

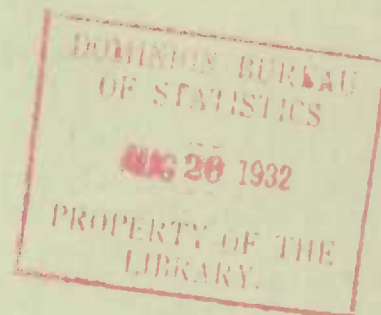
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CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS



Production

of

MISCELLANEOUS METALS IN CANADA, 1931

including

Antimony
Beryl
Bismuth
Cadmium
Chromite
Lithium
Manganese

Mercury
Molybdenite
Radium
Selenium
Tin
Titanium (ilmenite)
Tungsten

Published by Authority of the HON. H. H. STEVENS, M. P.,
Minister of Trade and Commerce

OTTAWA
1932

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CADMIUM - Cadmium produced in British Columbia as a by-product in the production of refined zinc at the Trail refinery of the Consolidated Mining and Smelting Company was valued at \$180,958 in 1931 as compared with a value of \$337,871 in 1930. The Hudson Bay Mining and Smelting Company produced and stored 2,166 tons

of cadmium precipitate; this contained 2.49 per cent cadmium. This product, produced in the zinc plant, will be treated in 1932. Cadmium has obtained a strong position as a plating metal, especially in the automobile industry; the metal is also used in silver, gold, copper and fusible alloys and in the manufacture of pigments. Cadmium compounds such as chloride, iodide, bromide, and nitrate, find various uses in the chemical industries. December 1931 prices for cadmium were 55 cents per pound in the United States and in London, 2s. 4½d. to 2s. 5½d.

CHROMITE - There was no production of chromite in Canada during 1931. Mining operations conducted by the Consolidated Mining and Smelting Company on the Flint chromite claims near Ashcroft, British Columbia, were suspended early in the year. A claim with favourable surface indications adjoining the Flint was acquired by the company. Chromite also occurs in Ontario and Quebec and for several years there was a considerable tonnage of this mineral produced from deposits in the Eastern Townships of the latter province. The Rhodesian Chamber of Mines reports an output of 89,974 tons of chrome ore in Southern Rhodesia as compared with 226,671 tons in 1930. The Economic Review of the Soviet Union reports that since the inauguration of the Five Year Plan, due both to increased domestic consumption and to the development of exports, Russian chromite production has advanced at an exceptional rate, and present indications are that a steady increase in output will be maintained - the Soviet chromite production for 1929-1930 totalled 66,720 metric tons and constituted 10.8 per cent of the world output. The Soviet states that the Russian chromite production is now double the pre-war level.

Recent decreases in the production of alloy steel ingots and castings reflect a decrease in the world consumption of ferrochromium. This, however, has been offset to some extent by an increased output of high chromium alloys such as the "18-8" (18 per cent chromium and 8 per cent nickel).

Imports of nickel chromium in bars or rods of a class or kind not manufactured in Canada and containing more than 10 per cent chromium and over 60 per cent nickel and used in the manufacture of electric resistance strip or ribbon, amounted to 44,111 pounds valued at \$45,033 as compared with 44,344 pounds worth \$44,434 in 1930. Imports of chrome firebrick totalled \$48,230 in value as against \$73,761 during 1930. Quotations for chrome ore at the close of 1931, c.i.f. long tons, Atlantic ports, U.S.A., Indian ores, \$17.50 for 46 to 48 per cent Cr₂O₃ ore and \$19.50 to \$20 for 50 to 51 per cent ore. London, 80s. for 48 per cent Rhodesian.

LITHIUM - The United States Bureau of Mines states that lithium has begun to attract attention as an alloying element with lead and aluminium, and as an oxidizing agent for copper. In 1923 a plant was erected in Germany for producing lithium by an improved process on a fairly large scale and it is reported that lead hardened with lithium and calcium has displaced other types of bearing metals almost completely on the German state railways.

Lithium-bearing minerals are reported to occur in commercial quantities at Lac du Bonnet in the southeastern part of Manitoba. Shipments have been made from these deposits for experimental purposes. Lepidolite was quoted at the close of 1931 in the United States at from \$50 to \$60 per ton for ordinary grades, nominal.

MANGANESE - During 1931, 117 tons of manganese ore valued at \$2,893 were produced in Canada as compared with 273 tons worth \$1,356 in 1930. The 1931 output consisted of high grade concentrates from the Dean, Chapter and Cain properties at New Ross, Nova Scotia, and crude ore from Turtle Creek in New Brunswick. Shipments from the Nova Scotia deposits contained from 87 per cent to 96 per cent MnO₂, and were consigned to Cologne, Germany, for experimental purposes; the output from the New

Brunswick mine was shipped to an electro-metallurgical plant in Ontario. Manganiferous raw materials shipped in the United States in 1930 were as follows:-- manganese ore (35 per cent or more manganese) 53,326 long tons; ferruginous manganese ore (10 to 35 per cent of manganese) 77,417 long tons; manganiferous iron ore (5 to 10 per cent of manganese) 707,973 long tons; manganiferous zinc residuum, 113,060 long tons; battery ore (chemical manganese ore) 11,757 long tons, and miscellaneous manganese ore, 1,952 long tons. Imports into Canada of manganese oxide in 1931 amounted to 474,904 cwt. valued at \$243,059 as against 1,975,551 cwt. worth \$992,485 during the previous year. December 1931 prices in the United States per long ton unit of Mn., c.i.f., North Atlantic ports, cargo lots, exclusive of duty, Brazilian, 46 to 48 per cent Mn., 23 cents; Chilean 47 per cent minimum, 29 cents; Indian, 48 to 50 per cent, 25 to 26 cents; Caucasian, 52 to 55 per cent, 26 cents; South African, 52 to 54 per cent, 23 to 24 cents; 50 to 52 per cent, 22 to 24 cents; 44 to 46 per cent, 21 cents. Chemical grades in car lots, powdered, coarse or fine, minimum 80 per cent Mn.O₂, Brazilian or Cuban, \$50 in carlots to \$60 barrelled. Javan or Caucasian, 85 per cent minimum, \$50 to \$60. Domestic, 70 to 72 per cent, \$43 to \$50 in carloads, f.o.b. mines.

MERCURY - No production of new mercury was recorded in Canada for 1931. Previous to 1897 a comparatively small output of quicksilver was recorded as having been produced in British Columbia from a property situated on the north shore of Kamloops lake. Cinnabar also occurs at Tyaughton creek in the Bridge river area, British Columbia; exploratory work on deposits in this area has revealed some quite high grade exposures of cinnabar-bearing rock. Early in 1931 a furnace was constructed on the beach of Barkley Sound, British Columbia, to treat cinnabar ore from the dump of the Canadian Quicksilver Company. The trail to the mine was also improved but no production was reported. It is interesting to note the increasing importance of mercury in the generation of power; the United States Bureau of Mines states that the mercury in the boiler operating at the South Meadow plant in Hartford amounts to approximately 2,380 flasks and the estimated requirements of the new Schenectady unit ore 250,000 pounds or 3,290 flasks. It was also announced that a 75,000 k.w. mercury unit would be installed at the Kearney, N.J., power station in 1932. Imports of mercury into Canada in 1931 amounted to 21,159 pounds valued at \$25,454 as compared with 105,755 pounds worth \$153,837 in 1930; a large part of the quicksilver imported into the Dominion is used in the amalgamation process employed in the recovery of gold from auriferous quartz ores. Quicksilver prices at the close of the year were \$65 to \$66 per 76 pound flask. Mercurio Europeo, a cartel formed by Italian and Spanish producers in 1928, reduced its price to the basis of \$65 f.a.s. European ports.

MOLYBDENITE - Molybdenite deposits are known to occur in Nova Scotia, Quebec, Ontario, Manitoba and British Columbia. Production of molybdenite in Canada since the close of the World War has been rather erratic. The Moss mine at Quyon, Quebec, was one of the more important producers of molybdenite concentrates; this property, however, is now idle. The only producer in 1931 was the Phoenix Molybdenite Corporation; this company shipped 1,222 pounds of concentrates valued at \$280 to Hamburg, Germany. The ore was mined in Bagot township, Renfrew county, Ontario, and milled by the Mines Branch, Department of Mines, Ottawa. Molybdenum is used extensively in aircraft and automobile steels. A substantial outlet has recently been developed in the nickel-molybdenum-iron alloys, containing as much as 20 per cent molybdenum, which are capable of resisting the action of hydrochloric acid. Results of tests conducted by the United States War Department are reported in a paper by Capt. S. B. Ritchie who states that (a) molybdenum can be substituted in whole or in part for tungsten in high speed tools and (b) there are no difficulties of manufacture of molybdenum high-speed tools in quantities that can not be easily met. Imports of calcium molybdate when imported into Canada by manufacturers of steel for use exclusively in the manufacture of steel in their own factories amounted to 34,326 pounds valued at \$11,481 in 1931. No imports were recorded for 1930.

Prices for molybdenum ore, December 1931, were: per pound of contained MoS_2 , nominally 45 cents, delivered at Pittsburgh, Penn., for 75 to 85 per cent concentrate. London, per long ton unit, nominal at 36s. to 38 s. for 80 to 85 per cent concentrate.

RADIUM ORES - No Canadian radium ores were sold in 1931; in Ontario the Ontario Radium Corporation Ltd. carried on exploratory and development work at the Ontario radium mine in Cardiff township, Haliburton county. Some of the ore from this deposit consisting of uraninite in a gangue of fluorite, calcite, apatite, magnetite, hornblende, biotite, mica and feldspar was recently treated by the Mines Branch Ore Dressing Division at Ottawa. At Echo Bay, Great Bear Lake, in the North West Territories, the Eldorado Gold Mines Ltd. conducted extensive surface operations on the important pitchblende-silver veins recently located by that company. Shipments of these ores consisting of high-grade native silver and radium-bearing minerals were made to the Mines Branch in Ottawa, where research work is being conducted as to the economic recovery of their commercially valuable mineral constituents or elements. Imports of radium into Canada during 1931 amounted to \$207,735 in value as compared with \$46,012 in 1930. Prices quoted in the United States, December 1931, for radium were: per mg. radium content \$50 in lots of 4 grams or more to \$65 for 1 gram; smaller quantities, \$70. The Union Miniere du Haut Katanga is the largest producer of radium ores in the world. Ore mined by this company in the Belgian Congo are treated at Oolen, Belgium, for recovery of radium. It is reported that the radium produced from these ores was 20 grams, 26 grams, 42 grams, 60 grams, 60 grams, in the years 1926 to 1930 respectively.

SELENIUM - Selenium is the most recent addition to the numerous refined metal products now being produced in Canada. It is obtained as a by-product in copper refining and was produced for the first time in Canada early in 1931 at the plant of the Ontario Refining Company Ltd. at Copper Cliff, Ontario. Selenium finds its present chief market in the glass industry where it is employed as a colorizer and for neutralizing other colours. It is also used in the rubber industry and in the manufacture of selenium cells for television apparatus. It is generally sold either in the form of amorphous powder or as small rods and buttons. The Canadian production of 21,500 pounds in 1931 was valued at \$40,850. Selenium was quoted in the United States during December 1931 at \$1.80 to \$2.00 per pound, depending on quantity, for black, powdered, 99.5 per cent pure.

TIN ORES - Tin ores are not mined in Canada; the metal is known to occur in the Sullivan and Snowflake mines in British Columbia and staniferous pegmatites in southeastern Manitoba have been investigated during recent years as to their economic importance.

Much study has been given the problem of finding a substitute for tin plate in the canning industry but to 1931 no tin-free container has been developed that can offer serious competition to the tin can. Glass containers have been used successfully where the advantage of display of contents has outweighed the higher initial cost and difficulties of transportation. Experiments have been made with stainless steel cans but the high cost and difficulties of opening have made their use uneconomical. Research to develop a practical aluminum can continues. Research in the substitution of lacquers for tin has made little headway owing to the difficulty in obtaining an appearance of cleanliness and beauty equal to that of tin as well as the difficulty of duplicating the purely utilitarian qualities of tin coating, according to a report issued by the United States Bureau of Mines. The use of aluminum as a substitute for tin in the manufacture of foils and collapsible tubes is considerable. Imports of tin in blocks, pigs or bars into Canada during 1931 amounted to 41,258 cwt. valued at \$1,067,395 as compared with 52,737 cwt. worth \$1,757,494 in 1930; sheets, plates, hoop, band or strip coated with tin, n.o.p., imports in 1931 totalled 856,435 cwt. valued at \$3,326,847 and of these imports 302,301 cwt. came from the United Kingdom. Imports of kitchen

and ordinary hollowware of iron or steel coated with tin including cans for shipping milk or cream, not painted, japanned or decorated, amounted to \$65,552 in value in 1931 as against a value of \$104,010 in 1930; imports of manufactures of tinplate, painted, etc., and manufactures of tin, n.o.p., totalled \$983,897 in value as compared with \$936,242 in 1930. The average New York price for tin in 1931 was 24.487 cents.

TITANIUM (Ilmenite) - No hematite, magnetite, or other iron ores employed in the making of pig iron or steel were mined in Canada during 1931. A small tonnage of vanadium bearing magnetite was shipped for experimental purposes from deposits in the Rainy River district of Ontario. Titanium ore or ilmenite, was mined at Baie St. Paul, Quebec, for export to the United States. Canadian shipments in 1931 totalled 1,509 tons valued at \$10,261 as compared with 412 tons worth \$1,239 in 1930.

Not until 1920 were titanium dioxide pigments marketed on a commercial scale; by 1929 the United States consumption was in the neighbourhood of 6,000,000 pounds, according to the United States Bureau of Mines; titanium dioxide is whiter than most of the other pigments and has a remarkably high covering power and being practically inert does not react with ordinary solvents. Titanium pigments also find growing use in the manufacture of linoleum, coated textiles, rubber, wall papers, printing inks, glass, and enamel ware. The use of titanium in pigments is by far the leading tonnage outlet but there is also a substantial demand for titanium alloys. United States prices at the end of 1931 for titanium ore were: 45 to 52 per cent, TiO_2 , f.o.b. Atlaptic seaboard, \$10 to \$12 per gross ton, according to grade and impurities. Low grade domestic, 32 to 35 per cent, \$7 to \$8. Rutile, per pound, guaranteed minimum 94 per cent concentrate, 10 cents.

Shipments of hematite ore from Wabana, Bell Island, Newfoundland, during 1931 amounted to 789,897 tons valued at \$2,053,732. This ore averaged 51 per cent iron; of the tonnage shipped 234,148 tons went to Sydney, Nova Scotia, 492,312 tons to Germany, 37,767 tons to Great Britain, and 25,670 tons to the United States.

TUNGSTEN - Tungsten is found in widely separated districts in the Dominion. Minerals containing this metal occur in the provinces of Nova Scotia, New Brunswick, Manitoba and British Columbia, also in the Yukon Territory. The deposits in Nova Scotia and New Brunswick appear to possess the greatest economic possibilities; comparatively small shipments of tungsten ores were made in 1912 and 1917, since then no production has been recorded. In 1931 the Indian Path Mines Ltd. conducted some development work at the Indian Path mine in Lunenburg county, Nova Scotia. Experiments were made on this ore in the Technical College, Halifax; the company reports that a small concentrating plant is being arranged for and that production is planned for 1932. China, during recent years, has been the greatest producer of tungsten ores, the production from that country amounting to over half of the world's output of tungsten ores. Bolivia, India, United States and Portugal are, next to China, the principal tungsten producing countries of the world. Tungsten is employed in the manufacture of alloy steels, electric light filaments, tools and many other metal products. Imports of metallic elements and tungstic acid in 1931 for use only in the manufacture of metal filaments for electric lamps amounted in value to \$88,054 as compared with a value of \$75,601 in 1930. New York prices for tungsten ore at the close of 1931 were: per unit WO_3 , Chinese wolframite, \$10.75 to \$11 duty paid. Bolivian scheelite, \$10.90; domestic, \$10.50 to \$11.50.

Prices in this bulletin taken from "Engineering and Mining Journal."

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