 4 |
|--|------------|---|-----------|---|--|------------|---|-----------|---|
| | Quantity | | Value | | | Quantity | | Value | |
| | Fine oz. | | \$ | | | Fine oz. | | \$ | |
| IMPORTS - | | | | | | | | | |
| Silver in bars, etc., unmanufactured ... | ... | | 675,732 | | | ... | | 2,193,201 | |
| Silver, manufactures of, n.o.p., and articles consisting wholly or in part of sterling or other silverware | ... | | 73,666 | | | ... | | 67,425 | |
| Silver and other coin except gold | ... | | 12 | | | ... | | ... | |
| TOTAL | ... | | 749,410 | | | ... | | 2,260,626 | |
| EXPORTS - | | | | | | | | | |
| Silver contained in ore, concentrates, etc. | 3,362,354 | | 1,093,464 | | | 1,745,152 | | 714,444 | |
| Silver bullion | 10,738,729 | | 3,759,387 | | | 10,664,182 | | 4,933,690 | |
| TOTAL | 14,101,083 | | 4,852,851 | | | 12,409,334 | | 5,648,134 | |
| Silver coin, Foreign | ... | | 275,007 | | | ... | | 615,665 | |
| Silver coin, Canadian | ... | | 62,943 | | | ... | | 30,250 | |

The approximate value of silver consumed in Canada during 1933 in the manufacture of jewellery, silver nitrate, kodak film, etc., amounted to \$434,000. In 1934 the corresponding value was \$692,466.

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 |

(x) Year of maximum output.

(a) Highest price per ounce recorded since 1887.

From 1887 to 1934 inclusive the silver production in Canada amounted to 680,351,369 fine ounces valued at \$406,298,812.

SOURCE OF CANADIAN SILVER PRODUCTION BY PERCENTAGES, 1932, 1933 and 1934.

| | 1932 | 1933 | 1934 |
|--|-------|-------|-------|
| In silver-cobalt ores | 28.5 | 20.4 | 18.7 |
| (x) In base bullion | 29.2 | 34.6 | 45.1 |
| In gold ores (bullion and placer) | 2.5 | 3.0 | 7.2 |
| In blister copper | 15.5 | 19.5 | 23.4 |
| In matte, copper ores and silver-lead ores exported, etc. | 2.3 | 22.5 | 5.6 |
| | 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 Pounds | Silver ONTARIO (z) Fine oz. | Total Lead Production CANADA Pounds | Total Silver Production CANADA 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 | 3,268,462 | 346,275,576 | 16,415,282 |

(z) Shipments from silver camps as recorded by Ontario Department of Mines -
Total output from these fields 424,848,149 ounces - 1904 - 1934 inclusive.

(x) First production.

(a) Year of maximum production.

WORLD SILVER CONSUMPTION, PRODUCTION AND OTHER SUPPLIES(x), 1933 - 1934.
(In millions of fine ounces)

| CONSUMPTION | 1933 | 1934 | PRODUCTION AND SUPPLIES | 1933 | 1934 |
|-------------------------------|------|-------|----------------------------|-------|-------|
| U.S. Government Acquisitions: | | | Production: | | |
| Domestic production | ... | 21.4 | United States | 21. | 25.5 |
| Nationalized stocks | ... | 111. | Mexico | 69.1 | 75. |
| Open market purchases | 1. | 185. | Canada | 15.4 | 16.3 |
| War debt payments | 22.7 | ... | South America | 13.6 | 16. |
| | 23.7 | 317.4 | All other countries | 45. | 48.4 |
| | | | Total Production | 164.1 | 181.2 |

WORLD SILVER CONSUMPTION, PRODUCTION AND OTHER SUPPLIES(x), 1933 and 1934 (concluded)
(in millions of fine ounces)

| CONSUMPTION | 1933 | 1934 | PRODUCTION AND SUPPLIES | 1933 | 1934 |
|-----------------------------|-------|---------|----------------------------|-------|-------|
| Other Government Purchases: | | | Other Supplies: | | |
| Mexico | 16.0 | 7.2 | Sales by China, excess | | |
| Canada | .. | 1.7 | of exports over | | |
| Peru | .. | 1.1 | imports | 10.9 | 200. |
| Australia | .. | .6 | Sales by Indian | | |
| Coinage: | | | Government: | | |
| Hongkong | .. | 9.0 | a/c British war debt. | 20.0 | .. |
| Cuba | .. | 7.8 | In London | 27.1 | 30.0 |
| Colombia | .. | 3.6 | | | |
| Belgium | 7.0 | .. | Sales by Russia | 45.8 | 25. |
| Turkey | 4.5 | .. | | | |
| Other countries | .. | .6 | | | |
| Indian Consumption | 10. | 15.0 | | | |
| German Consumption | 14.5 | 12.4 | | | |
| Arts and Industries: | | | | | |
| In the United States and | | | | | |
| Canada | 24. | 25. | | | |
| In England | 8. | 13. | | | |
| Unaccounted for | 160.2 | 21.8(a) | | | |
| TOTAL | 267.9 | 436.2 | | 267.9 | 436.2 |

(x) Supplied by Handy & Harman.

(a) "In assembling the above estimates covering 1934 world supply and demand we arrive at a total of 436,200,000 ounces for the former classification and 414,400,000 ounces for the latter, which leaves a balance of excess supplies amounting to 21,800,000 ounces, and this figure we have listed under the heading "unaccounted for." It must not be inferred, however, that these 21,800,000 ounces represent the entire floating supply of silver now available, even though the huge speculative holdings which existed in New York at the beginning of 1934 have been absorbed by the United States Government. Speculators have transferred their operations to London, and a large long position has been built up in that market, consisting of both future commitments and the actual metal. Naturally it is difficult to secure accurate information on this subject, but estimates from abroad set the figure as high as 150,000,000 ounces. Stocks in Bombay increased during the year from 10,000,000 ounces to about 15,000,000 ounces, and the present volume of trading on the Montreal Commodity Exchange necessitates a supply there of at least 3,000,000 ounces. In addition to holdings of China banks and the Indian Government covered by published figures, another potential source, unpredictable as to the amount, is the metal hoarded in the interior of the Far East."

SILVER PRODUCTION OF THE WORLD, 1930, 1933 and 1934.
(Supplied by American Bureau of Metal Statistics)

(in fine ounces)

| | 1930 | 1933 | 1934 |
|------------------------------------|-------------|-------------|--------------|
| NORTH AMERICA: | | | |
| United States | 50,234,000 | 20,955,000 | 26,441,000 |
| Canada | 26,443,823 | 15,187,950 | 16,441,361 |
| Mexico | 105,204,000 | 68,101,062 | 74,142,000 |
| Newfoundland | 596,500 | 1,208,280 | 1,000,000 |
| Total North America | 182,478,323 | 105,452,292 | 118,024,361 |
| Central America and West Indies .. | 3,900,000 | 4,800,000 | 4,000,000(x) |
| SOUTH AMERICA: | | | |
| Bolivia | 7,091,100 | 5,469,069 | 5,600,000 |
| Chile | 760,444 | 256,621 | 1,053,000 |
| Colombia | 60,000 | 107,992 | 124,000 |
| Ecuador | 106,127 | 113,200 | 115,000 |
| Peru | 15,389,048 | 6,760,534 | 9,000,000 |
| Other countries | 46,679 | 86,000 | 90,000(x) |
| Total South America | 23,453,398 | 12,793,416 | 15,982,000 |
| Europe: | | | |
| France | 652,000 | 500,000(x) | 500,000(x) |
| Czechoslovakia | 892,709 | 916,179 | 971,338 |
| Great Britain | 40,955 | 37,553 | 40,000(x) |
| Germany (b) | 5,485,433 | 6,320,690 | 5,626,250 |
| Greece | 353,400 | 250,000 | 255,000 |
| Italy | 631,169 | 515,011 | 932,350 |
| Norway | 340,790 | 240,482 | 250,000(x) |
| Poland | 561,178 | 41,377 | 27,520 |
| Rumania | 142,039 | 353,489 | 350,000(x) |
| Russia | 1,023,000 | 981,000 | 1,322,000 |
| Jugoslavia | 460,000 | 1,624,000 | 1,748,000 |
| Spain and Portugal | 2,819,169 | 2,929,508 | 1,850,000 |
| Sweden | 191,260 | 928,203 | 975,000 |
| Other Europe | 10,200 | 54,600 | 55,000(x) |
| Total Europe | 13,603,302 | 15,692,092 | 14,902,458 |
| OCEANIA: | | | |
| New South Wales | 8,721,042 | 8,221,271 | 8,800,000 |
| Queensland | 69,808 | 2,248,804 | 2,250,717 |
| Tasmania | 711,619 | 489,330 | 284,687 |
| Other states | 68,306 | 162,500 | 180,000(x) |
| New Zealand | 518,864 | 430,492 | 385,000(x) |
| Total Oceania | 10,089,639 | 11,552,397 | 11,900,404 |
| ASIA: | | | |
| India | 8,433,000 | 7,300,000 | 6,850,000 |
| China | 50,000 | 100,000 | 100,000(x) |
| Chosen (Korea) | 67,547 | 702,946 | 650,000(x) |
| Netherlands East Indies | 2,094,251 | 860,462 | 900,000(x) |
| Japan | 5,628,308 | 5,967,362 | 6,920,000 |
| Turkey | 320,000 | 100,000(x) | 100,000(x) |
| Other countries | 19,464 | 20,800 | 25,000(x) |
| Total Asia | 16,612,570 | 15,051,570 | 15,545,000 |

SILVER PRODUCTION OF THE WORLD, 1930, 1933 and 1934 (concluded)
(Supplied by American Bureau of Metal Statistics)
(in fine ounces)

| | 1930 | 1933 | 1934 |
|-----------------------------------|-------------|-------------|-------------|
| AFRICA: | | | |
| Algeria | 171,199 | 128,139 | 100,000(x) |
| Rhodesia | 73,357 | 112,459 | 128,568 |
| Transvaal, Cape Colony and Natal. | 1,050,038 | 1,065,011 | 1,002,203 |
| Belgian Congo | ... | 2,620,225 | 3,858,000 |
| Other countries | 1,229,000 | 145,000 | 145,000(x) |
| Total Africa | 2,523,594 | 4,070,834 | 5,233,771 |
| TOTAL FOR WORLD | 252,660,826 | 169,412,601 | 185,587,994 |

(x) For 1934 the figures are based on actual reports or reliable estimates, except where the asterisk is used indicating that the figure is conjectural.

WORLD'S MONETARY STOCKS OF SILVER AT THE CLOSE OF 1933.
(Supplied by United States Mint and subject to revision)
(stated in United States money, 000's omitted)

| Country | Silver stock in | | Per capita |
|--|----------------------|---------|------------|
| | banks and treasuries | | |
| | \$ | | \$ |
| United States | 839,961 | | 6.73 |
| Canada | 28,032(1) | | 2.71 |
| Mexico | 60,563 | | 3.66 |
| Chile | 3,249(3) | | .73 |
| Columbia | 11,243(1) | | 1.27 |
| Peru | 5,069(1) | | .81 |
| Venezuela | 16,399(1) | (3) | 5.02 |
| Austria | 10,069(1) | (2) | 1.49 |
| Belgium | 9,483(2) | (3) | 1.16 |
| France | 109,599(1) | | 2.62 |
| Germany | 321,086(1) | | 4.98 |
| Great Britain | 260,559(1) | | 5.64 |
| Greece | 2,540(3) | | .39 |
| Irish Free State | 6,096(1) | | 2.05 |
| Italy | 86,488(1) | (2) | 2.06 |
| Latvia | 8,298(1) | | 4.32 |
| Netherlands | 10,598(3) | | 1.29 |
| Norway | 1,903(1) | | .67 |
| Poland | 31,588(1) | | .98 |
| Rumania | 1,114 | | .05 |
| Russia (Soviet Union) | 4,729 | (5) (6) | .02 |
| Spain | 124,306 | | 5.27 |
| Switzerland | 37,712(1) | | 9.15 |
| Yugoslavia | 17,600(1) | | 1.26 |
| Ceylon | 9,981(1) | | 1.87 |
| China | 667,459 | (8) (7) | 1.45 |
| India - British | 1,377,876(1) | | 3.90 |
| Iraq (Mesopotamia) | 25,000(1) | (2) | 7.60 |
| Japan (including Chosen, Taiwan, Kwantung) ... | 40,887(7) | | .44 |
| Netherlands East Indies | 13,914 | | .22 |

WORLD'S MONETARY STOCKS OF SILVER AT THE CLOSE OF 1933 (concluded)
(Supplied by United States Mint and subject to revision)

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

| Country | Silver stock in | Per capita |
|-----------------------------|----------------------|------------|
| | banks and treasuries | |
| | \$ | \$ |
| Philippine Islands | 18,862(1) | 1.51 |
| Siam | 23,963 | 2.05 |
| Straits Settlements | 21,371(1) (2) | 19.18 |
| Egypt | 21,677(1) | 1.45 |
| Ethiopia | 11,316(1) | 1.13 |
| Kenya and Uganda | 11,912(1) (4) | 1.82 |
| Sudan-Anglo Egyptian | 8,797(1) | 1.56 |
| Union of South Africa | 11,927(1) | 1.46 |
| Australia | 35,749(2) | 5.47 |
| Tanganyika | 8,885(1) | 1.81 |
| Others | 96,821 | ... |
| TOTAL | 4,398,282 | 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) Prior year's figures.
- (3) Includes base metal coin.
- (4) June 30, 1933.
- (5) On January 1, 1934.
- (6) Includes platinum.
- (7) Incomplete.
- (8) Dollar coins circulating estimated at 2,300,000,000.

SILVER CONTENT OF PRINCIPAL WORLD COINS.

| Coin | Country | Fine silver content - grains |
|-----------------|---------------|------------------------------|
| 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 |
| Ruppee | India | 165.000 |
| Yuan | China | 362.559 |

LEAD - The annual review on lead by the Mining Journal, London, states that "on the whole, however, there was a definite improvement in the statistical position of the lead industry during 1934. World stocks still stand at the high figure of 465,000 tons but of this total the United States accounts for about 210,000 tons. Consumption was satisfactory during 1934 and there is every reason to believe this position will continue in 1935, though it depends to some extent on the maintenance of a fairly low price."

It may prove of interest to note that "Chemical and Metallurgical Engineering" announces that a new type of lead is now available possessing all the characteristics of ordinary lead and having some new valuable properties in addition. Tellurium produces a marked change in the physical structure of lead, which results in a lead of greater resistance to corrosion by acid, greater tensile strength, greater resistance to fatigue failure, resulting from vibration of some repeated stresses, and also has better working qualities.

PRODUCTION OF NEW LEAD IN CANADA, 1924 - 1934.

| Year | Pounds | \$ | Price per pound (Canadian funds) |
|----------------|-------------|------------|----------------------------------|
| 1924 | 175,485,499 | 14,221,345 | 8.104 |
| 1925 (x) | 253,590,578 | 23,127,460 | 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 |

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

(a) Year of maximum output of Canadian lead.

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

| | 1 | 9 | 3 | 3 | 1 | 9 | 3 | 4 |
|--------------------------------------|-------------|---|-----------|---|-------------|---|-----------|---|
| | Pounds | | Value | | Pounds | | Value | |
| | | | \$ | | | | \$ | |
| PRODUCTION - | | | | | | | | |
| Ontario | 29,910 | | 692 | | 21,558 | | 525 | |
| British Columbia | 263,345,776 | | 6,298,178 | | 344,467,138 | | 8,392,597 | |
| Yukon and North West Territories ... | 3,099,505 | | 74,128 | | 1,786,880 | | 43,536 | |
| TOTAL | 266,475,191 | | 6,372,998 | | 346,275,576 | | 8,436,658 | |
| IMPORTS - | | | | | | | | |
| Old and scrap, pig and block | 15,038 | | 1,148 | | 102,294 | | 3,921 | |
| Bars and sheets | 88,607 | | 3,820 | | 59,877 | | 2,500 | |
| Litharge | 1,885,300 | | 100,816 | | 1,689,100 | | 91,975 | |
| Acetate of lead (not ground) | 102,747 | | 7,897 | | 151,635 | | 11,860 | |
| Nitrate of lead (not ground) | 40,385 | | 2,120 | | 243,110 | | 12,504 | |
| Other manufactures | ... | | 63,723 | | ... | | 78,064 | |
| Pipe lead | 10,686 | | 658 | | 7,254 | | 336 | |
| Shots and bullets | 5,327 | | 340 | | 14,187 | | 939 | |
| Tea lead | 200 | | 12 | | ... | | ... | |
| Lead arsenate | 498,673 | | 44,256 | | 450,748 | | 37,788 | |
| Lead tetraethyl, compounds of | 1,571,775 | | 1,212,990 | | 1,821,083 | | 1,053,503 | |
| Lead pigments - | | | | | | | | |
| Dry white lead | 8,880 | | 599 | | 152,409 | | 9,827 | |
| White lead, ground in oil | 21,250 | | 2,540 | | 16,258 | | 1,706 | |
| Dry red lead and orange mineral .. | 611,696 | | 32,596 | | 544,597 | | 32,397 | |
| TOTAL | ... | | 1,473,515 | | ... | | 1,337,320 | |

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF LEAD, 1933 and 1934 (concluded)

| | 1933 | 1933 | 1934 | 1934 |
|--------------------------------|-------------|-----------|-------------|-----------|
| | Pounds | Value | Pounds | Value |
| | | \$ | | \$ |
| EXPORTS - | | | | |
| Lead, contained in ore, etc. - | | | | |
| To United States | 4,062,000 | 161,665 | 1,918,300 | 76,726 |
| Belgium | 3,538,000 | 106,140 | 21,726,500 | 432,780 |
| TOTAL LEAD IN ORE | 7,600,000 | 267,805 | 23,644,800 | 509,506 |
| Pig lead, refined lead, etc. - | | | | |
| To United Kingdom | 172,653,900 | 3,047,227 | 162,055,700 | 2,963,356 |
| United States | 72,955,200 | 1,190,362 | 90,887,500 | 1,706,885 |
| Japan | 4,984,200 | 94,113 | 2,195,200 | 44,120 |
| Netherlands | 7,760,500 | 125,098 | 9,963,200 | 181,222 |
| China | 4,099,200 | 70,608 | 6,184,000 | 114,712 |
| Brazil | 7,468,600 | 132,652 | 1,797,200 | 35,155 |
| Germany | 14,407,800 | 262,454 | 10,076,200 | 192,783 |
| Other countries | 284,329,400 | 4,922,514 | 283,159,000 | 5,238,203 |
| TOTAL PIG LEAD | 291,929,400 | 5,190,319 | 306,803,800 | 5,747,709 |
| TOTAL LEAD EXPORTS | | | | |

Production of lead from Canadian ores from 1887 to 1934 inclusive totals 4,432,337,115 pounds valued at \$216,509,909.

WORLD PRODUCTION OF LEAD, 1929, 1933 and 1934. (a)
(Supplied by American Bureau of Metal Statistics)
(in short tons - 2,000 lb.)

| Country | 1929 | 1933 | 1934 |
|-------------------------------|-----------|---------|---------|
| United States (c) | 688,000 | 292,543 | 330,911 |
| Canada (b) | 159,162 | 129,932 | 159,833 |
| Mexico | 274,232 | 139,738 | 193,547 |
| Other North America (d) | | | 3,224 |
| Total North America | 1,121,394 | 562,213 | 687,515 |
| Argentina | 9,943 | 11,017) | |
| Peru (b) | 21,595 | 750) | 10,692 |
| Other South America (b) | 2,500 | 850) | |
| Total South America | 34,038 | 12,617 | 10,692 |
| Austria | 7,241 | 5,098 | 6,677 |
| Belgium | 68,577 | 70,543 | 72,201 |
| Czechoslovakia | 4,924 | 4,096 | 3,858 |
| France | 22,597 | 8,598 | 18,739 |
| Germany | 107,915 | 128,528 | 132,275 |
| Great Britain | 11,948 | 7,000 | 16,498 |
| Greece | 5,908 | 8,696 | 8,702 |
| Italy | 24,984 | 27,289 | 46,241 |
| Jugoslavia | 9,959 | 6,645 | 10,829 |
| Poland | 39,451 | 13,316 | 11,409 |
| Russia | 6,834 | 15,070 | 29,954 |
| Spain | 146,894 | 102,473 | 82,516 |
| Other Europe | 1,047 | 6,614 | 5,512 |
| Total Europe | 458,279 | 403,966 | 445,412 |

WORLD PRODUCTION OF LEAD, 1929, 1933 and 1934(a) (concluded)
(Supplied by American Bureau of Metal Statistics)

(in short tons - 2,000 lb.)

| Country | 1929 | 1933 | 1934 |
|---------------------|-----------|-----------|-----------|
| Turkey | 7,164 | ... | ... |
| India (Burma) | 89,860 | 80,694 | 80,437 |
| Japan | 3,719 | 7,522 | 8,504 |
| Total Asia | 100,743 | 88,216 | 88,941 |
| Australia | 195,403 | 233,532 | 226,336 |
| Africa | 22,663 | 16,395 | 30,105 |
| GRAND TOTALS | 1,932,520 | 1,316,939 | 1,489,001 |

- (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 1928-30 and 1933 included in Belgium and Germany as unable to allocate. In 1931, 1932 and 1934, a part was treated in United States and reported separately.

NOTE - "While our report of the world's production of lead on what is essentially the smelting basis is substantially correct as to aggregate it is not in every instance so nearly correct as to national origin. With respect to the United States, Mexico, Spain, Burma, and in short most of the lead producing countries, the allocation is either substantially correct, or very close. The uncertainty, in the main, focuses upon the metallurgical production in Belgium and Germany on the one hand and the ore production in South America, Great Britain, Yugoslavia and portions of Africa and sundry non-smelting countries on the other hand. Such countries are under-credited while certain other countries are over-credited."

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 | 1924 | 1929 | 1933 | 1934 |
|-----------------------------|--------|--------|--------|--------|
| White lead | 18.48 | 12.31 | 13.63 | 13.53 |
| Red lead and litharge | 4.19 | 3.09 | 4.38 | 5.87 |
| Storage batteries | 20.93 | 21.60 | 33.90 | 34.19 |
| Cable covering | 16.99 | 22.63 | 7.15 | 7.15 |
| Building | 10.23 | 9.87 | 5.99 | 6.29 |
| Automobiles | 1.32 | 1.85 | 1.15 | 1.53 |
| Railway equipment | .69 | .59 | .05 | .17 |
| Shipbuilding | .02 | .03 | .02 | .04 |
| Ammunition | 3.32 | 4.23 | 7.45 | 7.30 |
| Terne plate | .50 | .43 | .58 | .50 |
| Foil | 4.31 | 4.09 | 5.19 | 3.40 |
| Bearing metal | 3.94 | 3.39 | 3.46 | 3.46 |
| Solder | 3.69 | 3.81 | 3.69 | 3.35 |
| Typemetal | 1.60 | 1.85 | 2.53 | 2.73 |
| Calking | 3.26 | 3.24 | 2.76 | 2.10 |
| Castings | 1.85 | 1.85 | 1.15 | 1.05 |
| Other uses | 4.68 | 5.14 | 6.92 | 7.34 |
| TOTAL | 100.00 | 100.00 | 100.00 | 100.00 |

AVAILABLE STATISTICS ON THE CONSUMPTION OF LEAD IN SPECIFIED CANADIAN MANUFACTURING INDUSTRIES, 1931, 1932 and 1933.

| Industries | Items (Used) | 1931 | 1932 | 1933 |
|---------------------------------|---------------------|------------|------------|------------|
| | | Pounds | Pounds | Pounds |
| Brass and copper products | Pig lead | ... | ... | 204,153 |
| | (Scrap lead | ... | ... | ... |
| Paints and pigments | Pig lead | 14,582,000 | 11,415,000 | 64,935 |
| White metal alloys | Pig lead | 12,395,000 | 6,362,000 | 7,128,622 |
| | (Scrap lead | 5,007,000 | 3,119,000 | 13,593,415 |
| Electrical apparatus | Pig lead | 15,292,000 | 12,108,000 | 9,480,166 |
| | (Scrap lead | 177,000 | 132,000 | 185,202 |
| |) Lead sheets, etc. | 447,000 | 34,000 | 612,993 |
| Iron and steel | Lead | 773,000 | 638,000 | 1,072,660 |
| GRAND TOTAL | | 48,673,000 | 33,803,000 | 32,342,146 |

NOTE - Corresponding data for 1934 not yet complete.

ZINC - Commenting in May, 1935, on the world zinc situation, the Mining Journal, London, says: "It would appear as though producers, accustomed to the high price level of the immediate pre-war and post-war years, required the stimulus of the depression to take full advantage of the technical improvements in methods of production which had been achieved during these years. Now that the majority of producers can operate profitably with zinc say £13, the way is open for a considerable expansion of consumption without the stimulus to new producers to enter the industry which was provided by the high price levels ruling in previous years."

PRODUCTION OF ZINC FROM CANADIAN ORES, 1924 - 1934.

| 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(a) | 298,579,683 | 9,087,571 | 3.04 |

(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 1934 totalled \$117,716,856.

AVAILABLE STATISTICS ON THE CONSUMPTION OF ZINC IN SPECIFIED CANADIAN MANUFACTURING INDUSTRIES, 1931, 1932 and 1933.

| Industry | Items used | 1 9 3 1 | 1 9 3 2 | 1 9 3 3 |
|---------------------------|--------------------------|------------|------------|------------|
| | | Pounds | Pounds | Pounds |
| Brass and copper products | (Zinc castings | 45,000 | 1,938,000) | |
| | Zinc ingots and bars | 2,488,000 | 172,000(| 3,807,210 |
| | (Zinc plates, slabs and | | | |
| | sheets | 84,000 | 301,000) | |
| White metal alloys |) Zinc scrap | 39,000 | 64,000 | 20,506 |
| | (Zinc spelter | 301,000 | 382,000 | 400,991 |
| Electrical apparatus |) Zinc scrap | 277,000 | 485,000 | 396,837 |
| | (Zinc ingots and bars | 1,586,000 | 577,000 | 293,851 |
| Iron and steel |) Zinc sheets | 1,275,000 | 1,143,000 | 1,491,941 |
| | Zinc | 19,208,000 | 16,783,000 | 16,400,446 |
| GRAND TOTAL | | 25,303,000 | 21,845,000 | 22,811,782 |

NOTE - Corresponding data for 1934 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 | 1 9 2 2 | 1 9 2 9 | 1 9 3 4 |
|--------------------------|---------|---------|---------|
| Galvanizing | 46.69 | 45.72 | 42.24 |
| Brass making | 32.97 | 29.17 | 27.23 |
| Rolled zinc | 12.16 | 10.76 | 11.36 |
| Die castings | (a) | 5.68 | 8.89 |
| Other purposes (b) | 8.18 | 8.67 | 10.28 |
| TOTAL | 100.00 | 100.00 | 100.00 |

(a) Included in "other purposes."

(b) Includes slab zinc used for the manufacture of French oxide, lithopone, atomized zinc dust, wet batteries, slush casting, and desilverization of lead.

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

| | 1 9 3 3 | | 1 9 3 4 | |
|------------------------|-------------|-----------|-------------|-----------|
| | Pounds | Value | Pounds | Value |
| | | \$ | | \$ |
| PRODUCTION - | | | | |
| Manitoba | 43,516,037 | 1,397,082 | 47,264,342 | 1,438,538 |
| Saskatchewan | 2,789,683 | 89,563 | 2,162,938 | 65,831 |
| British Columbia | 152,826,264 | 4,906,487 | 249,152,403 | 7,583,202 |
| TOTAL | 199,131,984 | 6,393,132 | 298,579,683 | 9,087,571 |

IMPORTS -

| | | | | |
|--|-----------|---------|------------|---------|
| Zinc dust | 841,400 | 47,826 | 1,067,300 | 61,135 |
| Zinc in blocks, pigs, bars and rods, and zinc plates, n.o.p. | 16,400 | 1,074 | 18,300 | 1,282 |
| Zinc in sheets and strips, and zinc plates for marine boilers | 3,969,100 | 273,439 | 3,964,900 | 260,449 |
| Zinc spelter | 162,300 | 4,921 | 3,100 | 200 |
| Zinc white (zinc oxide) | 9,864,697 | 428,201 | 11,754,090 | 520,911 |
| Zinc sulphate | 432,604 | 7,902 | 1,844,821 | 27,091 |

PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ZINC, 1933 and 1934 (concluded)

| | 1933 | | 1934 | |
|------------------------------------|-------------|-------------|-------------|-------------|
| | Pounds | Value \$ | Pounds | Value \$ |
| IMPORTS - concluded | | | | |
| Zinc, chloride of | 1,018,954 | 30,971 | 1,462,592 | 41,712 |
| Zinc, manufactures of, n.o.p. | ... | 72,499 | ... | 82,883 |
| Lithopone | 11,387,409 | 406,598 | 14,530,612 | 510,558 |
| TOTAL | ... | 1,273,431 | ... | 1,506,221 |
| EXPORTS - | | | | |
| Zinc, contained in ore - | | | | |
| To Belgium | 6,071,600 | 121,241 | 9,398,800 | 175,550 |
| Japan | 2,254,000 | 14,008 | 8,947,500 | 140,657 |
| United Kingdom | ... | ... | 4,980,100 | 86,000 |
| France | ... | ... | 12,129,600 | 196,052 |
| Germany | ... | ... | 3,591,300 | 56,300 |
| United States | ... | ... | 6,100 | 276 |
| Total | 8,325,600 | 135,249 | 39,043,400 | 654,835 |
| Zinc, scrap, dross and ashes - | | | | |
| To United Kingdom | 826,800 | 12,549 | 942,600 | 16,511 |
| United States | 511,900 | 2,933 | 18,000 | 529 |
| Japan | 2,911,900 | 18,220 | 2,970,200 | 28,484 |
| Other countries | 2,051,500 | 13,358 | 359,800 | 3,015 |
| Total | 6,302,100 | 47,060 | 4,290,600 | 48,539 |
| Zinc, spelter - | | | | |
| To United Kingdom | 117,820,500 | 3,414,465 | 181,075,000 | 5,251,861 |
| United States | 56,000 | 2,156 | 127,000 | 2,928 |
| British India | 4,161,200 | 101,616 | 4,167,100 | 117,383 |
| Argentina | 2,354,800 | 68,294 | 1,108,100 | 37,601 |
| Belgium | 12,209,500 | 352,354 | 11,119,900 | 339,655 |
| Brazil | 347,400 | 8,548 | 459,500 | 14,639 |
| China | 2,940,400 | 90,002 | 2,089,100 | 68,250 |
| France | 1,691,800 | 49,739 | 1,669,700 | 42,709 |
| Germany | 2,866,300 | 77,726 | 851,700 | 26,443 |
| Italy | 1,120,400 | 26,665 | 2,240,900 | 64,202 |
| Japan | 25,761,500 | 740,398 | 30,842,300 | 958,823 |
| Netherlands | 1,691,900 | 47,101 | 1,792,600 | 56,062 |
| Other countries | 431,700 | 11,641 | 351,500 | 10,000 |
| Total | 173,453,400 | 4,990,705 | 237,894,400 | 6,990,639 |
| GRAND TOTAL - EXPORTS | ... | 5,173,014 | ... | 7,694,013 |

WORLD PRODUCTION OF ZINC(a), 1929, 1933 and 1934.
(Supplied by the American Bureau of Metal Statistics)

(in short tons - 2,000 lb.)

| Country | 1929 | 1933 | 1934 |
|-------------------------|------------------|------------------|------------------|
| United States | 631,601 | 324,705 | 366,933 |
| Mexico | 29,954 | 30,712 | 40,354 |
| Canada | 86,049 | 91,227 | 134,926 |
| Belgium | 218,145 | 151,346 | 192,885 |
| Czechoslovakia | 12,604 | 7,480 | 9,773 |
| France | 103,984 | 61,217 | 56,410 |
| Germany | 112,435 | 56,071 | 80,358 |
| Great Britain | 65,294 | 45,987 | 57,344 |
| Italy | 17,421 | 24,504 | 26,921 |
| Jugoslavia | 8,061 | 3,369 | 4,450 |
| Netherlands | 28,342 | 20,568 | 21,948 |
| Norway | 6,080 | 49,546 | 49,604 |
| Poland | 136,324 | 93,397 | 102,522 |
| Russia | 3,789 | 18,320 | 29,823 |
| Spain | 13,035 | 9,421 | 9,016 |
| Sweden | 5,201 | ... | ... |
| Australia | 56,001 | 60,425 | 59,353 |
| Japan | 21,807 | 32,537 | 32,513 |
| French Indo-China | 4,196 | 3,472 | 4,575 |
| Rhodesia | 13,575 | 20,767 | 21,882 |
| TOTALS | 1,620,898 | 1,104,871 | 1,301,595 |

(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.

OPERATORS IN CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1934.

| <u>Name of Operator</u> | <u>Head Office Address</u> | <u>Plant Location</u> |
|--------------------------------------|---------------------------------------|-----------------------|
| QUEBEC - | | |
| (x) Estate Pierre Tetreault | 70 Holyrood Ave., Outremont, Montreal | Montauban les Mines. |
| (x) Federal Zinc & Lead Co. Ltd. | Room 608, Drummond Bldg., Montreal | Gaspe Co. |
| (x) Lyell and Beidelman | Room 608, Drummond Bldg., Montreal | Gaspe Co. |
| BRITISH COLUMBIA - | | |
| Ainslie, Ray F. | Slocan City | Slocan City |
| Base Metals Mining Corp. Ltd. | 350 Bay St., Toronto, Ont. | Field |
| Beaver Silver Mines, Ltd. | 708 Yorkshire Bldg., Vancouver | Beaverdell |
| Beaverdell Wellington Syndicate Ltd. | Greenwood | Beaverdell |
| Bell Mine Ltd. | Box 464, Penticton | Beaverdell |
| Black Coal Leasors | Sandon | Sandon |

OPERATORS IN CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1934(concluded)

| <u>Name of Operator</u> | <u>Head Office Address</u> | <u>Plant Location</u> |
|--|--|-----------------------|
| <u>BRITISH COLUMBIA (concluded)</u> | | |
| Broun and Curwen | Ymir | Nelson Mining Div. |
| Campbell, C. J. | 4675 - 5th Ave. W., Vancouver | New Denver |
| C. Q. Mining Co. Ltd. | 1840 Georgia St.W., Vancouver | Slocan City M.D. |
| Consolidated Mining & Smelting Co. of Canada, Ltd. | Trail | Kimberley |
| Doney, E., & Son | Box 17, Sandon | Slocan |
| Dunwell Mines, Ltd. | 101 Pemberton Bldg., Victoria | Stewart |
| Forshaw, Robt. | Box 478, Greenwood | Greenwood |
| (x) Gray, Anton | Box 216, Revelstoke | Camborne |
| Graham, W. E. | Slocan | Slocan |
| Harbour, Herbert | Box 700, Nelson | Slocan |
| Highland Lass Ltd. | Box 782, Kelowna | Beaverdell |
| Jackson Mines, Ltd. | 804 Stock Exchange Bldg., Vancouver | Slocan |
| Marzold, S. | Sandon | Kaslo Mining Div. |
| McCune, M. M. | c-o H. Giegerich, Kaslo | Slocan |
| Meteor Mining Co. | Slocan City | Slocan |
| Molly Hughes Syndicate | c-o Federal Land Bank, Spokane, Wash., U.S.A. | Slocan |
| Nordonan, J. L. | Beaverdell | Beaverdell |
| Olson, A. K. | Sandon | Slocan |
| Ruth-Hope Mining Co. Ltd. | 804 Stock Exchange Bldg., Vancouver | Sandon |
| Sally Mines Ltd. | Box 220, Penticton | Beaverdell |
| (x) Silversmith Mines Ltd. | Box 1032, Seattle, Wash., U.S.A. | Sandon |
| United Empire Gold & Silver Mining Co. Ltd. | Standard Bank Bldg., Vancouver | Stewart |
| Watkins, Howland & Moa | Hyder, Alaska | Portland Canal |
| (x) Waverly Tangier Mines Ltd. | 201 - 602 Hastings St.W., Vancouver | Albert Canyon |
| Western Exploration Co. Ltd. | Silverton | Silverton |
| <u>NORTH WEST TERRITORIES(a) -</u> | | |
| Bear Exploration & Radium Ltd. | 1112 - 85 Richmond St.W., Toronto, Ont. | Great Bear Lake Dist. |
| Consolidated Mining & Smelting Co. of Canada, Ltd. | Trail, B.C. | Great Bear Lake " |
| Eldorado Gold Mines, Ltd. | Star Bldg., Toronto, Ont. | Great Bear Lake " |
| (x) Great Bear Lake Mines Ltd. | 244 Bay St., Toronto, Ont. | Great Bear Lake " |
| (x) White Eagle Silver Mines, Ltd. | 1006 Concourse Bldg., Toronto, Ont. | Great Bear Lake " |
| <u>YUKON -</u> | | |
| Treadwell Yukon Co. Ltd. | 920 Crocker Bldg., San Francisco, Calif., U.S.A. | Mayo Mining Dist. |
| York Investments Ltd. | 804 Standard Bank Bldg., Vancouver, B.C. | Keno Hill |

(x) Active but not producing.

(a) Chiefly developing pitchblende, pitchblende-silver or silver ores.

NOTE - Based on the value of the gold content of their ores, some important silver-lead producers are classified as gold mines and as such are listed in the directory contained in the Bureau of Statistics bulletin on the Canadian Gold

THE LONDON METAL EXCHANGE

(From "The Mining Journal" - London)

The actual dealing at the exchange takes place at stated times during the day, the dealers and brokers sitting around in a ring and transacting their business by word of mouth, the deals are checked by clerks, contracts being exchanged later... The tin or copper imported, and that produced by home smelters, is stored in so called "official warehouses" sampled and assayed to determine the quality, the warehouse company issuing a warrant for each five tons of tin and 25 tons of copper. These warrants are issued under Act of Parliament which gives the holder absolute legal title to the goods. They are, therefore, readily accepted by banks as security for loans, as they can be liquidated in an open market on any day ... Unlike tin and copper, transactions in lead are in multiples of 50 tons based on delivery free into craft in the port of London, the seller tendering either ex the importing vessel or ex wharf, subject to various rules covering the incidents of shipping. Contracts are made for "shipment" during a certain month and settlements are effected on the day following arrival of steamer. Months dealt in are the current and three following months. The quality of metal tenderable is known as good soft pig lead, meaning of a soft quality suitable for rolling, and as a rule runs 99.9 per cent purity.

Spelter dealings are similar to those for lead, except that the unit is 25 tons, and the seller has the option of delivering, in addition to ex-ship or ex-warehouse London, ex-quay or warehouse Liverpool, or free on rail at the English smelters at Swansea and Avonmouth. The metal deliverable under the contract is what is known as G.O.B. (good ordinary brand), virgin spelter running about 98 per cent zinc, the balance being chiefly lead. Zinc suitable for rolling, and fine zinc 99.9 per cent pure, command varying premiums. ...

Dealings in silver, like those for tin and copper, are for delivery on any market day up to three months and the clearing is carried out daily. The unit is 5,000 ounces and delivery completed by tendering warrants for 5,000 ounces each issued by Messrs. N. M. Rothschild & Sons against the actual silver stored at their warehouse in London.

As trade conditions alter the special rules governing each metal are changed from time to time to keep them up to date.

Official prices for all these metals are issued daily by a reporting committee, consisting of three members of the main committee, who serve in rotation on the reporting committee. The prices so fixed do not represent the range of prices during a session or the average of prices dealt at but the actual prices at which there are buyers and sellers at the very end of the session. Every rule has an exception and in the case of lead and spelter buyers and sellers prices are not quoted by only one price for each delivery, that being as nearly as possible the last price at which business was done.

The chief function of the exchange is to finance the metal from smelter to consumer by affording the former an open market in which to sell any quantity he wishes, whenever he wishes, whether consumers are willing to buy or not. It also enables the consumer to cover his immediate or future requirements at any time whether producers are willing to sell or not.

The exchange is governed by a Board of Directors, appointed by the shareholders and a committee elected every year by the members. All members must be shareholders and shares cannot be held by non-members.

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