CANADA—DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
MINING, METALLURGICAL AND CHEMICAL SECTION

MINERAL PRODUCTION OF CANADA

1946

CHRONOLOGICAL RECORD, 1604-1947
HISTORICAL PRODUCTION TABLES, 1886-1946

Published by Authority of the Rt. Hon. C. D. Howe, M.P.,
Minister of Trade and Commerce

OTTAWA
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
CONTROLLER OF STATIONERY
1949

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PREFACE

Annual reports on the Mineral Production of Canada have been published since 1886. The first reports were prepared by the Geological Survey of Canada, later by the Mines Branch of the Department of Mines, and since 1921 by the Dominion Bureau of Statistics. Historical tables and a chronological record of important events are included as a feature of this report.

The present report contains final data on the production from Canada's metal and non-metal mines and quarries, oil and gas wells, and plants producing lime, products from Canadian clays, and cement. It contains tables showing the salaries and wages paid, the number of employees, the amounts spent on fuel and power, the power-producing equipment installed, and the process supplies purchased.

The report is divided into ten chapters; the first is a complete summary, and the remaining chapters conform to the nine major groups into which the Canadian mining industry is divided. A list of all mining companies which reported to the Bureau for 1946 is added.

The total value of the mineral production of Canada, as shown in this report, includes all metals and minerals with the exception of those obtained from pitchblende ores which are confidential.

As in previous years, the Bureau co-operated with the Mines Departments of the provinces of Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan and British Columbia in the collection of these statistics. Forms were filed in duplicate by the reporting companies, thereby saving the operator extra work, and resulting in uniform totals for Dominion and Provincial statistical bureaux.

The thanks of the Bureau are tendered to the Dominion Department of Mines and Resources and to the mine and smelter operators for assistance given and information made available. Railway and other transportation companies, as well as smelter operators outside of Canada, have also furnished data, the receipt of which is gratefully acknowledged.

This report has been prepared by Mr. A. R. Deir, Mining Statistician.

HERBERT MARSHALL,
Dominion Statistician.

DOMINION BUREAU OF STATISTICS,
Ottawa, July 22, 1948

CANADA — DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
MINING, METALLURGICAL AND CHEMICAL SECTION

CHRONOLOGICAL RECORD OF CANADIAN MINING EVENTS FROM 1604 TO 1947

AND

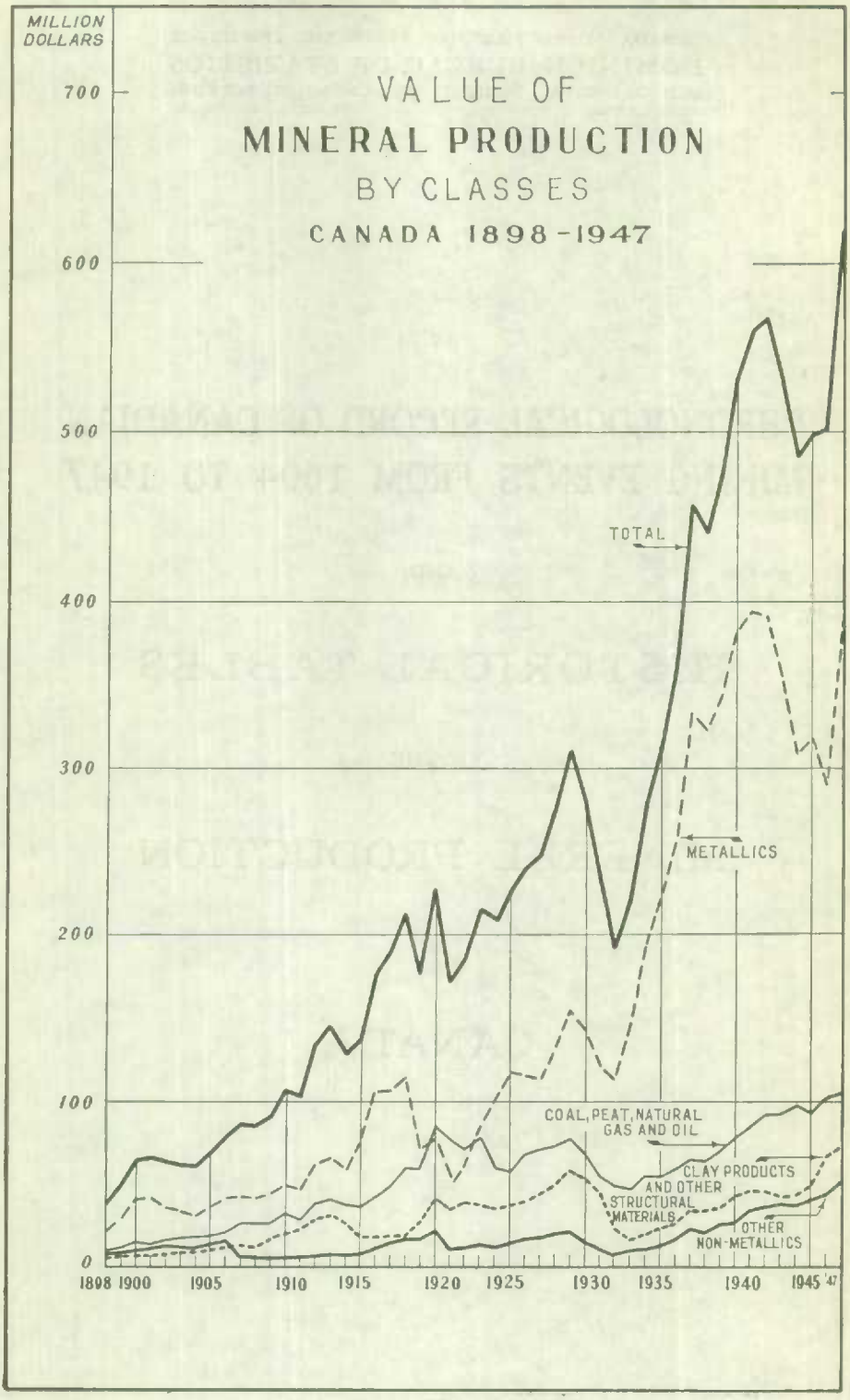
HISTORICAL TABLES

OF THE

MINERAL PRODUCTION

OF

CANADA


MILLION DOLLARS
VALUE OF
MINERAL PRODUCTION
BY CLASSES
CANADA 1898-1947
700
600
500
400
300
200
100
0
TOTAL
METALLICS
COAL, PEAT, NATURAL GAS AND OIL
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS
OTHER NON-METALLICS
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47

CHRONOLOGICAL RECORD OF CANADIAN MINING EVENTS, 1604—1947.

Year

1604—Discovery of iron and silver reported at St. Mary's Bay, Nova Scotia, by Master Simon, a mining engineer accompanying Champlain. Native copper was also reported to have been found at Cap d'Or.

1612—Sir Thomas Button entered Nelson River.

1654—Louis XIV granted a concession to Nicholas Denys to mine gold, silver, copper and other minerals on Cape Breton Island.

1672—Nicholas Denys reported the discovery of coal on Cape Breton Island.

1677—Intendant of New France, M. Duchesneau, proclaimed the imposition of a royalty of 20 sous per ton on coal mined in Cape Breton.

1711—Admiral Walker obtains coal in Cape Breton.

1720—First coal produced in Canada by regular mining methods on north side of Cow Bay, Cape Breton, N.S.

1724—Coal was exported from Cape Breton to Boston.

1732—La Verendrye reached Lake Winnipeg.

1737—Iron ores smelted on St. Maurice river, Quebec, by Cugnet & Cie. or "La Compagnie des Forges".

1744—Publication of Bellin's map showing existence of silver-lead ores on Lake Temiskaming, Quebec, now known as the Wright mine.

1754—Hendry reached Saskatchewan River from Hudson Bay.

1770—Jesuit Fathers experimented with native copper found at Point Mamainse, north shore Lake Superior.

Alexander Henry, English trader, formed a mining company, in which the Duke of Gloucester and other prominent Englishmen were partners, to develop minerals near Sault Ste. Marie, Ontario.

1771—Samuel Hearne, Hudson's Bay clerk, prospects the Copper Mine River area, Northwest Territories, for copper.

1779—Earliest recorded gypsum mining operations by settlers, Nova Scotia.

1782—Coal mined in vicinity of Grand Lake, New Brunswick.

1784—Government commenced systematic coal mining on northwest shore of Sydney Harbour, N.S.

1789—Sir Alex. MacKenzie discovers coal on Great Bear River, Northwest Territories.

1800—First iron furnace in Ontario erected in Leeds county at Furnace Falls (Lyndhurst) by D. Sherwood, S. Barlow, W. Sutherland and E. Jones.

David Thompson discovers coal on Saskatchewan river.

1813—Blast furnace erected by John Mason at Normandale, Norfolk county, Ontario, used unsuccessfully in treating bog ores.

1820—Blast furnace erected in Marmora twp., Hastings county, Ontario, by Mr. Hayes.

1822—First record of gypsum mining in Ontario, near Paris.

Normandale iron furnace commenced successful iron smelting operations in Ontario under Mr. Van Norman.

1823—Placer gold discovered on Chaudière River, Quebec, by a woman.

First gypsum mill operated in Ontario.

1826—General mining association formed in Nova Scotia.

1829—Lièvre river apatite deposits in Quebec discovered.

1830—First mining shaft in Nova Scotia sunk on Sydney main coal seam.

1835—Coal discovered at Suquash, Vancouver Island, through information supplied by Indians.

1840—First hydraulic cement made in Canada at Hull, Quebec.

1843—Geological Survey of Canada instituted under Sir Wm. Edmund Logan

1846—Silver veins reported in vicinity of Thunder Bay, Lake Superior.

Ascanio Sobrero, Italian, first makes nitroglycerine.

Oil seepages reported on Gaspé Peninsula by Sir Wm. Logan.

1847—Normandale iron furnace in Ontario shut down owing to lack of ore and fuel.

First mention of copper ores in Eastern Townships, Quebec, in Geological report, 1847-48.

Gypsum mining operations commenced near Hillsborough, New Brunswick.

1848—Montreal Mining Company commenced mining at Bruce Mines, Ontario.

1850—Indians located Douglas coal seam at Nanaimo, B.C.

1852—August 24, J. W. McKay, Hudson's Bay Co. factor sent by James Douglas from Victoria to take possession of Nanaimo coal field and collect royalty from users of coal.

Free gold discovered in quartz at Mitchell harbour, Queen Charlotte Islands, causing the first auriferous quartz rush in British Columbia.

1853—March 26, Governor Douglas, Victoria, as Lieutenant Governor of Queen Charlotte Islands, Crown Colony, issued the first proclamation relating to mining in British Columbia.

1855—Placer gold found at the mouth of Pend d'Oreille River, B.C., by ex-servants of the Hudson's Bay Company at Fort Colville.

1857—Sir James Hunter located coal on Souris river, Manitoba.
Placer gold reported at the junction of the Fraser and Thompson rivers, B.C.
December 28, James Douglas issued proclamation regarding working of gold mines located chiefly in the Kamloops, Ashcroft, and Vernon areas of British Columbia.
1858—Introduction of Canadian decimal currency.
Legislature of Nova Scotia obtained possession and control of mines and minerals of province.
First producing oil well on American continent opened in Lambton county, Ontario.
Discovery of placer gold in the lower reaches of the Fraser river, B.C., caused rush to Yale, Hope and Canyon by miners from California and other foreign parts.
1859—Passage of the Goldfields Act, British Columbia, Sept. 7.
Placer miners penetrate to Cariboo and Quesnel, B.C.
Canadian silver coinage issued.
1860—John Pulsiver discovered gold in Tangier district, Halifax county, N.S.
First drilling for oil in Gaspé, Quebec.
Pete Toy bar discovered at the Parsnip and Findlay rivers, B.C.
Crushing plant erected at Wellington Copper Mine, Ontario.
1861—Gold discovered in Oldham district, Halifax county, N.S.
1862—Gold discovered in Lawrencetown, Isaacs Harbour and Renfrew districts, N.S.
1863—Miners from State of Washington ascending the Kootenay, established Wildhorse Creek diggings, B.C.
Issue of a comprehensive Geology of Canada under Sir William Logan.
1864—Placer gold located on Leech Creek, B.C.
Copper claims staked on Howe Sound and Knight Inlet.
1865—Dewdney trail completed to Wildhorse from Hope, B.C., to enable gold escorts to reach Victoria on British territory.
Placer claims staked on Big Bend area of Columbia river, B.C., by former Cariboo miners.
Gold discovered in Mount Uniacke district, Nova Scotia.
Eustis mine opened in Eastern Townships, Quebec.
1866—First discovery of gold in Canadian Pre-Cambrian shield near Madoc, Hastings county, Ontario, known as Richardson mine, made by a Dutch prospector named Powell and associates. Thos. McFarlane discovered high grade silver ores in Ontario on an island in Lake Superior. (Silver Islet mine.)
First recorded production of salt in Ontario, near Maitland river.
1866—Alfred Bernard Nobel discovered the method of making dynamite.
1869—Gold discovered in Fifteen Mile Stream district, Nova Scotia.
Gold discovered in Yukon river.
Salt produced at Seaforth, Ontario.
Transfer of Hudson's Bay Company Lands (Rupert's Land) to Dominion of Canada.
1870—First commercial shipments of apatite in Canada made from North Burgess twp., Ontario.
Montreal Mining Company sold Lake Superior mining lands, including Silver Islet.
1871—First recorded production of soapstone in Quebec from Bolton twp., Brome county.
Dominion Lands Survey Branch created.
Huronian mine (Moss) N.W. Ontario, located by Peter McKellar on advice of an Indian.
First staking of silver ores on Eureka Mt., near Hope, B.C.
1873—Dease Lake areas, B.C., staked for placer gold, first staker W. H. Smith.
Omineca placer mining area began to open up and Manson creek settlement established.
1877—Geological Survey of Canada recognized by Act of Parliament.
1878—Asbestos first mined in Quebec by Andrew Johnston (Johnston Asbestos Co.).
Gold discovered at Lake of the Woods, Ontario.
1879—Coal fields of the Crow's Nest Pass, B.C., opened.
1880—Geological Survey offices and museum moved from Montreal to Ottawa.
1881—Quebec Technical Mines Branch formed as division of Crown Lands Department.
Zenith zinc mine discovered, Nipigon district, Ontario.
1883—Copper-nickel ores discovered near Sudbury (Murray mine) by Thos. Flanagan.
Miners penetrated into the West Kootenay district, British Columbia, locating mines on Kootenay river and Kootenay lake.
1884—Worthington mine, Sudbury area, Ontario, discovered by F. C. Crean.
Silver Islet mine, Lake Superior, abandoned.
Kingdon lead mine deposits, Carleton county, Ontario, worked.
Thos. Frood and A. J. Cockburn discovered Frood mine, Sudbury area, Ontario.
Renaldo McConnell discovered copper-nickel ore in Snyder twp., Ontario.
1885—Samuel J. Ritchie organized Canadian Copper Company.
Copper Cliff mine, Ontario, discovered.
Henry Ranger located Creighton mine, Sudbury area, ore deposit first noted by Surveyor Salter and Geologist Murray.
1885—Canadian Pacific Railway completed.
John Chance staked Granite Creek placer deposits in British Columbia.
Cayoosh Creek placers staked in British Columbia.
James Stobie discovers Stobie mine, Sudbury area, Ontario.
1886—First shipments of coal from Lethbridge area, Alberta.

1886—First complete statistical returns issued by Geological Survey of Canada.
Incorporation of Canadian Copper Company.
First stakings in Boundary Creek area, British Columbia, by W. T. Smith.
First officially recorded Canadian mica production in Ontario and Quebec.
Stobie and Evans mines, Sudbury district, opened.
1887—R. W. MacArthur and Wm. Forest discovered cyanide process for gold extraction, at Glasgow, Scotland.
1888—Asbestos first milled in Quebec by Scottish Canadian Asbestos Co.
Coal discovered near Banff, Alberta.
Coal mining commenced at Canmore, Alberta.
First smelter blown in at Copper Cliff, Ont., December 24th.
Monarch mine on Canadian Pacific Railway at Field, B.C., opened.
Discovery of natural gas in Essex county, Ontario.
1889—Levack mine, Sudbury area, Ontario, discovered by James Stobie.
H. H. Vivian and Company of Swansea, Wales, started organized mining operations in Sudbury area.
Discovery of Leamington gas field in Ontario.
James Riley, Glasgow engineer, discovered the hardening and toughening effect of nickel in steel making.
Rossland Camp at head of Trail Creek, B.C., opened by staking of Lily May by Joe Bourgeois.
1890—Coal first mined in Turtle Mountain field, Manitoba. Vaden mine.
First smelter blown in at Murray mine, Sudbury. Matte shipped to Wales.
1891—First shipments from Rossland, B.C., to Colorado Smelting Works, Butte, Montana.
Sultana mine, Lake of Woods district, Ontario, opened, closed 1906.
The United States navy concluded successful experiments using nickel-steel for the first time as armour plate.
Bureau of Mines, Ontario, organized.
Garson Mine, Sudbury, discovered by John T. Cryderman.
1892—Col. R. M. Thompson developed the Orford nickel-copper separation process.
Dr. Ludwig Mond developed the Mond copper-nickel separation process.
Sullivan camp, B.C., commenced by staking of the Hamlet, etc., claims by Pat Sullivan, John Cleaver, E. C. Smith and W. C. Burchett.
1893—Knechills coal mines, Alberta, opened.
Mikado mine, Lake of Woods district, Ontario, discovered.
1894—Pilot Bay smelter constructed and silver-lead-zinc mines of Ainsworth and Slocan, B.C. became active.
1895—Sullivan mine, B.C., commenced shipping.
1896—Salt produced in Dauphin Lake district, Manitoba; sold to settlers.
Iron ore bounties inaugurated.
Black Donald graphite mine, Renfrew county, Ontario, discovered and operated in 1897.
Discovery of placer gold in Klondike, Yukon Territory
Hall mines smelter at Nelson, B.C., opened.
Iron Mask staked August 13 at Kamloops, B.C., by Geo. Breedson.
B.C. Smelting and Refining Company started smelting Rossland ores at Trail in February—Promoters: D. C. Corbin and August Heinze.
1897—Pioneer mine, B.C., located September 6, by Wm. Allen.
1898—Atlin goldfields, B.C., discovered by prospectors turning aside from the Klondike gold rush; Rainy Hollow copper deposits discovered in same manner.
1898—Pioneer and other claims staked on Cadwallader Creek, B.C.
Britannia mine deposits, B.C., discovered by Oliver Furry.
1899—Helen iron mine, Ontario, opened by Algoma Steel Corporation.
Frood mine, Sudbury, opened.
Sunset claim, Copper Mountain, B.C., staked.
Granby Consolidated Mining, Smelting and Power Co., B.C., incorporated.
1900—Mond Nickel Company incorporated.
Corundum mining commenced in Renfrew county, Ontario.
Klondike gold production reaches maximum.
Nova Scotia Steel and Coal Co. acquire Sydney coal mines of General Mining Association.
Granby Smelter at Grand Forks, B.C., started April 1st.
Bonanza mine, Observatory Inlet, B.C., discovered by Donahue and H. C. Flewin.
Smelter at Greenwood Camp, B.C., blown in on August 21.
Talc mining started in Hastings county, Ontario.
1901—First wells drilled for natural gas in Medicine Hat field, Alberta.
Creighton mine, Sudbury area, commenced production.
Crofton smelter, B.C., started.
Britannia mine, B.C., started shipping concentrates to Tacoma.
Production of aluminum, Shawinigan Falls, Quebec.
Hidden Creek mine, Observatory Inlet, B.C., discovered by McMillan, Rudge and H. C. Flewin.
Boundary Falls smelter, B.C., started.

1901—Tyee smelter, B.C., started.
First active development of gypsum deposits in Manitoba, the Manitoba Union Mining Company erecting a crushing and calcining mill on Portage Bay.
1902—Incorporation of International Nickel Company of New Jersey.
Marysville smelter, B.C., constructed.
Electrolytic lead (Betts process) made at Trail, B.C.
1903—High grade silver-cobalt minerals discovered at Long Lake, later known as the Cobalt Camp, Temiskaming district, Ontario.
St. Anthony mine, Sturgeon Lake, commenced producing.
Settlement of Alaska Boundary dispute.
Mining commenced at Hedley, B.C.
First recorded natural gas production in Alberta.
1904—Nipissing Mines incorporated.
La Rose Mine, Cobalt, started producing.
W. G. Trethewey located Trethewey mine, Cobalt, Ont.
Coniagas mine located, Cobalt, Ont.
Copper-gold ores discovered in Chibougamou district, Quebec.
1905—Atikokan iron mine, Ontario, equipped for production.
Buffalo mine, Cobalt, Ont., started operating.
First recorded shipment of Canadian fluorspar, Madoc, Ont.
Original test work on cyaniding cobalt ores in Canada carried out at School of Mining. Kingston, Ont. Mining commenced at O'Brien mine, Cobalt, Ont.
1906—January 18th. Consolidated Mining and Smelting Co. of Canada incorporated.
Ontario Mining Act passed.
Discovery of gold by Ollier and Renault on Lake Fortune (Lake Fortune Mine), Quebec.
Silver discovered at Elk Lake, Ontario.
Gold discovered at Larder Lake, Ontario. Kerr-Addison, Chesterville, Dr. Reddick, Larder Lake Proprietary, Harris-Maxwell and many other properties staked.
First electrical mining equipment used in Canada installed at Creighton mine, Sudbury district, Ontario.
1907—Silver discoveries at Gowganda, Ont.
Silver discovered in South Lorraine, Ont.
Supplementary Revenue Act imposes tax on mining profits in Ontario.
Federal Department of Mines created under a Minister of Mines.
Silver and arsenic produced at Deloro, Ont., from silver-cobalt-nickel-arsenic ores of the Cobalt district of Ontario.
1908—First gold discovery in Porcupine area, Ontario, by H. F. Hunter.
Gold mills operated in Larder Lake District at Harris-Maxwell, Larder Lake, Proprietary and Dr. Reddick properties; district was later dormant for several years.
First silver production from South Lorraine, Ont.
Branch of Royal Mint established at Ottawa, Ont.
First shipments of magnesite from deposits in Grenville twp., Quebec.
1909—Hollinger mine gold veins discovered by Benjamin Hollinger, John Miller and Alex. Gillies.
McIntyre mine veins, Porcupine, Ont., discovered by Alex. McIntyre.
Dome mine deposits, Porcupine, Ont., discovered by John Wilson and associates.
Cyaniding of low grade ores commenced at O'Brien mine, Cobalt, Ont.
1910—Premier mine, B.C., discovered by Bunting Bros. and Wm. Dilworth.
Mixed nickel and cobalt oxides produced at Deloro, Ont.
1911—First gold discovery in vicinity of Kirkland Lake, Ont., made by W. H. Wright on what is now known as the Wright-Hargreaves mine.
Porcupine camp destroyed by fire with heavy loss of life.
Discovery of gold by J. J. Sullivan and H. Authier in Dubuisson twp., Quebec.
First recorded discovery of gold in Manitoba by Major E. A. Pelletier at Rice Lake.
First shipment of British Columbia gypsum used in cement manufacture.
Victoria Memorial Museum, Ottawa, completed.
Black Cobalt Oxide and Grey Cobalt Oxide first marketed from Deloro, Ont.
1912—Hollinger mine, Porcupine, commenced first milling operations.
Low grade cyanide process installed at Nipissing mine, Cobalt.
Copper Mountain claims, B.C., taken over by British Columbia Copper Co.
Natural gas production commenced in Stoney Creek field, New Brunswick.
Harry Oakes staked ground later known as Lake Shore Mine at Kirkland Lake, Ont.
1913—Tough-Oakes mine, Kirkland Lake camp, Ontario, shipped high grade cobbed ore.
Gold discovered on Kirkland Lake properties known later as Lake Shore, Teck-Hughes, Kirkland Lake and Sylvanite mines.
Smelting of nickel ores commenced by Mond Nickel Co. at Garson, Ont., May 15.
Incorporation of British America Nickel Co., Ltd.
1914—Supplementary Revenue Act in Ontario changed to The Mining Tax Act.
Doctor T. O. Bosworth staked petroleum claims at Fort Norman, N.W.T.
Granby copper smelter, at Anyox, B.C., blown in.
Cyanidation first used in Kirkland Lake camp, at Tough-Oakes mine.
1915—Siscoe mine claims staked in Quebec by S. E. Siscoe.

1915—Flin Flon ore deposits discovered by Thos. Creighton representing the Hammell-Currie-Fasken syndicate.
Mandy mine, Manitoba, discovered.
1916—Construction commenced on nickel refinery at Port Colborne, Ont.
Incorporation of International Nickel Co. of Canada.
Falconbridge Nickel deposits, Sudbury district, Ontario, later known as Falconbridge Nickel Mines, discovered by drilling.
Pioneer mine, B.C., commenced drilling operations.
Electrolytic refined copper and zinc first produced at Trail, B.C.
1917—Teck Hughes mine, Kirkland Lake, started milling.
Mandy mine, Man., produces.
1918—Tough-Oakes mine temporarily closed.
Refined nickel produced in Canada at Port Colborne plant of International Nickel Co.
Premier mine, B.C., came into production.
1919—Lake Shore, Wright-Hargreaves, and Kirkland Lake mills commenced operations.
Ontario Department of Mines formed.
Smelter of British America Nickel Co. at Nickelton, Ont., and refinery at Deschenes, Que., commenced operations.
L. Beauvet discovered silver-lead ores at Keno Hill, Mayo district, Yukon.
First salt shipments from Malagash deposits in Nova Scotia.
1920—Rock salt discovered at Fort McMurray, Alberta.
The first well, Discovery No. I, drilled at Fort Norman, N.W.T., by the Imperial Oil Company Ltd., petroleum found at 783 feet.
Mandy mine, Manitoba, suspends operations.
1921—Noranda ore deposits, Quebec, staked by Ed. Horne.
First shipment of silver-lead ores from Mayo, Yukon.
Rubber mill liners used at Nipissing mill, Cobalt, Ont.
1922—Amulet mine claims, Quebec, staked by McDonough Bros.
Rod mills appeared as milling equipment in Canadian mining plants.
Drilling commenced in Wainwright oil field.
1923—Granada mine claims, Rouyn, Quebec, staked by R. C. Gamble et al.
Sherritt-Gordon ore deposit staked by Carl Sherritt and Phillip Sherlett in January.
Red Coulee well first to reach oil in Sunburst formation, southern Alberta.
1924—British America Nickel Co. went into liquidation.
Royalite No. 4 well, Turner Valley, Alberta, brought into production.
Lithium ore discovered near Pointe du Bois, Manitoba.
1925—Discovery of gold in Red Lake district by Lorne Howey on what was later known as the Howey mine.
Silver-lead ores milled at Wernecke, Yukon.
Waite-Ackerman-Montgomery mine claims staked by H. Montgomery.
Allenby Copper Company took over Copper Mountain claims in August and shipped concentrates to Trail, B.C.
1926—Aluminum first produced at Arvida, P.Q., by Aluminum Company of Canada.
Falconbridge Nickel Mines incorporated.
1927—Noranda mine commenced shipping; smelter operated for first time.
Central Manitoba mine operated mill for first time.
Sherritt-Gordon mines incorporated in Ontario, July 5.
1928—Collapse of Worthington mine.
Waite-Ackerman-Montgomery mine started shipping.
Merger of Mond and International Nickel Companies.
Coniaurum mill, Porcupine camp, Ontario, commenced production in July.
March mine, Porcupine camp, Ontario, came into production.
Disastrous underground fire, in February, at Hollinger mine, Porcupine camp, Ontario, 39 lives lost.
Argonaut and Associated Goldfields suspended gold mining operations in Ontario.
Tough-Oakes-Burnside mine closed November 28.
1929—Red Coulee field, Alberta, began petroleum production.
Siscoe gold mine, Quebec, started production.
New 300 ton mill of Monarch mine, B.C., started producing.
Dome mine mill, Porcupine camp, Ontario, destroyed in October by fire.
New surface plant at Frood mine, Sudbury, Ont., placed in operation.
McIntyre mine, Porcupine, Ontario, erected small flotation plant.
1930—Gold discovered in Bannockburn township, Ontario, on what was later known as the Ashley mine.
Mill installed on Minto mine, Michipicoten, Ont.
New mill at Howey mine, Red Lake, Ont., commenced operations April 2.
Silver-radium ores discovered by G. Labine at Great Bear Lake, N.W.T.
Granada mine, Quebec, commenced production.
Manitoba, Saskatchewan and Alberta took over natural resources from Federal Government.

1930—Island Falls power plant, Manitoba, operated for first time, June 1.
First refined zinc produced in November at Flin Flon, Manitoba, by Hudson Bay Mining and Smelting Co.
First blister copper produced at Flin Flon, Manitoba, in December.
New smelter of International Nickel Co. blown in at Copper Cliff, July 1.
New electrolytic copper refinery of Ontario Refining Co. placed in operation at Copper Cliff, Ont.
New Falconbridge Nickel Mines smelter blown in February 4.
Bismuth first produced at Trail, B.C.
Fuming plant constructed at Trail, B.C., for recovery of lead and zinc.
Copper Mountain Mine, B.C., closed down November 15.
Canada attained position of the world's second greatest gold producer.
Nitre cake and sulphuric acid produced regularly in new plant of Canadian Industries Limited at Copper Cliff, Ont.
First discovery well drilled in Red Coulee Field, Alberta.

1931—Toburn (Tough-Oakes) mine, Kirkland Lake, re-opened.
Lake Shore mine, Kirkland Lake, Ont., installs 200 ton flotation unit in mill.
Gold discoveries made in Swayze and Three Duck Lake areas, Ontario.
Parkhill and Minto mines in Michipicoten district, Ontario, came into production.
Gold discovered at Island Lake, Manitoba.
Commercial production of fertilizer commenced at Trail, and smoke claims against Consolidated Mining and Smelting Company settled.
Nipissing Mining Company, Cobalt, Ont., ceased mining silver-cobalt ores.
Selenium produced for the first time in Canada by Ontario Refining Co. Ltd.
Mining Corporation discontinued mining in South Lorraine, Ont.
Keeley Silver mine, South Lorraine, Ont., closed.
Canadian Copper Refiners Ltd., operated new copper refinery at Montreal East, Quebec.
Regular production commenced by Sherritt-Gordon mill, Manitoba, April 1st.
Equalization exchange premiums paid by Dominion Government to gold miners.
Exports of gold bullion without licence prohibited by Dominion Government.
Great Britain went off the gold standard on September 21, and was followed by many other countries.
Big Missouri Mine, B.C., operated pilot mill.
Nickel Plate mine, Hedley, B.C., closed down.
Orford process plant completed at Copper Cliff, Ont.
Copper converters at Port Colborne, Ont., closed down in August, preparatory to transferring Orford process to Copper Cliff.
New Brunswick Power Commission plant came into operation in September, using Minto coal.
Test shipments of Ontario lignite from Onakawana deposits, made to Germany.

1932—Ashley mine, Ontario, commenced gold production in October.
Kenty mine in Swayze area, Ontario, sank two shafts.
O'Brien Cadillac mine, Quebec, commenced gold milling.
Sherritt-Gordon, Manitoba, suspended mining operations in June.
San Antonio gold mine, Manitoba, commenced production in May.
Beattie gold mines, Quebec, commenced construction of mill.
Treadwell Yukon Mining Co. commenced production of gold in new mill on Bussière claims in Quebec.
The United States imposed duty of 4 cents per pound, in June, on foreign copper.
McLeod River Mining Corporation operated gold dredge near Peers, Alberta.
Salt produced commercially for first time at Neepawa, Manitoba.
First commercial shipment of silver-radium ores from Great Bear Lake, N.W.T., silver ores being smelted at Trail, B.C.
Silver reached a record low of 24·5 cents in New York, December 29.
Eldorado Gold Mines commenced treatment of radium-bearing ores in new plant at Port Hope, Ont.
Moss mine, Thunder Bay district, Ontario, commenced gold production.
Mill at Bralorne mine, British Columbia, placed in operation.
Gold discovered at God's Lake, Manitoba.
Domestic copper sold in the United States, December 6, at 5 cents per pound, Connecticut, an all time low for the metal.
First officially recorded statistics of metal production for Saskatchewan.
Treadwell Yukon mill at Wernecke, Yukon, permanently shut down and camp abandoned.
Union of South Africa abandoned gold standard, December 28, 1932.
Small oil refinery operated at Fort Norman, N.W.T.
Gem Lake and Cryderman mines, Manitoba, commenced milling.

1933—United States ratified the silver agreement of the London Economic Conference December 22.
Amalgamation of Toronto and Standard Mining Stock Exchanges agreed upon.
Salt produced at Simpson, Sask.
Macassa mine, Kirkland Lake, Ontario, commenced milling.

1933—United States went off gold standard April 19.
Cariboo Gold Quartz Mining Co. commenced production near Barkerville, British Columbia.
First absorption plant put into operation in Alberta to extract liquids from Turner Valley gas.
Milling commenced at Island Lake mine, Manitoba.
Milling commenced at San Antonio mine, Manitoba.
Monarch mine, Field, British Columbia, resumed production.
Beattie Gold Mines, Quebec, commenced production of concentrates.
Port Hope radium refinery in Ontario came into production; radium and uranium compounds produced commercially in Canada for the first time.
Green-Stabell Gold Mine, Quebec, commenced milling.
Oro Grande mine, Manitoba, commenced milling.
Reno mine, British Columbia, resumed production after destruction of mill by fire.
Seal Harbour Gold Mines Ltd. commenced operations in Nova Scotia.
Montague Gold Mines Ltd. commenced work in Montague district, Nova Scotia.
Gem Lake mines, Manitoba, taken over by Diana Gold Mines Ltd.
1934—Perron gold mine commenced milling in July—northwest Quebec.
A well, Century 1, completed in Turner Valley, Alberta, produced crude oil instead of naphtha-laden gas.
Fifty ton amalgamation mill came into production at McWatters mine, northwest Quebec.
Milling commenced at Sullivan mine, northwest Quebec, in May.
Milling commenced at Little Long Lac mine, Ontario, November 24.
Milling commenced at J. M. Consolidated mine, Patricia district, Ontario, in May.
Milling commenced at Northern Empire mine, Ontario, March 13.
Milling commenced at Matachewan Consolidated Mine, Matachewan district, Ontario.
Milling commenced at Young-Davidson mine, Matachewan district, Ontario, on September 8.
Milling commenced at Central Patricia mine, Patricia district, Ontario, on May 27.
Tetreault mine, Portneuf county, Quebec, resumed production in November.
First actual production of selenium in Quebec; recovered by Canadian Copper Refiners Ltd. from anode copper from Noranda smelter.
Lloydminster No. 1 first commercial gas well in Saskatchewan came in at 1,975 feet, Lloydminster, March 30.
Lloydminster first town in Saskatchewan to use natural gas.
Discovery of gold south of Beaverlodge Lake, Saskatchewan, by C. Nyman or Tom Box.
January 31, the President of the United States issued a Proclamation reducing the gold weight of the United States dollar from 25·8 to 15 5/21 grains, 0·9 fine.
Dominion Tax on gold came into effect April 19.
Bralorne mill, British Columbia, capacity increased and late in year milling was commenced at the Dentonia, Island Mountain and Kootenay Belle properties.
Operations at Oro Grande mine, Manitoba, taken over by Beresford Lake Mines Ltd.; production suspended.
Guysboro Mines Ltd., Goldenville, Nova Scotia, commenced operations in July.
Rock wool industry established in Canada.
Operations resumed at Rex mine (Laguna), Manitoba.
Operations resumed at Gem mine, Manitoba, by Diana Gold Mines Ltd.
1935—Monarch mine, Field, British Columbia, suspended milling on December 5.
Treadwell Yukon Company Limited installed a new mill at Elsa mine, Mayo district Yukon.
Chromite ore smelted by Chromium Mining & Smelting Corporation Limited at Sault Ste. Marie, Ontario.
Operations suspended at Canusa mine, Porcupine district, in September.
Dominion Government transferred gold held against Dominion notes to Bank of Canada.
Milling commenced at Pickle Crow mine, Patricia district, Ontario, on May 1.
Milling commenced at Ross mine, Hislop township, Ontario, on January 1.
Milling commenced at McKenzie Red Lake mine in February.
Bank of Canada commenced operations on March 11.
Silver held by Dominion Government transferred to Bank of Canada.
United States Government's buying price of domestic silver raised to 77·57 cents in April.
Gold bullion tax discontinued after May 31 and depletion allowances revised for payments of gold mining dividends.
British Metals Corporation resumed operations in October at Sterling mine in Nova Scotia.
In northwest Quebec, the Arntfield, Canadian Malartic and Lamaque gold mines came into production.
Gold-bearing veins discovered in Sachigo River area, Patricia district, Ontario.
In British Columbia, new mills came into production at Ymir Yankee Girl, Second Relief and Sheep Creek gold mines.
First actual production of tellurium in Quebec; recovered from anode copper from Noranda smelter.
Milling commenced at God's Lake mine, Manitoba, in September.

1935—Milling suspended at Island Lake mine, Manitoba.
Colony gas wells Nos. 1, 2 and 3 came in at Lloydminster, Saskatchewan.
Rt. Hon. Sir Montague Barlow, Bt., appointed September 13 by Alberta Government to report on Alberta coal mining industry.
Bralorne and Bradian mines consolidated in British Columbia.
The Granby Consolidated Mining, Smelting and Power Company closed down its Anyox operations in August and the company went into voluntary liquidation.
Explosion at Lethbridge Collieries, Alberta, December 9—16 men killed.
Milling of ore from the Nickel Plate mine, British Columbia (Kelowna Exploration Co.), was resumed after some years of inactivity and the capacities of Cariboo Gold Quartz and Island Mountain mills were increased.
Granda Gold Mines, western Quebec, suspended production.
Discovery of natural gas at Kakwa, Saskatchewan.
Consolidated Mining & Smelting Company of Canada Ltd. commenced gold mining operations at Caribou, Nova Scotia, in August.
1936—Imperial coal mine, Coalhurst, Alberta, abandoned.
Pembina Peerless Colliery, Evansburg, Alberta, closed.
Shawkey mine, northwest Quebec, brought into production in February.
First cyanide gold mill erected in Nova Scotia, at Seal Harbour mine.
Perron Mines, northwest Quebec, brought new 125-ton mill into production in February.
Stadacona-Rouyn mine, northwest Quebec, brought into production in November.
Mining claims staked in Quebec reached an all-time high record of 17,503.
Ashley mine, Ontario, closed down in July.
Pamour mine, Porcupine district, Ontario, went into production in May.
Ardeen mine, Moss township, Ontario, closed down in December.
Red Lake Gold Shore mine came into production in August.
Argosy mine, Ontario, opened 125-ton mill in July.
Extensions made to both International and Falconbridge Nickel Companies' plants.
Gunnar gold mine, Manitoba, commenced production in May.
Rex mine (Laguna) Herb Lake, Manitoba, resumed production in August.
Clean-up operations conducted and final shipments made at Anyox copper mine, British Columbia.
Copper Cliff smelter enlarged by two furnaces and seven converters.
Ore dressing plant, mill and smelter at Falconbridge Nickel Mines enlarged.
Turner Valley Royalties No. 1 brought in as the first big crude oil producer in Turner Valley field.
Cadmium metal produced for first time by Hudson Bay Mining & Smelting Company at Flin Flon.
Amendment to Income Tax Act in May exempted new producing metal mines for 3 years.
Thompson Cadillac mine, western Quebec, commenced milling in June.
Belleterre mine, western Quebec, commenced milling in October.
Road from Amos to Val d'Or, Quebec, completed.
Milling capacity increased to 325 tons a day at San Antonio mine, Manitoba.
Adolph Studer discovered gold in September at Sulphide Lake, Saskatchewan.
25-ton gold mill erected on Monarch claim, Amisk Lake, Saskatchewan.
In British Columbia production was resumed at the Surf Inlet mine. New mills began operating in British Columbia at the Bayonne, Hedley Mascot and Wesko mines and the flotation mill at Kootenay Belle was replaced by a cyanide mill of greater capacity.
The Dentonia flotation mill, British Columbia, ceased operating.
Production of elemental sulphur and other products from lean roaster gases was commenced on a commercial scale at the Trail smelter.
Important gold discovery at O'Brien mine, Cadillac township, western Quebec.
Cave-in at Moose River gold mine, Nova Scotia—April.
1937—Milling commenced in July at Delnite mine, Porcupine district, Ontario.
Milling commenced at Raven River mill, Larder Lake district, Ontario.
Sand River mine, Thunder Bay district, Ontario, came into production.
Gurney gold mine, Manitoba, came into production in October.
Production resumed at Sherritt Gordon mine, Manitoba, on August 1.
Production resumed at Copper Mountain mine, Allenby, British Columbia, in June.
Bousquet and McMillan mines, Sudbury district, closed.
New Golden Rose cyanide mill, Temagami district, Ontario, completed.
Tashota mine, Ontario, closed down in October.
Gold Eagle mine, Patricia district, completed mill in October.
Hudson Patricia mine, Patricia district, closed.
Milling commenced at Bankfield mine, Ontario, in June.
Aldermac mine, western Quebec, resumed production in January.
Sigma mine, western Quebec, commenced milling in March.
Powell Rouyn mine, western Quebec, went into production, first shipment in June.
Waite Amulet mines, western Quebec, resumed production in June.
Cournor mine, western Quebec, resumed production.
Narrendd mine, western Quebec, went into production in September.

1937—Tetreault mine, Portneuf county, Quebec, closed.
Mining claims staked in Quebec reached an all-time high record of 18,841.
Goldfield, Saskatchewan, officially created a village in September.
Western Gem coal mine, Drumheller, Alberta, abandoned.
Regular mining and milling operations suspended at Central Manitoba mines, July 8.
First commercial shipment of lithium minerals in Canada made from Pointe du Bois district, Manitoba.
Gold Clauses Act passed (obligation to pay in gold not required).
Nova Scotia Government re-opened Lacey mine as a training project.
Colliery No. 20 opened at New Aberdeen, Nova Scotia, by Dominion Coal Co.
New gold mills commenced operating at Polaris Taku (November), and Durango mines, British Columbia.
The Quebec legislature passed a law enacting that a company must be constituted by a Quebec charter to acquire mining rights belonging to the Crown.
Beresford Lake Mines Ltd., Manitoba, resumed production in December.
Natural gas discovered at Kamsack, Saskatchewan.
1938—Mesabi mine, Kirkland Lake district, came into production in May.
Gas explosion at Hinton Collieries, Hinton, Alberta, March 30.
A vocational mine school was organized by Quebec Bureau of Mines at Gale mine.
A substantial deposit of copper-zinc ore discovered at Amulet mine, Quebec.
Rouyn-Louvincourt road completed in western Quebec.
Tionaga mine, Sudbury district, Ontario, came into production.
Parkhill and Algold mines, Algoma district, Ontario, closed down.
Morris Kirkland mine ceased operations in July.
Madsen Red Lake mine came into production in August.
Sachigo River mine, Patricia district, Ontario, started milling in May.
Consolidated-Rycon mill came into production in September—Yellowknife, Northwest Territories.
Hasaga mines, Red Lake, Ontario, took over Red Lake Gold Shores mill.
Privateer and Spud Valley mines, Zeballos district, British Columbia, commenced milling in the latter part of the year.
Gold Belt mine in the Sheep Creek camp, British Columbia, commenced milling.
Milling ceased at the Durango and Wesko properties, B.C.
Queens Mines Ltd. commenced operations during January in Molega district, Nova Scotia.
British Metals Corp. (Canada) Ltd. closed down mining operations at Stirling, Nova Scotia in February.
Moneta mine, Porcupine district, brought into production in January.
Big Missouri mill in Portland Canal area, British Columbia, came into production in May.
Development of Box mine near Goldfields, Saskatchewan.
Cariboo Hudson mine, British Columbia, commenced producing.
New mines commencing production in Quebec were the East Malartic, Francoeur, Halliwell, Lapa Cadillac, Lake Rose, Pan Canadian, Payore and Sladen-Malartic.
C.N.R. Bonneterre-Rouyn line completed in northwest Quebec.
Commercial production of mercury at Mud Creek, British Columbia.
Hallnor mine, Porcupine district, Ontario, brought into production in June.
Milling commenced in June at Golden Gate mine, Kirkland Lake district, Ontario.
Upper Canada mine, Kirkland Lake district, Ontario, came into production.
Kerr-Addison mine, Larder Lake, commenced milling on May 2.
Cline mine, Algoma district, Ontario, commenced milling in July.
McLeod-Cockshutt and Hardrock mines in Thunder Bay district, Ontario, started milling and Magnet mine shipped ore.
Gold discovered at Thompson, Wray and Russell Lakes, Northwest Territories.
Straw Lake Beach mine, Kenora district, Ontario, started milling.
Lapa Cadillac mine, western Quebec, commenced milling in August.
East Malartic mine, western Quebec, commenced milling in November.
Tombill mine, Thunder Bay district, came into production in February.
Discovery of bessemer grade hematite ore at Steep Rock Lake, Atikokan, Ontario, reported in March.
Tungsten mine opened at Goff, Nova Scotia.
Colliery No. 18 opened at New Waterford, Nova Scotia, by Dominion Coal Co.
Sladen Malartic mine, western Quebec, commenced milling in January.
Pan Canadian mine, western Quebec, went into production in May.
Payore mine, western Quebec, commenced milling in June.
Lake Rose mine, western Quebec, commenced milling in June.
Francoeur mine, western Quebec, went into production in August.
A Superior School of Mines, Geology and Metallurgy established in Quebec city.
Canadian Kaolin Silica Products Ltd. remodelled and enlarged its silica plant at St. Remi, Papineau county, Quebec; daily capacity increased to 500 tons.
Belleterre Quebec Mines Ltd. completed the erection of a hydro-electric power plant on Winneway River, Guillet township.
Oil found in wells at Lloydminster and Vara, Saskatchewan.

1939—New Gold Clauses Act passed.
Negus mine, Yellowknife, Northwest Territories, came into production in February.
Eustis mine, Quebec, closed permanently.
Export of copper, lead, zinc and various other metals and minerals prohibited without licence.
New Helen iron mine, Michipicoten district, Ontario, resumed production.
September 1, German army invades Poland.
September 3, Germany and Great Britain at war.
September 10, Canada declared war against Germany.
Income Tax amendment afforded tax credit to mining industry as a whole.
Amm gold mine, western Quebec, went into production in March.
Mooshla mine, western Quebec, went into production in August.
Malartic Gold Fields mine, western Quebec, commenced milling in December.
Chesterville mine, Larder Lake, Ontario, came into production in June.
Tyranite mine, Matachewan district, Ontario, came into production in June.
Ronda mine, Sudbury district, Ontario, produced from January to August.
Preston East Dome mine, Porcupine district, Ontario, came into production in March.
Magnet Consolidated Gold Mine, Thunder Bay district, Ontario, commenced milling in July.
Uchi mine, Patricia district, Ontario, commenced milling in May.
Cochenour Willans, Patricia district, Ontario, came into production in March.
Kenricia mine, Kenora district, Ontario, started milling in July.
Agwa mine, Ontario, began milling in July, closed down September 30.
Guysborough Mines Limited open new mine at Lake Charlotte, Nova Scotia.
Tungsten mine at Indian Path, Nova Scotia, reopened by Siscoe Gold Mines Ltd.
Wood Cadillac mine, western Quebec, commenced milling in December.
Bay View Colliery No. 8 opened at Joggins, Nova Scotia, by Joggins Coal Co. Ltd.
Central Cadillac mine, western Quebec, commenced milling operations in November, using Thompson-Cadillac mill.
Quebec Government established an ore sampling plant at mine school.
Waite Amulet Mines Ltd. built a new mill at Amulet mine.
Canadian Refractories Limited started development of large brucite deposits in Gatineau district of Quebec.
De Santis mine, Porcupine district, Ontario, commenced milling in July.
Broulan mine, Porcupine district, Ontario, commenced milling in November, using Mace mill.
Porcupine Lake mine closed down in April.
Mace mine, Porcupine district, Ontario, closed down in November.
New 150 ton mill of Upper Canada Mines, Kirkland Lake district, started.
Raven River mine ceased milling, Larder Lake, Ontario, in July.
Kerr-Addison mine, Larder Lake, Ontario, increased mill to 900 tons.
Tionaga mine, Sudbury district, Ontario, closed down in May.
Lebel Oro mine, Sudbury district, Ontario, closed down in October.
Algoma Summit mine, reopened under name of Magino.
Minto mine, Algoma district, Ontario, closed down July 31.
Ranson mine, Algoma district, started in July.
Hiawatha mine, Algoma district, Ontario, suspended operations in July.
Jellicoe mine, Thunder Bay district, Ontario, commenced ore shipments to Magnet mill in August.
Berens River mill, Patricia district, Ontario, started September 8.
Elora mill, Kenora district, Ontario, closed down in September.
Cordova mine, Hastings county, Ontario, resumed production in December.
Laguna (Rex) mine, Manitoba, suspends operations in December.
Gurney mine, Manitoba, suspends operations in November.
Flin Flon mine increases output to 5,200 tons a day.
Box mine mill, Goldfields, Saskatchewan, commenced operating in July.
Hillcrest Collieries, Alberta, abandoned.
Commercial production of tungsten concentrates at Wells, British Columbia, by Columbia Tungsten Co. Ltd.
Late in the year mills were completed at the Central Zeballos and Mont Zeballos properties in British Columbia.
Coalmont Collieries, British Columbia, ceased operations in April.
Shipment of bentonite made from a deposit 7 miles northwest of Morden, Manitoba.
J. A. Coulombe re-opened the Coulombe Titanic Iron Mine near St. Urbain, Charlevoix county, Quebec.
Montague Gold Mines Ltd. ceased operating during May in Nova Scotia.
Canadian base metals producers agree to supply the Imperial Government with copper, lead and zinc at prices prevailing shortly before the war.
1940—April 9, Canadian Government announced the formation of the Department of Munitions and Supply.
May 10, Germany invaded Belgium, Holland and Luxembourg.

1940—July 2, establishment of Wartime Industries Control Board at Ottawa.
In Quebec the Anim and Mooshla Gold Mines ceased production and the Pandora and Senator-Rouyn mines produced bullion for the first time.
Cordova and Addington gold mines in eastern Ontario closed down.
Aunor Gold Mines Ltd., Porcupine camp, Ontario, in January shipped bullion for the first time.
Broulan Porcupine mines, Ontario, erected a new mill.
Faymar Porcupine mine, Ontario, commenced milling in April.
Hollinger Cons. Gold Mines Ltd. erected the first concrete headframe in Canada.
Jellicoe Mines Ltd., Ontario, ceased operations.
McMarmac Red Lake Gold Mines Ltd., Ontario, came into production in October.
J. M. Consolidated Gold Mines Ltd., Ontario, ceased operations April 24.
Jason Mines Ltd., Ontario, resumed operations at the old Argosy mine in June.
Operations ceased at the Kenricia mine, Ontario, May 31.
Upper Seine Gold Mine, Ontario, resumed production.
Pamon Gold Mines Ltd. re-opened Monarch mine, Amisk Lake, Saskatchewan.
Hydro-electric plant completed by Consolidated Mining & Smelting Co. of Canada, Ltd., at Prosperous Lake, Northwest Territories.
Slave Lake Gold Mines Ltd. resumed operations in Northwest Territories in September.
Mercury gold mines, Northwest Territories, carried on exploration work.
Canadian Industrial Minerals Ltd., discovered important barite deposit in October at Pembroke, Hants county, Nova Scotia.
East deposit of Sherritt Gordon Mines Ltd., Manitoba, came into production.
Milling re-commenced at Monarch mine, B.C. January 15.
Eldorado mine, Northwest Territories, temporarily closed June 18.
Consolidated Mining & Smelting Company of Canada, Ltd., commenced production of mercury at Pinchi Lake, British Columbia in June.
Canada banned exports of copper except to Great Britain.
Publication of statistics relating to Canadian production of strategic metals and minerals banned in December.
Norwegian Nickel refinery of Falconbridge Nickel Mines Ltd. seized by Germans; company's matte now treated by International Nickel Company of Canada, Limited.
Operation of Western Exploration Company mill at Silverton, British Columbia, resumed in September.
Nicolet Asbestos Mines, Tingwick township, Quebec, resumed production in April.
The Quebec Legislature repealed the law passed in 1937 enacting that a company had to be incorporated under a law of the province to acquire mining rights on land forming part of public domain.
The Quyon Molybdenite Company Ltd. started production at the Moss mine, Onslow township, Quebec.
The Quebec Legislature passed the Unwrought Metal Sales Act to facilitate the suppression of illegal traffic in precious metals.
The Senneterre-Mont Laurier highway, Quebec, was opened to traffic.
Century mine, Elbow Lake, Manitoba, installed a century mill and produced some gold in July.
San Antonio mine, Manitoba, increased daily production to 550 tons in September.
Beresford Lake Mines Ltd., Manitoba, discontinued production in October.
50-ton sodium sulphate plant was erected at Sybouts Lake, Saskatchewan.
1941—Canadian Wartime Mine Shop Association formed in May.
Seal Harbour Gold Mines, Nova Scotia, closed down.
Senator-Rouyn completed its new mill in April.
Morris Kirkland Gold Mines, Ontario, closed down in December.
Hoyle Gold Mines, Ltd., Ontario, commenced milling in January.
Mic Mac Mines, western Quebec, commenced construction of a mill.
West Malartic mines, western Quebec, commenced erection of a mill.
The Quebec Government completed, in October, the erection of a hydro-electric power plant in Laudanet township, western Quebec.
New plant using vacuum process erected by Neepawa Salt Co., Manitoba, for greatly increased salt production.
Natural gas piped to Kamsack, Saskatchewan.
Discovery of glass sands at Red Deer River, Saskatchewan.
J. Purdy discovered an important deposit of muscovite mica on Lot 6, Concession 2 of Mattawan township, Nipissing district, Ontario.
Canadian Industrial Minerals Ltd. commence milling barite at Pembroke, Nova Scotia, in May.
First fluorspar mined in Nova Scotia at Lake Ainslie by North American Chemical Company.
Bonetal Gold Mines Ltd., Ontario, shipped ore in November.
New Golden Rose mine, Ontario, closed in September.
500-ton mill at Jerome mine, Ontario, commenced operating in August.
St. Anthony mine, Ontario, closed in December.

1941—Northern Empire Mines Ltd., Ontario, ceased operations.
Operations ceased at the Upper Seine mine, Ontario.
Operations at the Gold Eagle mine, Ontario, ceased September 12.
Mining ceased at Howey mine, Ontario, November 3.
Straw Lake Beach Mines ceased operations in July.
The Howe Sound Exploration Co. explored its Snow Lake property, Manitoba.
Preview Mines Ltd. operated a small gold mill at Sulphide Lake, Saskatchewan.
Clean-up operations were conducted at the Windpass mine, British Columbia.
Milling ceased at Relief Arlington mine, British Columbia, June 28.
Milling commenced at Ptarmigan mine, Northwest Territories, November 27.
Milling commenced at Thompson-Lundmark mine, Northwest Territories, August 19.
Golden Manitou Mines Ltd., Quebec, commenced erection of a mill.
Lake Geneva Mining Co. Ltd., Ontario, conducted mining and milling from August 1.
Zincton Mines Ltd., British Columbia, exported zinc concentrates.
Aluminum Company of Canada Ltd. erected a plant at Wakefield, Quebec, for the production of brucite granules.
Tin produced commercially for the first time in Canada; recovered at Trail, British Columbia, by the Consolidated Mining & Smelting Company of Canada, Ltd.
Magnesium powder produced at Trail, British Columbia, by Consolidated Mining and Smelting Company of Canada, Ltd.
Old Josephine iron mine, Algoma district, Ontario, being developed.
Strike of miners at Kirkland Lake, commenced November 18.
Reno Gold Mines mill, British Columbia, shut down late in the year.
Refinery of Abasand Oils Ltd., commenced operating near Fort McMurray, Alberta; plant destroyed by fire in November.
1942—March 6, Prime Minister King announced approval of construction of Alaskan Highway.
Wartime Metals Corporation formed in Canada.
West Malartic, Mic Mac and Golden Manitou mines came into production in Quebec.
Arntfield mine, Quebec, closed in April.
Abasand Oils Ltd., rebuilt refinery at Fort McMurray, Alberta.
Wood Cadillac mine, Quebec, closed in June.
Pandora mine, Quebec, closed in August.
Cournor mine, Quebec, suspended operations at midyear.
Operations suspended April 14 at Golden Gate and Crescent mines, Ontario.
Mining operations suspended at the De Santis, Faymar, Nakhodas and Naybob properties, Porcupine district, Ontario.
Hollinger Gold Mines, Ontario, completed a scheelite mill.
Tyranite mine, Ontario, suspended operations July 31.
Operations suspended at Rundle mine, Ontario, July.
Renabie property, Ontario, closed in May.
Cline Lake mine, Ontario, closed in November.
Production at Bankfield mine, Ontario, ceased August 30.
Operations ceased at Tombill and Elmos mines, Ontario, in November.
Operations ceased at Sturgeon River mine, Ontario, in October.
Sand River mine, Ontario, closed August 26.
Jason mine, Ontario, closed down October 10.
Gunnar Gold Mine, Manitoba, closed in June.
Box mine, Saskatchewan, closed August 15.
Polaris-Taku mine, British Columbia, closed in April.
Big Missouri mine, British Columbia, ceased operations in October.
Surf Inlet mine, British Columbia, ceased operations in November.
Bayonne mine, British Columbia, closed August 31.
Production of scheelite concentrates began early in the year at the Red Rose property, Hazelton, British Columbia.
Buccaneer mine, British Columbia, closed August 11
Central Zeballos mine, British Columbia, closed July 7.
Homeward mine, British Columbia, closed February 7.
Musketeer mine, British Columbia, closed July 23.
Mount Zeballos mine, British Columbia, closed April 30.
Spud Valley mine, British Columbia, closed June 30.
Ymir Yankee Girl mine, British Columbia, closed October 31.
New Calumet Mines carried on an extensive development program in Quebec.
Ptarmigan mine, Northwest Territories, closed in September.
Ruth mine, Northwest Territories, milled from August 1 to August 12.
International Tungsten Mines Ltd. (Slave Lake Gold Mines) operated only during first eight months of the year.
New copper deposit explored near Lennoxville, Quebec, by Aldermac Copper Corp. Ltd.
Miners' strike at Kirkland Lake ended February 11.
Indium produced in Canada for the first time at Trail, British Columbia.
Plant of Dominion Magnesium Ltd. near Renfrew, Ontario, came into production in September.

1942—Important molybdenite deposits discovered by Dome Exploration Co. in Pressiac township, Quebec.
Kootenay Bell mine, British Columbia, ceased milling late in year.
The Tetreault mine, at Montauban-les-Mines, Portneuf county, Quebec, was re-opened by Siscoe Metals Ltd.; production started in August.
Wartime Metals Corporation re-opened the old molybdenite reduction plant in LaCorne township, Quebec.
Wartime Metals Corporation re-opened the Belanger chromite mine, in Coleraine township, Quebec, and commenced erection of a mill.
Chromite Limited, Cleveland township, Quebec, commenced production of chromite concentrate.
The Quebec Department of Mines erected a scheelite mill at the mine school near Val d'Or.
For the first time the value of the annual mineral production of the province of Quebec reached the $100,000,000 mark.
Extensive deposits of chromite discovered in June, in Bird River area, Manitoba.
Ogama mine, Manitoba, ships gold ore to Gunnar mill.
Successful operations carried out in the production of peat moss for agricultural purposes from Julius bog, Moss Spur, Manitoba.
250-ton sodium sulphate plant erected at Alsask Lake, Sask., June.
Pamon gold mine plant, Saskatchewan, destroyed by fire May 13.
Eldorado pitchblende mine, Northwest Territories, re-opened in April.
Sherritt-Gordon mine, Manitoba, produced zinc concentrates, June.
United States established a price of 71·11 cents an ounce for silver produced in the United States; foreign silver 45 cents per ounce.
Seal Harbour Gold Mines Ltd. ceased operations in Nova Scotia.
Guysboro Mines Ltd., Nova Scotia, suspended operations.
Canol project started early in summer near Fort Norman, N.W.T., through military necessity; 14 wells, showing petroleum, drilled during year.

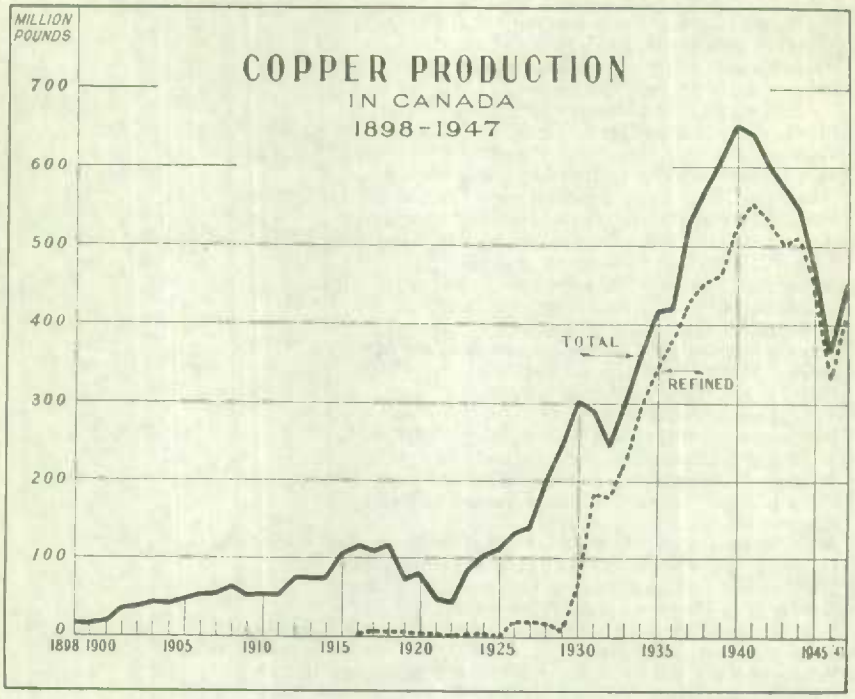
1943—Mandy mine, Manitoba, re-opened by Emergency Metals Ltd., produced concentrate in April.
Naybob mine, Porcupine district, Ontario, closed in January.
Moneta mine, Porcupine district, Ontario, closed in August.
Hoyle mine mill, Porcupine district, Ontario, destroyed by fire in July.
Yama mine, Larder Lake, Ontario, closed in February.
Young-Davidson mine, Ontario, closed from January to May.
Wendigo mine, Ontario, permanently closed in January.
Regnery Metals mine, Ontario, closed in April.
Uchi mine, Ontario; mining operations discontinued in March.
Magnet mine, Ontario, suspends operations in November.
Jerome mine, Ontario, suspends milling in August.
Gold rush into Missanabie, Ontario.
Privateer mill, British Columbia, closed in September.
Emerald and Red Rose tungsten mills in British Columbia shut down.
Elk River collieries, near Fernie, British Columbia, prepared for production.
Strike of coal miners in British Columbia and Alberta November 1 to November 13.
Indian Molybdenum Ltd. commenced production in September of molybdenite concentrates in Pressiac township, Quebec.
Development of Stobie and Murray nickel mines, Ontario, resumed; Old Alexo nickel mine, Ontario, re-opened by Harlin Nickel Mines Ltd.; ore shipped to International Nickel Company.
Ontario Nickel Corporation shipped nickel ore from Moose Lake, Sudbury district.
Bralorne Mines Ltd. produced mercury at Takla Lake, British Columbia.
Kenwest mine, Ontario, suspended operations in July.
Gold Belt mine, British Columbia, suspended operations in September.
Operations suspended at Con mine, Northwest Territories, September.
Operations suspended at Rycon mine, Northwest Territories, September.
Operations suspended at Thompson-Lundmark mine, Northwest Territories, October.
Reco Mountain Base Metals mines, British Columbia, shipped concentrates in November.
Twin "J" Mines Ltd., British Columbia, shipped concentrates in August.
Kootenay Florence mine, British Columbia, shipped concentrates in August.
New Calumet Mines Ltd., Quebec, came into production; zinc concentrates shipped in September.
Nickel Offsets Ltd. made shipments of nickel ore from near Chelmsford, Sudbury area.
Asphalt produced from bituminous sands in Alberta by Oil Sands Ltd.
Green Act raised United States Treasury price of silver to 71·11 cents per ounce.
Lava talc deposit developed in Kootenay National Park, British Columbia.
Molybdenite concentrates shipped from LaCorne mine, Quebec, a wartime project.

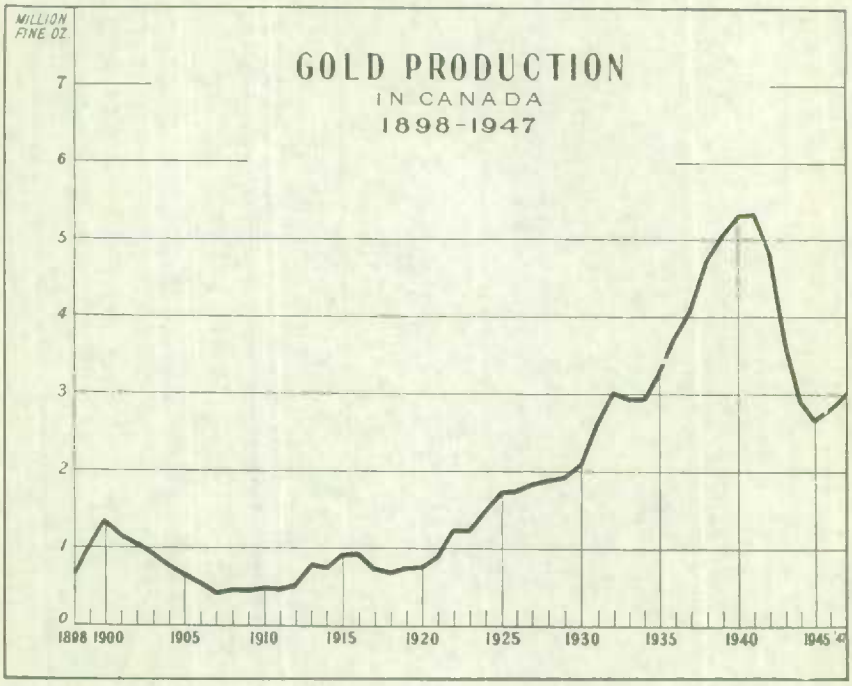
1944—Elder Gold Mines starts drilling northeast of Noranda.
Hosco moves drill to Joannes township property.

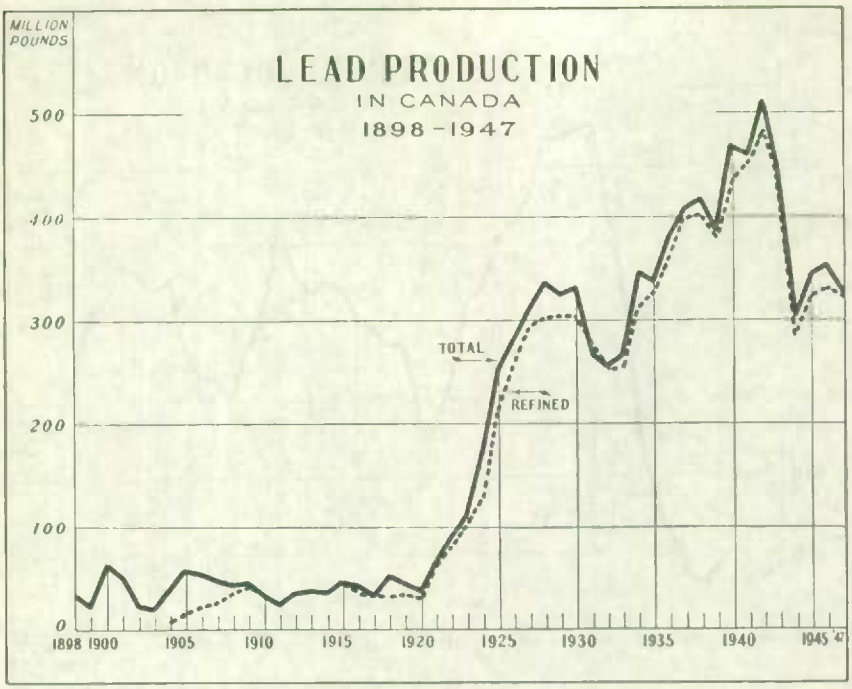
1944—Wasa Lake starts drilling property east of Aldermac.
Eldona drilling on property adjoining Donalda in Rouyn township.
Heva Cadillac cuts favourable structure in first drill hole.
Detomac mines commences production of fluorspar in Madoc area, Ontario.
Powell Rouyn mill damaged by tornado.
Aldermac Copper brought new base metal property, near Sherbrooke, Que., into production.
Discovery wells in Lloydminster area were Shaw Petroleum No. 3, Silverdale No. 1 and Lloyd Oil Producers No. 1.
Labour shortage forces shutdown of one of two reverberatory furnaces in smelter of Noranda Mines.
Springer Sturgeon shipped crude barite under contract with W.P.B. at Washington.
Base Metals Mining Co. resumed milling but production limited by manpower shortage.
Milling operations temporarily suspended at Negus Mines due to labour shortage.
Francoeur suspended milling, then shipped ore to Noranda smelter for flux.
Beattie suspended milling to concentrate available labour on mining.
Acute labour shortage forced suspension of mining and milling at McMarmac Red Lake.
Steep Rock Iron commences shipping of iron ore.
Pinchi Creek ceased production of mercury.
Whitehorse refinery produced high octane gasoline from Fort Norman petroleum.
Kam Kotia Porcupine suspended operations.
Hard Rock Gold Mines mill closed.
Jumping Pound area produced crude petroleum.
Thallium produced by Hudson Bay Mining & Smelting Co.
1945—Bevcourt cut values in first drill hole on Louvicourt property.
Richmac commenced drilling on Red Lake property.
Quemont drilled ore body outlined by magnetometer survey.
Buffadison commenced drilling Louvicourt ground under supervision of Noranda.
MacLeod-Cockshutt suspended milling due to labour shortage.
Victory in Europe. May 8, 1945.
First commercial oil well completed in Lloydminster, Sask., area.
Alger Gold starts drilling on old Thompson-Cadillac ground.
Falconbridge Nickel Co. refinery in Norway being readied to resume operation.
Aldermac Copper Corp. closed Moulton Hill plant.
Negus resumed milling.
Granby Consolidated cut milling to half of capacity.
Molybdenite Corp. acquired plant in LaCorne from Wartime Metals.
Japan surrendered Aug. 15, 1945.
Purdy Mica closed trimming plant at North Bay.
Jerome suspended operations.
Central Cadillac mine dewatered.
Oil well drilling resumed at Pekisko Hills.
Gunnar Gold sold mining plant to Ogama-Rockland.
Jason mine dewatered.
Sheep Creek resumed milling at Zincton mines.
Hard Rock Gold Mines resumed milling.
First commercial production of calcium in Canada by Dominion Magnesium Ltd.
Federal Government suspended operations in oil sand area, Fort McMurray.
1946—Ceiling price of silver was lifted.
West Malartic suspended milling.
5,000 quarts of nitroglycerine exploded in West Flank No. 2. Turner Valley, Alta.
Sherritt Gordon found nickel-copper in drill core at Granville Lake, Manitoba.
Lake Shore milling rate back to 1,000 tons daily.
Fire destroyed the plant of Bridge River Consolidated.
Milling resumed at Magnet Consolidated.
Undersill Mining dewatered old Sand River shaft.
MacLeod-Cockshutt resumed milling.
Hoyle mine was re-opened and ore was shipped to Pamour mill.
Privateer reopened mill at Zeballos.
Bayonne Consolidated resumed milling.
Pacific (Eastern) dewatered mine workings.
Mayfair dewatered Peoples Mine, Cobalt area.
Naybob resumed operations.
Workings dewatered at Silver Miller.
Western Exploration resumed milling at Silverton.
Woodhall stockpiled barite at Night Hawk Lake.
Canadian dollar placed on par with United States dollar.
Gold reduced from $38.50 to $35.00 per troy ounce.
Western Exploration suspended mill operation for second time within a year.
Elder started shipping gold ore to Noranda smelter.
Beattie mine filled with another rush of mud.
Production resumed at Polaris-Taku.

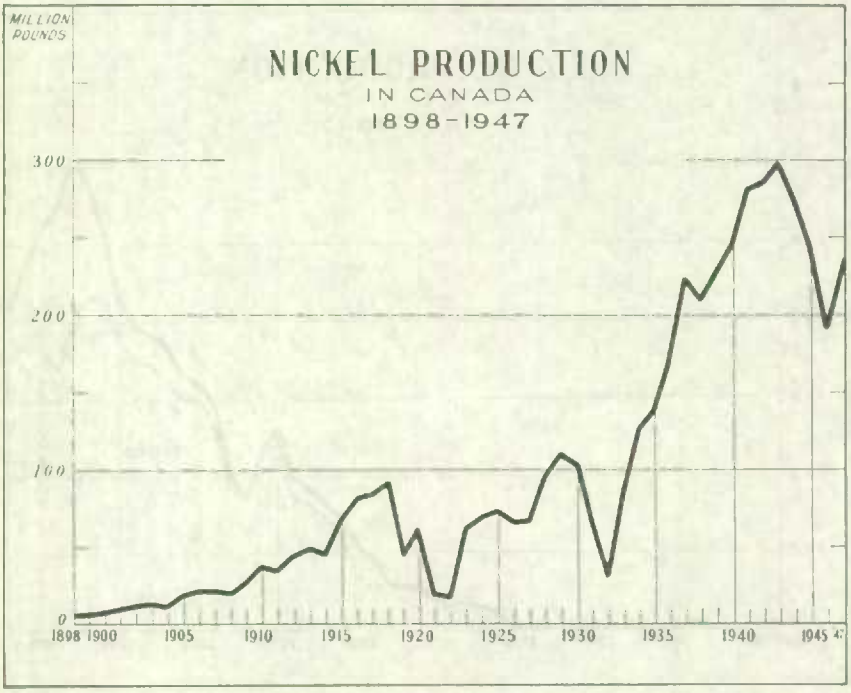
Jason resumed milling.
Stolberg well, Alberta, set new provincial depth record at 13,109 feet.
Work suspended at tar sands project at Bitumount.
Mill test runs made by Peg-Tantalum Mines.
Hasaga temporarily suspended milling.
Labour strike at Noranda Mines.
O'Brien made gold discovery at Bachelor Lake.
Prices of copper, lead and zinc raised while control remained.
First commercial production of bismuth concentrates in Quebec.
All weather highway to Red Lake was opened.

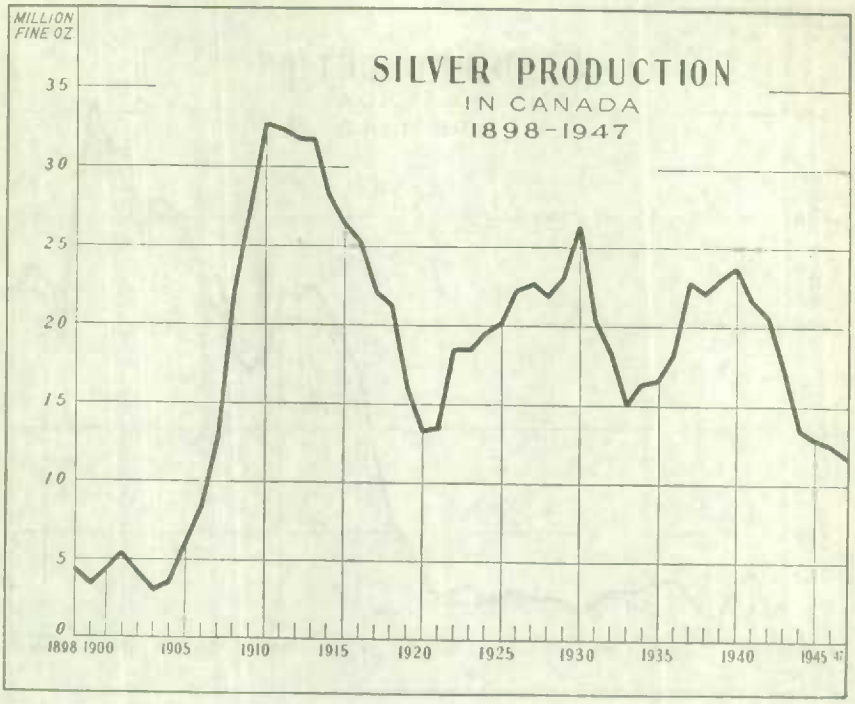
1947—Dominion Magnesium resumed operations at Haley, Ontario.
Kirkland Golden Gate resumed milling operations.
Control of Mic-Mac mines taken over by Continental Diamond Drilling.
Twin "J" resumed milling.
Leduc No. 1 of Imperial Oil blows in February 13th.
Francoeur suspended mining and milling.
New mill of American Nepheline Ltd. started.
Fire underground killed twelve men at East Malartic.
Hedley Mascot resumed milling.
Louvicourt poured first gold bar.
Sheep Creek resumed operations.
Duquesne shipped ore to Consolidated Beattie.
Milling operations started at Nitinat.
Western Exploration resumed milling at Slocan property.
Consolidated Central Cadillac resumed milling.
Renabie started operating mill.
After 34 month shutdown, McMarmac mill resumed operations.
Prices of base metals, except tin, decontrolled June 9th.
Thompson Lundmark resumed milling.
New mill at Dentonia started operation.
Salt produced by Maritime Industries Ltd. in Nova Scotia.
Jason suspended milling.
Production started by Newcor Mining & Refining Ltd.
Base Metal Mining resumed milling.
Labour strike at Sherritt Gordon mines.
New Marlon poured its first gold bar.

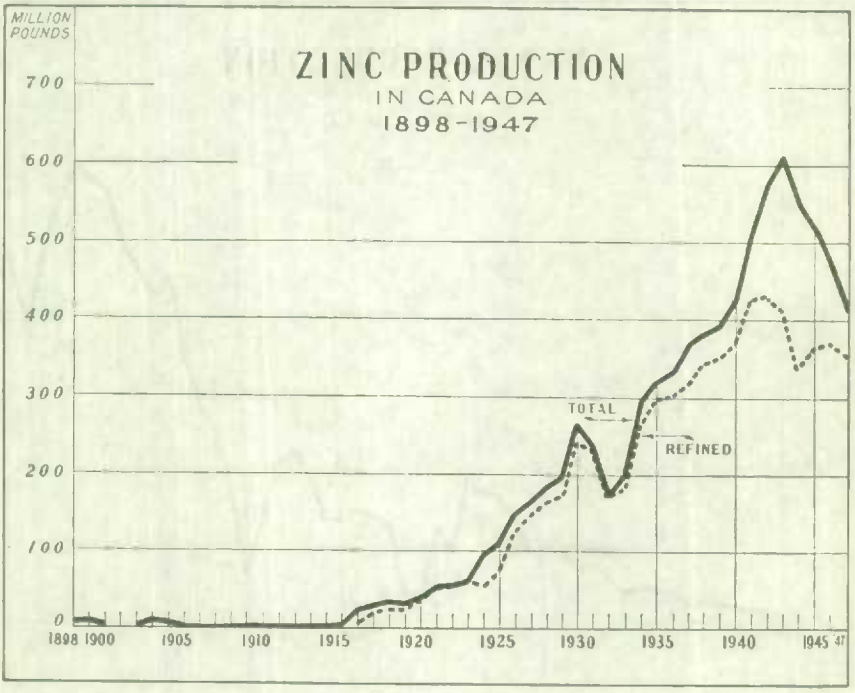

MILLION POUNDS
COPPER PRODUCTION
IN CANADA
1898-1947
700
600
500
400
300
200
100
0
TOTAL
REFINED
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47

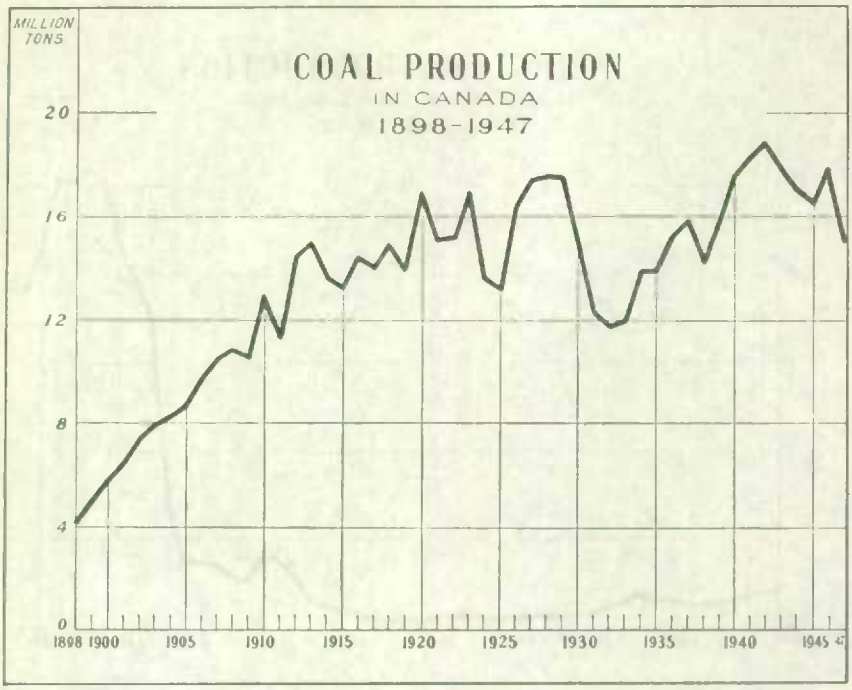

MILLION FINE OZ.
GOLD PRODUCTION
IN CANADA
1898-1947
7
6
5
4
3
2
1
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47

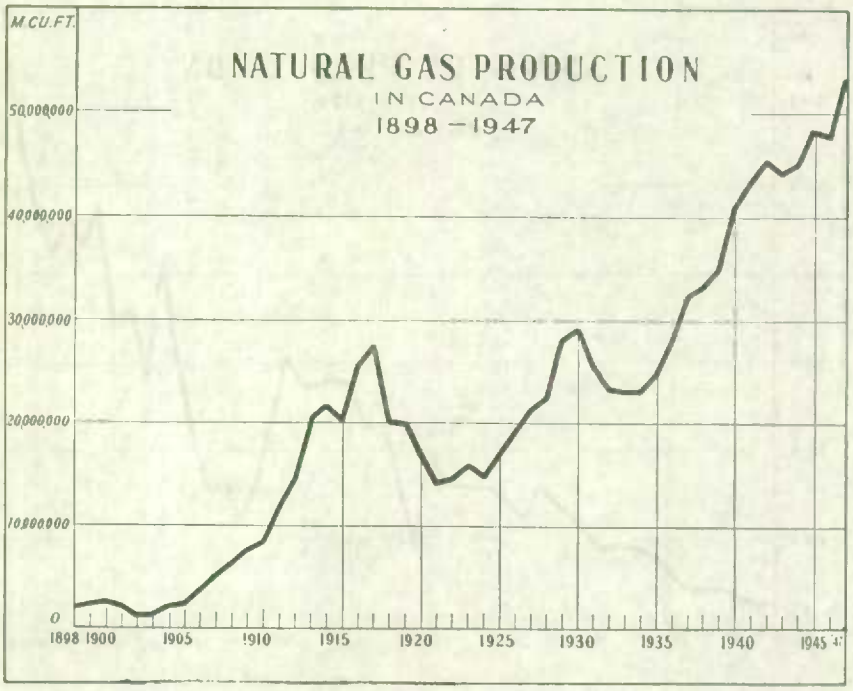

MILLION POUNDS
LEAD PRODUCTION
IN CANADA
1898-1947
500
400
300
200
100
0
TOTAL
REFINED
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 47

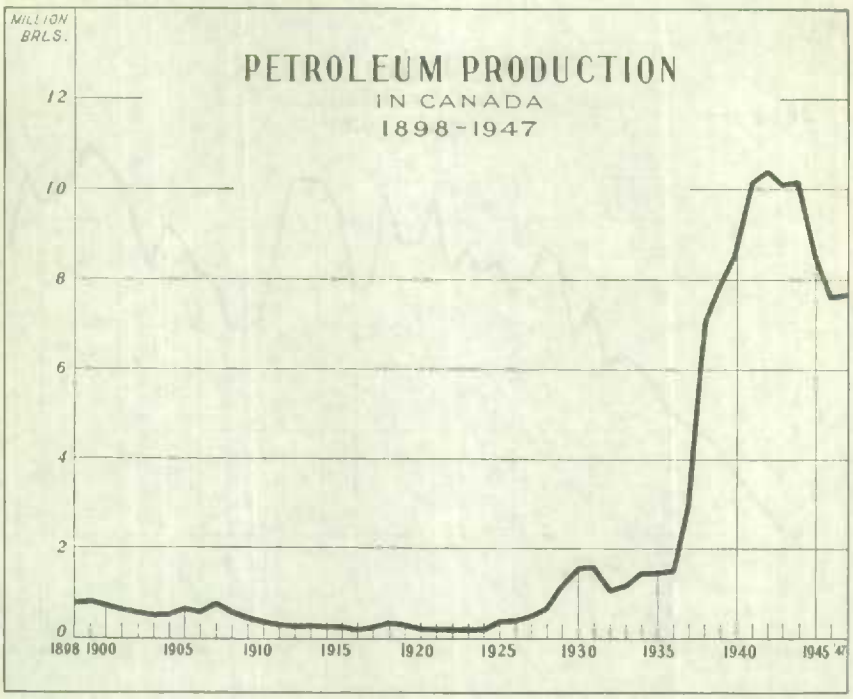

MILLION POUNDS
NICKEL PRODUCTION
IN CANADA
1898-1947
300
200
100
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 47

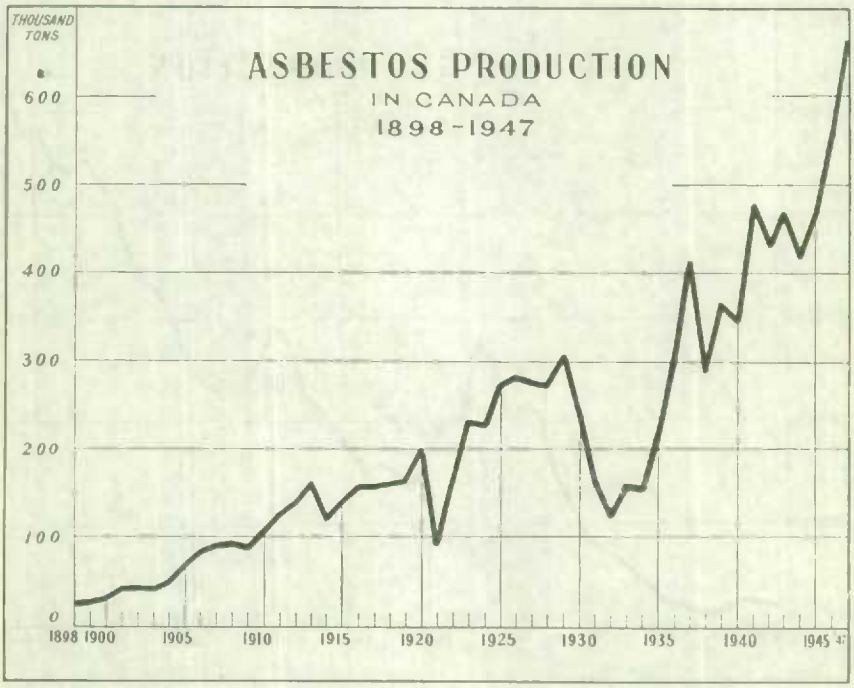

MILLION FINE OZ
SILVER PRODUCTION
IN CANADA
1898-1947
35
30
25
20
15
10
5
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 47

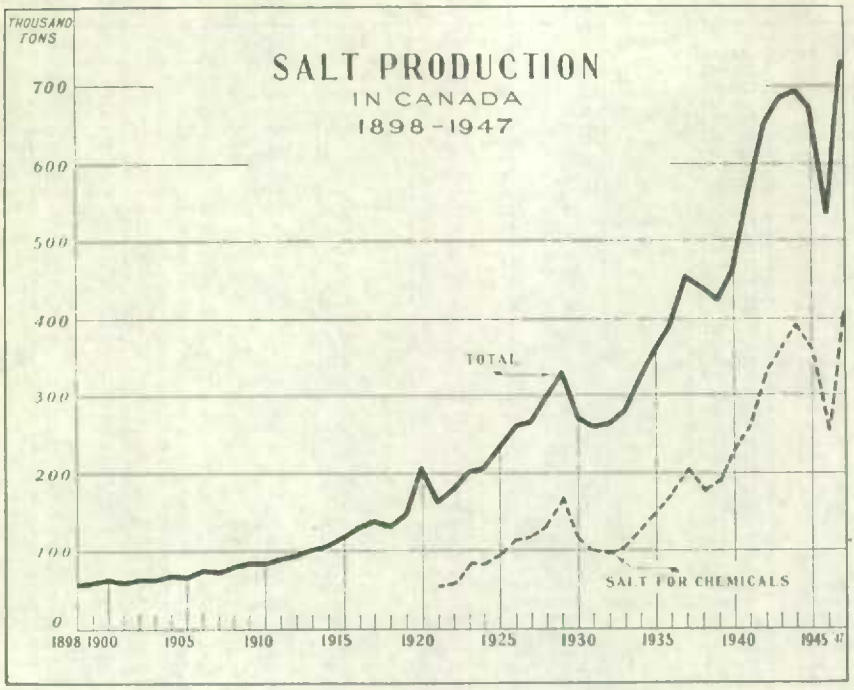

MILLION POUNDS
ZINC PRODUCTION
IN CANADA
1898-1947
700
600
500
400
300
200
100
0
TOTAL
REFINED
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 47

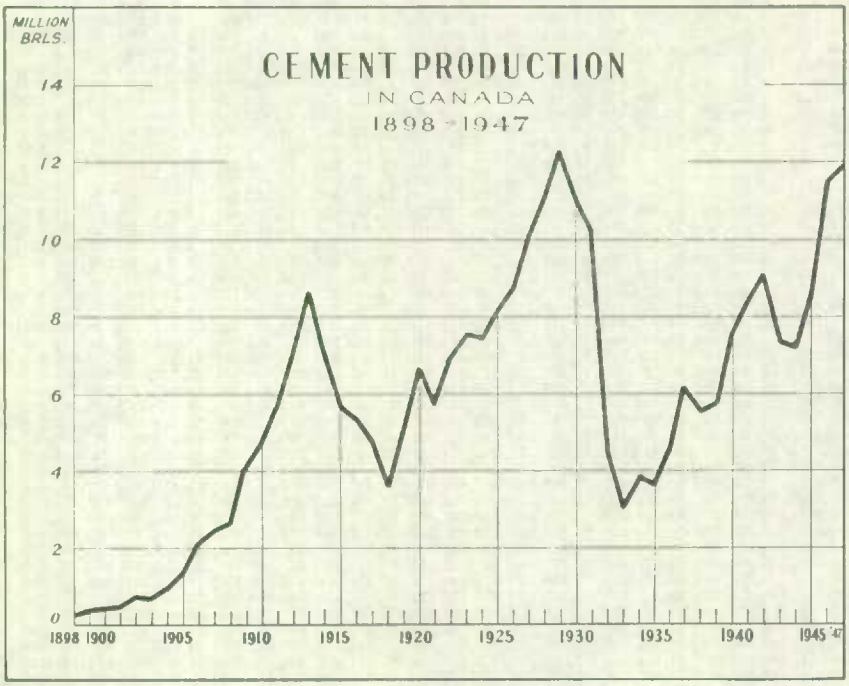

MILLION TONS
COAL PRODUCTION
IN CANADA
1898-1947
20
16
12
8
4
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 47


M.CU.FT.
NATURAL GAS PRODUCTION
IN CANADA
1898 -1947
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 47


MILLION BRLS.
PETROLEUM PRODUCTION
IN CANADA
1898-1947
12
10
8
6
4
2
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47


THOUSAND TONS
ASBESTOS PRODUCTION
IN CANADA
1898-1947
600
500
400
300
200
100
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47


THOUSAND TONS
SALT PRODUCTION
IN CANADA
1898-1947
700
600
500
400
300
200
100
0
TOTAL
SALT FOR CHEMICALS
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47


MILLION BRLS.
CEMENT PRODUCTION
IN CANADA
1898-1947
14
12
10
8
6
4
2
0
1898 1900
1905
1910
1915
1920
1925
1930
1935
1940
1945 '47

Historical Summary of Canada's Mineral Production—Dominion Totals

Year	Gold*		Silver		Copper		Lead		Zinc†	
	fine oz.	$	fine oz.	$	pounds	$	pounds	$	pounds	$
1858..	34,104	705,000	.....	.....	.....	.....	.....	.....	.....	.....
1859..	78,129	1,615,072	.....	.....	.....	.....	.....	.....	.....	.....
1860..	107,806	2,228,543	.....	.....	.....	.....	.....	.....	.....	.....
1861..	128,973	2,666,118	.....	.....	.....	.....	.....	.....	.....	.....
1862..	135,391	2,798,774	.....	.....	.....	.....	.....	.....	.....	.....
1863..	202,498	4,186,011	.....	.....	.....	.....	.....	.....	.....	.....
1864..	199,605	4,126,199	.....	.....	.....	.....	.....	.....	.....	.....
1865..	192,898	3,987,562	.....	.....	.....	.....	.....	.....	.....	.....
1866..	152,555	3,153,597	.....	.....	.....	.....	.....	.....	.....	.....
1867..	145,775	3,013,431	.....	.....	.....	.....	.....	.....	.....	.....
1868..	134,169	2,773,527	.....	.....	.....	.....	.....	.....	.....	.....
1869..	102,720	2,123,405	.....	.....	.....	.....	.....	.....	.....	.....
1870..	83,415	1,724,348	.....	.....	.....	.....	.....	.....	.....	.....
1871..	105,187	2,174,412	.....	.....	.....	.....	.....	.....	.....	.....
1872..	90,283	1,866,321	.....	.....	.....	.....	.....	.....	.....	.....
1873..	74,346	1,536,871	.....	.....	.....	.....	.....	.....	.....	.....
1874..	97,856	2,022,862	.....	.....	.....	.....	.....	.....	.....	.....
1875..	130,300	2,693,533	.....	.....	.....	.....	.....	.....	.....	.....
1876..	97,729	2,020,233	.....	.....	.....	.....	.....	.....	.....	.....
1877..	94,304	1,949,444	.....	.....	.....	.....	.....	.....	.....	.....
1878..	74,420	1,538,394	.....	.....	.....	.....	.....	.....	.....	.....
1879..	76,547	1,582,358	.....	.....	.....	.....	.....	.....	.....	.....
1880..	63,121	1,304,824	.....	.....	.....	.....	.....	.....	.....	.....
1881..	63,524	1,313,153	.....	.....	.....	.....	.....	.....	.....	.....
1882..	60,288	1,246,268	.....	.....	.....	.....	.....	.....	.....	.....
1883..	53,853	1,113,246	.....	.....	.....	.....	.....	.....	.....	.....
1884..	51,202	1,058,439	.....	.....	.....	.....	.....	.....	.....	.....
1885..	55,575	1,148,829	.....	.....	.....	.....	.....	.....	.....	.....
1886..	70,782	1,463,196	.....	.....	3,505,000	385,550	.....	.....	.....	.....
1887..	57,460	1,187,804	355,083	347,271	3,260,424	366,798	204,800	9,216	.....	.....
1888..	53,145	1,098,610	437,232	410,998	5,562,864	927,107	674,500	29,812	.....	.....
1889..	62,653	1,295,159	383,318	358,785	6,809,752	936,341	165,109	6,488	.....	.....
1890..	55,620	1,149,776	400,687	419,118	6,013,671	947,153	105,000	4,704	.....	.....
1891..	45,018	930,614	414,523	409,549	9,529,401	1,226,703	88,665	3,857	.....	.....
1892..	43,905	907,601	310,651	272,130	7,087,275	818,580	808,420	33,064	.....	.....
1893..	47,243	976,603	428,738	330,128	8,109,856	871,809	2,135,023	79,636	.....	.....
1894..	54,600	1,128,688	847,697	534,049	7,708,789	736,960	5,703,222	187,636	.....	.....
1895..	100,798	2,083,674	1,578,275	1,030,299	7,771,639	836,228	16,461,794	531,716	.....	.....
1896..	133,262	2,754,774	3,205,343	2,149,503	9,393,012	1,021,960	24,199,977	721,159	.....	.....
1897..	291,557	6,027,016	5,558,446	3,323,395	13,300,802	1,501,660	39,018,219	1,396,853	.....	.....
1898..	666,386	13,775,420	4,452,333	2,593,929	17,747,136	2,134,980	31,915,319	1,206,399	788,000	36,011
1899..	1,028,529	21,261,584	3,411,644	2,032,658	15,078,475	2,655,319	21,862,436	977,250	814,000	46,805
1900..	1,350,057	27,908,153	4,468,225	2,740,362	18,937,138	3,065,922	63,109,821	2,760,521	212,800	9,342
1901..	1,167,216	24,128,503	5,539,192	3,265,354	37,827,019	6,096,581	51,900,958	2,249,387	.....	.....
1902..	1,032,161	21,336,667	4,291,317	2,238,351	38,804,259	4,511,383	22,956,381	934,095	142,200	6,882
1903..	911,559	18,843,590	3,198,581	1,709,642	42,684,454	5,649,487	18,139,283	768,562	900,000	48,600
1904..	796,374	16,462,517	3,577,526	2,047,095	41,383,722	5,306,635	37,531,244	1,617,221	477,568	24,350
1905..	684,951	14,159,195	6,000,023	3,621,133	48,092,753	7,497,660	56,804,915	2,676,632	9,413	139,200
1906..	556,415	11,502,120	8,473,379	5,659,455	55,609,888	10,720,474	54,608,217	3,089,187	1,154	23,800
1907..	405,517	8,382,780	12,779,799	8,348,659	56,979,205	11,398,120	47,738,703	2,542,086	1,573	49,100
1908..	476,112	9,842,105	22,106,233	11,686,239	63,702,873	8,413,876	43,195,733	1,814,221	452	3,215
1909..	453,865	9,382,230	27,529,473	14,178,504	52,493,863	6,814,754	45,857,424	1,692,139	18,371	242,699
1910..	493,707	10,205,835	32,869,264	17,589,455	55,692,369	7,094,094	32,987,508	1,216,249	5,063	120,003
1911..	473,159	9,781,077	32,559,044	17,355,272	55,648,011	6,886,998	23,784,969	827,717	2,590	101,072
1912..	611,885	12,648,794	31,955,560	19,440,165	77,832,127	12,718,548	35,763,475	1,597,554	6,415	213,774
1913..	802,973	16,598,923	31,845,803	19,040,924	76,976,925	11,753,606	37,662,703	1,754,705	7,889	186,827
1914..	773,178	15,983,007	28,449,821	15,593,631	75,735,960	10,301,606	36,337,765	1,627,568	10,893	262,563
1915..	918,056	18,977,901	26,625,960	13,228,842	100,785,150	17,410,635	46,316,450	2,593,721	14,895	554,938
1916..	930,492	19,234,976	25,459,741	16,717,121	137,150,028	31,867,150	41,497,615	3,532,692	23,364,760	2,991,623
1917..	738,831	15,272,092	22,221,274	18,091,895	109,227,332	29,687,980	32,576,280	3,628,020	29,668,764	2,640,837
1918..	699,081	14,463,689	21,383,979	20,693,704	118,769,434	29,250,536	51,398,002	4,754,315	35,083,175	2,862,436
1919..	766,764	15,850,423	16,020,657	17,802,474	75,053,581	14,028,265	43,827,699	3,053,037	32,194,707	2,362,448
1920..	765,007	15,814,098	13,330,357	13,450,330	81,600,691	14,244,217	35,953,717	3,214,262	39,863,912	3,057,961
1921..	926,329	19,148,920	13,543,198	8,485,355	47,620,820	5,953,555	66,679,592	3,828,742	53,089,356	2,471,338
1922..	1,263,364	26,116,050	18,626,439	12,576,758	42,879,818	5,738,177	93,307,371	5,817,702	56,290,000	3,217,536
1923..	1,233,341	25,495,421	18,601,744	12,067,509	86,881,537	12,529,186	111,234,466	7,985,522	60,416,240	3,991,701
1924..	1,525,382	31,532,443	19,736,323	13,180,113	104,457,447	13,604,538	175,485,499	14,221,345	98,909,077	6,274,791
1925..	1,735,735	35,880,826	20,228,988	13,971,150	111,450,538	15,649,882	253,590,578	23,127,460	109,268,511	8,328,446
1926..	1,754,228	36,263,110	22,371,924	13,894,531	133,094,942	17,490,300	283,801,265	19,240,651	149,938,105	11,130,413
1927..	1,852,785	38,300,464	22,736,698	12,816,677	140,147,440	17,195,487	311,423,161	16,477,139	165,495,525	10,250,793
1928..	1,880,592	39,082,005	21,936,407	12,761,725	202,696,046	28,598,249	337,946,688	15,553,231	184,647,374	10,143,650
1929..	1,928,308	39,861,663	23,143,261	12,264,308	248,129,760	43,415,258	326,522,560	16,544,248	197,267,087	10,626,778
1930..	2,102,068	43,453,601	26,443,823	10,089,376	303,478,356	37,948,359	332,894,163	13,102,635	267,643,505	9,035,166
1931..	2,693,892	58,093,396	20,562,247	6,141,943	292,304,390	24,114,065	267,342,482	7,260,183	237,245,451	6,059,249
1932..	3,044,387	71,479,373	18,347,907	5,811,081	247,679,070	15,294,058	255,947,378	5,409,704	172,283,558	4,144,454
1933..	2,949,309	84,350,237	15,187,950	5,746,027	299,982,448	21,634,853	266,475,191	6,372,998	199,131,984	6,393,132
1934..	2,972,074	102,536,553	16,415,282	7,790,840	364,761,062	26,671,438	346,276,576	8,436,658	298,579,683	9,087,571
1935..	3,284,890	115,595,279	16,618,558	10,767,148	418,997,700	32,301,960	339,105,079	10,624,772	320,649,859	9,936,908
1936..	3,748,028	131,293,421	18,334,487	8,273,804	421,027,732	39,514,101	383,189,909	14,993,869	333,182,736	11,045,007
1937..	4,096,213	143,326,493	22,977,751	10,312,644	530,028,615	68,917,219	411,999,484	21,053,173	370,337,589	18,153,949
1938..	4,725,117	166,205,990	22,219,195	9,660,239	571,249,664	56,554,034	418,927,660	14,008,941	381,506,588	11,723,698
1939..	5,094,379	184,115,951	23,163,629	9,378,490	608,825,570	60,934,859	388,569,550	12,313,768	394,533,860	12,108,244
1940..	5,311,145	204,479,083	23,833,752	9,116,172	655,593,441	65,773,961	471,850,256	15,863,605	424,028,862	14,463,624
1941..	5,345,170	205,789,392	21,754,408	8,323,454	643,316,713	64,407,497	460,167,005	15,470,815	512,381,636	17,477,337
1942..	4,841,306	186,390,281	20,695,101	8,728,296	603,661,826	60,417,372	512,142,562	17,218,233	580,257,373	19,792,579
1943..	3,651,301	140,575,088	17,344,569	7,849,111	575,190,132	67,170,601	444,060,763	16,670,041	610,754,354	24,430,174
1944..	2,922,911	112,532,073	13,627,109	5,859,656	547,070,118	65,257,172	304,582,198	13,706,199	550,823,353	23,685,405
1945..	2,696,727	103,823,990	12,942,906	6,083,166	474,914,052	59,322,261	346,994,472	17,349,723	517,213,604	33,308,556
1946..	2,832,554	104,096,359	12,544,100	10,493,139	367,936,875	46,632,093	353,973,776	23,893,230	470,620,360	36,755,450
Total	**97,827,035**	**2,892,308,330**	**906,406,934**	**511,144,131**	**10,565,231,970**	**1,243,135,303**	**9,267,891,885**	**499,676,278**	.....	**350,597,787**

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Nickel		Cobalt		Arsenic		Platinum*		Palladium and other precious metals (b)	
	Pounds	$	Pounds	$	Tons	$	Fine oz.	$	Fine oz.	$
1885	.....	.....	.....	.....	440	17,600	.....	.....	.....	.....
1886	.....	.....	.....	.....	120	5,460	.....	.....	.....	.....
1887	.....	.....	.....	.....	30	1,200	.....	5,600	.....	.....
1888	.....	.....	.....	.....	30	1,200	.....	6,000	.....	.....
1889	830,477	498,286	.....	.....	.....	.....	.....	3,500	.....	.....
1890	1,435,742	933,232	.....	.....	25	1,500	.....	4,500	.....	.....
1891	4,035,347	2,421,208	.....	.....	20	1,000	.....	10,000	.....	.....
1892	2,413,717	1,399,956	.....	.....	.....	.....	.....	3,500	.....	.....
1893	3,982,982	2,071,151	.....	.....	.....	.....	.....	1,800	.....	.....
1894	4,907,430	1,870,958	.....	.....	7	420	.....	950	.....	.....
1895	3,888,525	1,360,984	.....	.....	.....	.....	.....	3,800	.....	.....
1896	3,397,113	1,188,990	.....	.....	.....	.....	.....	750	.....	.....
1897	3,997,647	1,399,176	.....	.....	.....	.....	.....	1,600	.....	.....
1898	5,517,690	1,820,838	.....	.....	.....	.....	.....	1,500	.....	.....
1899	5,744,000	2,067,840	.....	.....	57	4,872	.....	825	.....	.....
1900	7,080,227	3,327,707	.....	.....	303	22,725	.....	.....	.....	.....
1901	9,189,047	4,594,523	.....	.....	695	41,676	.....	457	.....	.....
1902	10,693,410	5,025,903	.....	.....	800	48,000	2,385	46,502	4,411	86,014
1903	12,505,510	5,002,204	.....	.....	257	15,420	1,710	33,345	3,177	61,952
1904	10,547,883	4,219,153	32,000	19,960	.....	.....	551	10,872	952	18,564
1905	18,876,315	7,550,526	236,000	100,000	.....	.....	574	11,870	1,003	16,746
1906	21,490,955	8,948,834	642,000	80,704	201	14,058	112	3,140	202	2,512
1907	21,189,793	9,535,407	1,478,000	104,426	986	47,303	227	7,032	607	.....
1908	19,143,111	8,231,538	2,448,000	111,118	1,702	58,566	172	2,807	328	Values
1909	26,282,991	9,461,877	3,066,000	94,065	1,353	67,446	547	13,604	1,271	.....
1910	37,271,033	11,181,310	2,196,000	54,699	2,049	81,044	258	8,437	523	.....
1911	34,098,744	10,229,623	1,704,000	170,890	2,097	76,237	666	28,718	753	not
1912	44,841,542	13,452,463	1,868,000	314,381	2,045	89,262	497	22,638	680	.....
1913	49,676,772	14,903,032	1,642,000	420,386	1,692	101,463	211	9,151	399	.....
1914	45,517,937	13,655,381	702,000	590,406	1,737	104,015	748	33,765	1,272	complete
1915	68,308,657	20,492,597	412,000	383,261	2,396	147,830	475	22,366	600	.....
1916	82,958,564	29,035,497	800,000	805,014	2,186	262,349	1,032	85,418	1,602	.....
1917	84,330,280	33,732,112	674,000	1,138,190	2,936	669,431	1,028	103,661	1,679	.....
1918	92,507,293	37,002,917	760,000	1,640,310	3,560	563,639	689	71,428	1,260	.....
1919	44,544,883	17,817,953	596,000	1,019,479	3,389	509,924	667	74,311	1,128	.....
1920	61,335,706	24,534,282	566,000	1,605,365	2,459	447,848	595	37,680	1,425	.....
1921	19,293,060	6,752,571	251,986	755,958	1,491	233,763	292	22,599	913	.....
1922	17,597,123	6,158,993	569,960	1,852,370	2,576	321,037	470	45,863	1,219	.....
1923	62,453,843	18,332,077	888,061	2,530,974	3,210	626,815	1,217	141,826	2,036	183,560
1924	69,536,350	19,470,178	948,704	1,682,395	2,311	348,293	9,186	1,091,427	9,516	863,113
1925	73,857,114	15,946,672	1,116,492	2,328,517	1,717	130,302	8,698	1,028,192	8,288	648,969
1926	65,714,294	14,374,163	664,778	1,136,014	2,537	146,811	9,521	923,607	10,924	640,178
1927	66,798,717	15,262,171	880,590	1,764,534	3,114	211,979	11,228	717,613	11,545	554,190
1928	96,755,578	22,318,907	956,590	1,672,320	2,716	193,052	10,532	708,909	13,607	627,833
1929	110,275,912	27,115,461	929,415	1,801,915	2,615	171,320	12,519	846,756	17,318	809,289
1930	103,768,857	24,455,123	694,163	1,144,007	2,261	129,527	34,024	1,543,261	34,092	895,867
1931	65,666,320	15,267,453	521,051	651,179	1,787	135,170	44,775	1,596,900	46,918	1,217,717
1932	30,327,968	7,179,862	490,631	587,957	1,212	98,714	27,343	1,099,393	37,613	901,890
1933	83,264,658	20,130,480	466,702	597,752	734	56,534	24,788	857,590	31,009	645,043
1934	128,687,340	32,139,425	594,671	592,497	824	56,412	116,230	4,490,763	83,932	1,699,228
1935	138,516,240	35,345,103	681,419	512,705	1,279	75,326	105,374	3,445,730	84,772	1,962,937
1936	169,739,393	43,876,525	887,591	804,676	683	42,491	131,571	5,320,731	103,671	2,483,076
1937	224,905,046	59,507,176	507,064	848,145	695	41,032	139,377	6,752,816	119,829	3,179,782
1938	210,572,738	53,914,494	459,226	790,913	1,088	56,538	161,326	5,196,704	130,893	3,677,342
1939	226,105,865	50,920,305	732,561	1,213,454	871	52,257	148,902	5,222,589	135,402	4,199,622
1940	245,557,871	59,822,591	794,359	1,235,220	1,047	62,798	108,488	4,240,362	91,522	3,520,746
1941	282,258,235	68,656,795	263,257	255,904	1,769	153,195	124,317	4,750,153	97,432	3,396,304
1942	285,211,803	69,998,427	(a)83,871	88,444	7,484	652,041	258,228	10,898,561	222,573	8,279,221
1943	288,018,615	71,675,322	175,961	191,407	1,577	254,009	219,713	8,458,951	126,004	5,233,068
1944	274,598,629	69,204,152	36,283	34,106	1,313	180,866	157,523	6,064,635	42,929	1,960,085
1945	245,130,983	61,982,133	109,123	90,026	1,023	130,909	208,234	8,017,010	458,674	18,671,074
1946	192,124,537	45,385,155	73,900	70,215	373	38,264	121,771	7,672,791	117,566	5,162,801
Total	**4,619,278,412**	**1,244,159,172**	**34,600,409**	**33,887,158**	**81,879**	**8,000,943**	.....	.....	.....	.....

*From 1887 to 1901 placer platinum only, 1907 to 1920 represents largely, recovery of platinum metal by the International Nickel Company, in New Jersey and not necessarily all from Sudbury ores.

(a) Exclusive of metal in ore placed on government stock pile at Deloro, Ontario.

(b) Data relating to platinum metals prior to 1923 are conjectural in nature and do not necessarily agree with provincial totals.

In 1929—4,456 pounds beryl crystals valued at $114.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Titanium ore (a)		Iron ore (*)	Antimony ore		Chromite		Manganese ore		Molybdenite ore and concentrates (d)		Pitch-blende products
	Tons	$	Tons	Tons	$	Tons	$	Tons	$	Tons	$	$
1886			64,361	665	31,490	60	945	1,789	41,499			
1887			76,330	584	10,860	38	570	1,245	43,658			
1888			78,587	345	3,696			1,801	47,944			
1889			84,181	55	1,100			1,455	32,737			
1890			76,511	26	625			1,328	32,550			
1891			68,979	10	60			255	6,694			
1892			103,248					115	10,250			
1893			125,602					213	14,578			
1894			109,991			1,000	20,000	74	4,180			
1895			102,797			3,177	41,300	125	8,464			
1896			91,906			2,342	27,004	124	3,975			
1897			50,705			2,637	32,474	15	1,166			
1898			58,343	1,344	20,000	2,021	24,252	50	1,600			
1899			74,617			2,010	21,842	1,581	20,004			
1900			122,000			2,335	27,000	30	1,800			
1901			313,646			1,274	16,744	440	4,820			
1902			404,003			900	13,000	172	4,062	3	400	
1903			264,294			3,509	51,129	91	2,775	85	1,275	
1904			219,046			6,074	67,146	66	2,740			
1905			291,097	527		8,575	93,301	22	1,720			
1906			248,831	782		9,035	91,859	93	925			
1907			312,856	2,048	70,108	7,196	72,901	1	22			
1908			238,082	148	5,443	7,225	82,008					
1909			268,943	66	5,860	2,470	26,604					
1910			259,418	364	13,906	299	3,734					
1911			210,344			157	2,587	6	300			
1912			215,883					75	1,875			
1913			307,634									
1914			244,854			136	1,210	28	1,120	16	2,063	
1915			398,112	1,371	93,171	12,341	179,543	201	9,360	39	28,920	
1916			275,176	939	136,360	27,517	311,460	957	89,544	610	188,316	
1917			215,302	361	22,000	36,725	499,682	158	14,836	1,554	320,006	
1918			211,608			21,994	867,122	440	6,230	461	428,807	
1919			197,170			8,541	228,898	661	14,159	46	69,203	
1920			129,072			11,016	251,379	649	11,029			
1921			59,509			2,798	55,696	68	3,400			
1922			17,971			767	11,503	73	2,044			
1923	69	186	30,690			3,558	52,650	200	1,400			
1924	1,408	3,771	72					584	4,088	10	9,370	
1925	3,978	11,934		1	206					15	11,176	
1926	200	600		1	281					12	10,472	
1927	2,029	8,980										
1928	2,244	6,732										
1929	2,748	7,359				126	900			9	6,400	
1930	412	1,239						273	1,356			
1931	1,509	10,261						117	2,893	1	280	
1932						78	1,113					
1933						30	343					(e)247,900
1934	2,023	14,161				111	1,578					159,400
1935	2,288	16,400				1,144	14,947	100	800			413,700
1936	2,566	18,318		Pounds		923	13,578	221	1,596			605,500
1937	4,229	26,432		(b)48,163	7,394	4,272	43,250	85	817	8	8,147	876,540
1938	207	1,449		24,560	2,200					6	4,500	1,045,458
1939	3,694	21,267	123,598	1,225,585	151,469			396	3,688	1	816	1,121,553
1940	4,535	24,510	414,603	2,594,492	396,468	335	5,780	152	4,315	11	10,280	410,176
1941	12,651	49,110	516,037	3,185,077	445,911	2,372	42,679	(c)	(c)	98	88,470	925,196
1942	10,031	50,906	545,306	3,041,108	516,988	11,456	343,568	435	8,932	114	134,963	(f)
1943	69,437	308,290	641,294	1,114,166	189,408	29,595	919,878	48	985	342	549,515	(f)
1944	33,973	165,195	553,252	1,937,933	281,000	27,054	748,494			1,062	1,079,698	(f)
1945	14,147	67,575	1,135,444	1,667,951	290,557	5,755	160,752			489	411,663	(f)
1946	1,406	7,735	1,549,523	642,145	96,322	3,110	61,123			368	295,640	(f)
Total							**5,533,526**	**17,012**	**472,920**	**5,360**	**3,660,380**	

(*) Includes some titaniferous ore prior to 1923.

(a) See footnote above. (b) Includes metal produced in Canada plus metal in ores exported, 1937 to 1946. (c) 7,500 pounds of manganese metal valued at $2,250 produced at a Nova Scotia mine. (d) Sales, including MoS_2 consumed at Quyon, Quebec. (e) First production. (f) Not available for publication.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Tungsten concentrates		Selenium		Tellurium		Cadmium		Bismuth		Calcium	
	lb.	$	lb.	$	lb.	$	lb.	$	lb.	$	lb.	$
1912	28,000	(a)	...	...	...	...	...	...	...	...	...	...
1913	...	...	...	...	...	...	...	...	...	...	...	...
1914	...	...	...	...	...	...	...	...	...	...	...	...
1915	...	...	...	...	...	...	...	...	...	...	...	...
1916	...	...	...	...	...	...	...	...	...	...	...	...
1917	580	234	...	...	...	...	...	...	...	...	...	...
1918	27,000	11,700	...	...	...	...	...	...	...	...	...	...
1919	...	...	...	...	...	...	...	...	...	...	...	...
1920	...	...	...	...	...	...	...	...	...	...	...	...
1921	...	...	...	...	...	...	...	...	...	...	...	...
1922	...	...	...	...	...	...	...	...	...	...	...	...
1923	...	...	...	...	...	...	...	...	...	...	...	...
1924	...	...	...	...	...	...	...	...	12,863	27,913	...	...
1925	...	...	...	...	...	...	...	...	19,667	18,566	...	...
1926	...	...	...	...	...	...	...	...	6,440	6,440	...	...
1927	...	...	...	...	...	...	...	...	2,072	1,033	...	...
1928	...	...	...	...	...	...	491,894	341,374	14,002	5,067	...	...
1929	...	...	...	...	...	...	773,976	675,294	194,329	307,114	...	...
1930	...	...	...	...	...	...	456,582	337,871	12,732	6,366	...	...
1931	...	...	21,500	40,850	...	...	323,139	180,958	118,207	157,650	...	...
1932	...	...	...	...	...	...	65,425	23,824	16,855	7,340	...	...
1933	...	...	48,221	70,345	...	...	246,041	78,733	78,303	81,526	...	...
1934	...	...	104,924	171,311	5,130	25,599	293,611	95,665	253,644	301,215	...	...
1935	...	...	366,425	703,536	16,425	32,850	580,530	441,203	13,797	13,245	...	...
1936	...	...	350,857	621,017	35,591	62,997	785,916	899,465	364,165	360,523	...	...
1937	...	...	397,227	687,203	41,490	71,777	745,207	1,222,140	5,711	5,654	...	...
1938	...	...	358,929	622,742	48,237	82,967	699,138	561,799	9,516	9,754	...	...
1939	8,825	4,917	150,771	266,714	2,940	4,769	939,691	662,209	409,449	466,362	...	...
1940	12,002	7,303	179,860	343,533	3,491	5,607	908,127	1,056,152	58,529	81,004	...	...
1941	82,846	38,712	406,930	777,236	11,453	18,394	1,251,291	1,469,016	7,511	10,396	...	...
1942	520,981	406,275	495,369	951,108	11,084	17,735	1,148,963	1,355,776	347,556	479,627	...	...
1943	1,508,621	1,083,538	374,013	654,523	8,000	15,050	786,611	904,602	407,597	562,484	...	...
1944	886,745	245,780	298,592	537,466	10,661	18,657	526,970	579,667	123,875	154,844	...	...
1945	1,153	1,045	379,187	728,039	484	929	646,064	639,603	189,815	260,047	22,720	19,312
1946	...	...	521,867	949,798	15,848	24,405	802,648	979,230	240,504	336,706	53,548	68,720
Total	...	...	**4,454,672**	**8,125,421**	**211,434**	**381,736**	**12,471,824**	**12,307,581**	**2,907,139**	**3,660,876**	**76,268**	**88,032**

(a) Value not recorded.

Year	Magnesium		Tin		Thallium		Indium	
	lb.	$	lb.	$	lb.	$	oz.	$
1941	10,905	2,944	64,744	33,667	...	...	...	...
1942	808,718	355,836	1,237,863	643,689	...	...	470	4,710
1943	7,153,974	2,074,652	776,937	450,623	...	...	...	...
1944	10,579,778	2,575,695	516,626	299,643	128	1,690	...	...
1945	7,358,545	1,607,264	849,983	492,990	...	...	...	...
1946	320,677	75,538	874,186	507,028	...	...	...	...
Total	**26,232,597**	**6,691,929**	**4,320,339**	**2,427,640**	**128**	**1,690**	**470**	**4,710**

Aluminum Production in Canada from Imported Ores 1901-1946

Year	Pounds	Year	Pounds	Year	Pounds	Year	Pounds	Year	Pounds
1901	283,737	1911	9,679,980	1921	6,335,083	1931	68,103,008	1941	427,746,554
1902	1,983,252	1912	12,029,046	1922	12,867,305	1932	39,585,847	1942	681,192,951
1903	1,750,599	1913	14,065,028	1923	24,245,766	1933	35,532,104	1943	991,499,296
1904	2,302,178	1914	14,550,959	1924	27,243,004	1934	34,865,362	1944	924,130,162
1905	2,590,329	1915	18,368,524	1925	31,105,293	1935	46,342,747	1945	431,425,942
1906	4,696,949	1916	21,184,791	1926	38,910,914	1936	59,280,250	1946	388,234,533
1907	5,921,299	1917	22,088,067	1927	82,735,938	1937	93,812,965		
1908	972,146	1918	23,535,689	1928	82,797,804	1938	142,407,743		
1909	6,083,695	1919	21,582,264	1929	63,439,528	1939	165,680,869		
1910	9,647,958	1920	22,384,702	1930	76,217,209	1940	218,288,565		

Historical Summary of Canada's Mineral Production—Dominion Totals
—Continued

Year	Mercury		Coal*		Petroleum		Natural Gas		Peat Fuel	
	pounds	$	tons	$	brls.	$	M cu. ft.	$	tons	$
1785-1866			2,863,826	4,905,462						
1867			631,320	1,056,725						
1868			623,392	1,073,061						
1869			687,825	1,155,282						
1870			752,635	1,243,130						
1871-1873			3,033,152	5,073,331						
1874			1,063,742	1,763,423						
1875			1,039,974	1,747,016						
1876			994,762	1,729,546						
1877			1,036,670	1,794,415						
1878			1,089,744	1,941,285						
1879			1,126,497	2,050,639						
1880			1,482,714	2,657,194						
1881			1,537,106	2,688,821	368,987					
1882			1,848,148	3,248,446	389,573					
1883			1,818,684	3,109,635	472,866					
1884			1,984,959	3,593,831	571,000					
1885			1,920,977	3,417,807	587,563					
1886			2,116,653	3,739,840	584,061	525,655				
1887			2,429,330	4,388,206	713,728	556,708				
1888			2,602,552	4,674,140	695,203	713,695				
1889			2,658,303	4,894,287	704,690	653,600				
1890			3,084,682	5,676,247	795,030	902,734				
1891			3,577,749	7,010,425	755,298	1,010,211				
1892			3,287,745	6,363,757	779,753	984,438		150,000		
1893			3,783,499	7,359,080	798,406	874,255		376,233		
1894			3,847,070	7,429,468	829,104	835,322		313,754		
1895	5,396	2,343	3,478,344	6,739,153	726,138	1,086,738		423,032		
1896	4,408	1,940	3,745,716	7,226,462	726,822	1,155,647		276,301		
1897	684	324	3,786,107	7,303,597	709,857	1,011,546		325,873		
1898			4,173,108	8,224,288	758,391	1,061,747		322,123		
1899			4,925,051	10,283,497	808,570	1,202,020		387,271		
1900			5,777,319	13,742,178	710,498	1,151,007		417,094	400	1,200
1901			6,486,325	12,699,243	622,392	1,008,275		339,476	220	600
1902			7,466,681	15,210,877	530,624	951,190		195,992	475	1,663
1903			7,960,364	15,942,833	486,637	1,048,874		202,210	1,100	3,300
1904			8,254,595	16,592,231	503,474	935,895		328,376	800	2,400
1905			8,667,948	17,520,263	634,095	856,028		379,561	80	260
1906			9,762,601	19,732,019	569,753	761,760		583,523	474	1,422
1907			10,511,426	24,381,842	788,872	1,057,088		815,032	50	200
1908			10,886,311	25,194,573	527,987	747,102		1,012,660	60	180
1909			10,501,475	24,781,236	420,755	559,604		1,207,029	60	240
1910			12,909,152	30,909,779	315,895	388,550		1,346,471	841	2,604
1911			11,323,388	26,467,646	291,092	357,073		1,917,678	1,463	3,817
1912			14,512,829	36,019,044	243,336	345,050		2,362,700	700	2,900
1913			15,012,178	37,334,940	228,080	406,439	20,477,838	3,309,381	2,600	10,100
1914			13,637,529	33,471,801	214,805	343,124	21,692,504	3,484,727	685	2,470
1915			13,267,023	32,111,182	215,464	300,572	20,124,162	3,706,035	300	1,050
1916			14,483,395	38,817,481	198,123	392,284	25,467,458	3,958,029	300	1,500
1917			14,046,759	43,199,831	213,832	542,239	27,408,940	5,045,298		
1918			14,977,926	55,192,896	304,741	885,143	20,140,309	4,350,940		
1919			13,919,096	55,622,670	240,466	736,324	19,937,769	4,176,037	986	6,561
1920			16,946,764	82,496,538	196,251	822,235	16,845,518	4,232,642	4,550	18,650
1921			15,057,493	72,451,656	187,541	641,533	14,077,601	4,504,164	1,666	6,664
1922			15,157,431	65,518,497	179,068	611,176	14,682,651	5,846,501	3,000	14,500
1923			16,990,571	72,058,986	170,169	522,018	15,960,583	5,884,618		
1924			13,638,197	53,593,988	160,773	467,400	14,881,336	5,708,636		
1925	380	(a)	13,134,968	49,261,951	332,001	1,250,705	16,902,897	6,833,005	1,370	8,394
1926			16,478,131	59,875,094	364,444	1,311,665	19,208,209	7,557,174		
1927			17,426,861	61,867,463	476,591	1,516,043	21,376,791	8,043,010		
1928			17,564,203	63,757,833	624,184	2,035,300	22,582,586	8,614,182	1,497	5,845
1929			17,496,557	63,065,170	1,117,368	3,731,764	28,378,462	9,977,124	2,607	13,339
1930			14,881,324	52,849,748	1,522,220	5,033,820	29,376,919	10,280,985	2,847	10,932
1931			12,243,211	41,207,682	1,542,573	4,211,674	25,874,723	9,026,754	1,674	7,033
1932			11,738,913	37,117,695	1,044,412	3,022,592	23,420,174	8,899,462	3,248	7,593
1933			11,903,344	35,923,962	1,145,333	3,138,791	23,138,103	8,712,234	1,131	3,449
1934			13,810,193	42,045,942	1,410,895	3,449,162	23,162,324	8,759,652	1,878	7,343
1935			13,888,006	41,963,110	1,446,620	3,492,188	24,910,786	9,363,141	1,340	5,761
1936			15,229,182	45,791,934	1,500,374	3,421,767	28,113,348	10,762,243	1,341	7,376
1937			15,835,954	48,752,048	2,943,750	5,399,353	32,380,991	11,674,802	478	2,676
1938	760	760	14,294,718	43,982,171	6,966,084	9,230,173	33,444,791	11,587,450	620	3,500
1939	436	1,226	15,692,698	48,676,990	7,826,301	9,846,352	35,185,146	12,507,307	445	2,445
1940	153,830	369,317	17,566,884	54,675,844	8,590,978	11,160,213	41,232,125	13,000,593	30	75
1941	536,304	1,335,097	18,225,921	58,059,630	10,133,838	14,415,096	43,495,353	12,665,113	355	2,155
1942	1,035,914	2,943,807	18,865,030	62,807,581	10,364,796	15,968,851	45,697,359	13,301,655	172	1,204
1943	1,690,240	4,559,200	17,859,057	62,877,549	10,052,302	16,470,417	44,276,216	13,159,418	782	7,000
1944	735,908	1,210,375	17,026,499	70,433,169	10,099,404	15,429,900	45,067,158	11,422,541	644	5,397
1945			16,506,713	67,588,402	8,482,796	13,632,248	48,411,585	12,309,564	118	1,062
1946			17,806,450	75,361,481	7,585,555	14,989,052	47,900,484	12,165,050	145	1,305
Total			**720,661,719**	**2,244,667,184**	**117,502,582**	**191,569,425**		**298,610,856**	**43,532**	**186,165**

* For the years 1919 to 1946 the tonnage shown is the total output of all mines; for previous years the tonnage shown includes only sales, colliery consumption and coal used by the operators.

(a) No value recorded.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Peat Moss		Actinolite		Asbestos		Barite		Bituminous Sands		Corundum	
	tons	$	tons	$	tons	$	tons	$	tons	$	tons	$
1880					380	24,700						
1881					540	35,100						
1882					810	52,650						
1883					955	68,750						
1884					1,141	75,097						
1885					2,440	142,441	300	1,500				
1886					3,458	206,251	3,864	19,270				
1887					4,619	226,976	400	2,400				
1888					4,404	255,007	1,100	3,850				
1889					6,113	426,554						
1890					9,860	1,260,240	1,842	7,543				
1891					9,279	999,878						
1892					6,082	390,462	318	1,260				
1893					6,331	310,156						
1894					7,630	420,825	1,081	2,830				
1895					8,736	368,175						
1896					12,250	429,856	145	715				
1897			205	1,845	30,442	445,368	571	3,060				
1898					23,785	491,197	1,125	5,533				
1899					25,536	485,849	720	4,402				
1900					29,141	748,431	1,337	7,905			3	300
1901			521	3,126	40,217	1,259,759	633	3,842			387	46,415
1902			550	4,400	40,416	1,148,319	1,096	3,957			768	84,465
1903			550	3,108	41,677	929,757	1,163	3,931			703	77,510
1904					48,465	1,226,352	1,382	3,702			993	109,545
1905					68,263	1,503,259	3,360	7,500			1,644	149,153
1906					82,185	2,060,143	4,000	12,000			2,274	204,973
1907					90,426	2,505,042	1,344	3,000			1,892	177,922
1908					90,773	2,573,335	4,312	10,021			1,089	100,398
1909					87,300	2,301,775	179	1,120			1,491	162,492
1910			30	330	102,215	2,573,603					1,870	198,680
1911			67	736	127,414	2,943,108	50	400			1,472	161,873
1912			92	1,000	136,301	3,137,279	464	5,104			1,960	239,091
1913			66	720	161,086	3,849,925	641	5,410			1,177	137,036
1914			119	1,304	117,573	2,909,806	612	6,169			548	72,176
1915			220	2,420	130,842	3,574,985	550	6,875			262	33,138
1916			250	2,750	154,149	5,228,869	1,368	16,393			67	10,307
1917			120	1,320	153,781	7,230,383	3,490	54,027			188	32,153
1918			228	2,508	158,259	8,970,797	640	10,165			137	26,112
1919			80	880	150,236	10,975,369	468	8,154				
1920			100	1,160	199,573	14,792,201	751	22,983			196	24,547
1921			78	975	92,751	4,906,230	270	9,567			403	55,965
1922			50	575	163,706	5,552,723	289	9,537				
1923			53	583	231,482	7,522,506	409	8,548				
1924			90	1,225	225,744	6,710,830	151	3,308	531	2,127		
1925			40	500	273,521	8,977,546	95	2,259	1,148	4,594		
1926			80	1,000	279,403	10,099,423	100	2,307	528	2,112		
1927			86	1,075	274,778	10,621,013	56	1,268	2,706	10,824		
1928			70	875	279,033	11,238,360	127	2,847	94	374		
1929			30	375	306,055	13,172,581	105	2,341	989	3,956		
1930			34	437	242,114	8,390,169	66	1,484	2,067	8,268		
1931			35	456	164,296	4,812,886	16	363	1,015	4,060		
1932					122,977	3,039,721			343	1,372		
1933					158,367	5,211,177	20	60	466	1,662		
1934			30	365	155,980	4,936,326			862	4,449		
1935					210,467	7,054,614			40	160		
1936					301,287	9,958,183						
1937					410,026	14,505,791			35	142		
1938					289,793	12,890,195						
1939					364,472	15,859,212	323	3,639				
1940	(a)	(a)			346,805	15,619,865	338	4,819	(b)	(b)		
1941	27,803	644,253			477,846	21,468,840	6,890	74,416	(b)	(b)		
1942	53,506	1,060,372			439,450	22,663,283	19,667	188,144	(b)	(b)		
1943	64,360	1,461,422			467,196	23,169,505	24,474	270,253	(b)	(b)		
1944	(c) 80,446	1,869,553			419,265	20,619,516	118,719	1,023,696	(b)	(b)	173	17,111
1945	83,963	2,011,139			466,897	22,805,157	139,589	1,211,403	(b)	(b)	1,317	130,393
1946	96,839	2,395,649			558,181	25,240,562	120,419	1,006,473	(b)	(b)	742	102,340
Total			**3,874**	**36,048**	**10,106,017**	**406,604,237**	**471,446**	**4,092,453**			**21,756**	**2,354,095**

(a) Prior to 1941 included in survey of manufactures.

(b) No sands sold as such; production included with crude petroleum.

(c) Includes some duplication resulting from the resale of moss purchased from other producers.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Diatomite		Feldspar		Fluorspar		Graphite		Grindstones		Garnet	
	tons	$	tons	$	tons	$	tons	$	tons	$	tons	$
1886	.....	.....	.....	.....	.....	.....	500	4,000	4,020	46,545	.....	.....
1887	.....	.....	.....	.....	.....	.....	300	2,400	5,292	64,008	.....	.....
1888	.....	.....	.....	.....	.....	.....	150	1,200	5,764	51,129	.....	.....
1889	.....	.....	.....	.....	.....	.....	242	3,160	3,404	30,863	.....	.....
1890	.....	.....	700	3,500	.....	.....	175	5,200	4,884	42,340	.....	.....
1891	.....	.....	685	3,425	.....	.....	260	1,560	4,479	42,587	.....	.....
1892	.....	.....	175	525	.....	.....	167	3,763	5,122	49,836	.....	.....
1893	.....	.....	575	4,525	.....	.....	.....	.....	4,480	36,979	.....	.....
1894	.....	.....	.....	.....	.....	.....	5	400	3,667	31,217	.....	.....
1895	.....	.....	1,018	2,545	.....	.....	220	6,150	3,395	30,652	.....	.....
1896	644	9,960	972	2,583	.....	.....	789	22,455	3,563	31,960	.....	.....
1897	15	150	1,400	3,290	.....	.....	436	16,240	4,472	40,740	.....	.....
1898	1,017	16,660	2,500	6,250	.....	.....	660	13,698	4,735	40,590	.....	.....
1899	1,000	15,000	3,000	6,000	.....	.....	1,310	24,179	4,112	35,265	.....	.....
1900	336	1,950	318	1,112	.....	.....	1,922	31,040	5,179	47,290	.....	.....
1901	850	15,300	5,350	10,700	.....	.....	2,210	38,780	4,034	37,275	.....	.....
1902	1,052	15,470	7,576	15,152	.....	.....	1,095	28,300	4,383	40,018	.....	.....
1903	835	16,700	13,928	18,966	.....	.....	728	23,745	5,423	46,462	.....	.....
1904	320	6,400	11,083	22,166	.....	.....	452	11,760	4,509	40,822	.....	.....
1905	300	3,600	11,700	23,400	12	84	541	16,735	5,460	59,900	.....	.....
1906	.....	.....	16,948	40,890	.....	.....	387	18,300	5,305	58,314	.....	.....
1907	30	225	12,584	29,819	.....	.....	579	16,000	5,384	58,876	.....	.....
1908	30	195	7,877	21,099	.....	.....	251	5,565	3,658	42,053	.....	.....
1909	.....	.....	12,783	40,383	.....	.....	864	47,800	4,002	46,374	.....	.....
1910	22	134	15,809	47,667	2	15	1,392	74,087	3,787	41,416	.....	.....
1911	20	122	17,723	51,939	34	238	1,269	69,576	4,332	46,832	.....	.....
1912	38	230	13,733	30,916	40	240	2,060	117,122	4,204	46,460	.....	.....
1913	620	12,138	16,790	60,795	.....	.....	2,162	90,282	4,008	45,300	.....	.....
1914	650	13,000	18,060	70,824	.....	.....	1,647	107,203	3,783	48,847	.....	.....
1915	317	12,119	14,559	57,801	.....	.....	2,635	124,223	2,279	31,967	.....	.....
1916	620	12,139	19,488	71,407	1,284	10,238	3,955	325,362	3,232	49,975	.....	.....
1917	600	18,000	19,462	89,826	4,249	68,756	3,714	402,892	2,169	38,702	.....	.....
1918	500	12,500	18,782	112,728	7,362	156,029	3,114	248,870	2,806	76,745	.....	.....
1919	565	11,300	14,679	86,231	5,063	97,837	1,360	100,221	1,931	56,344	.....	.....
1920	260	8,600	37,873	280,895	11,235	240,446	2,190	165,617	2,262	74,119	.....	.....
1921	341	11,268	29,868	230,754	5,519	136,267	937	65,862	1,064	40,637	.....	.....
1922	219	5,781	27,727	248,402	4,503	102,138	597	31,353	837	30,292	.....	.....
1923	130	3,250	29,225	237,601	139	1,732	1,113	67,873	1,717	51,483	1,250	100,000
1924	33	838	44,804	358,540	76	1,343	1,334	76,117	2,031	69,111	360	7,200
1925	.....	.....	28,681	235,789	3,886	19,234	2,569	158,763	1,735	61,784	.....	.....
1926	.....	.....	35,951	310,218	.....	.....	2,727	194,890	1,513	58,986	.....	.....
1927	266	6,650	29,849	259,151	.....	.....	1,829	111,656	1,317	47,475	2	150
1928	368	8,960	31,897	284,942	.....	.....	1,097	57,041	1,250	45,901	.....	.....
1929	429	10,330	37,527	340,471	17,870	268,120	1,461	103,174	1,038	37,401	.....	.....
1930	554	13,247	29,796	268,469	80	1,240	1,535	96,392	235	9,874	.....	.....
1931	1,610	32,789	18,343	186,961	40	620	548	32,149	198	8,164	.....	.....
1932	1,496	29,509	7,047	81,982	32	464	346	18,483	200	9,336	.....	.....
1933	1,789	36,648	10,658	105,117	73	1,064	405	18,367	161	7,079	.....	.....
1934	1,372	54,910	18,302	147,281	150	2,106	1,518	71,424	353	14,543	.....	.....
1935	823	33,140	17,742	144,330	75	900	1,782	79,781	373	14,501	.....	.....
1936	615	13,650	17,846	154,475	75	900	.....	88,812	360	15,352	.....	.....
1937	643	18,606	21,346	178,222	150	2,550	.....	125,343	251	12,407	.....	.....
1938	398	13,842	14,058	129,293	217	3,906	.....	41,590	285	12,790	.....	.....
1939	301	10,388	12,500	112,309	240	4,095	.....	61,684	284	12,190	.....	.....
1940	248	7,957	21,455	187,623	4,454	59,317	.....	94,038	290	11,858	.....	.....
1941	344	9,935	26,040	244,284	5,534	97,767	.....	132,924	170	8,500	16*	160
1942	365	9,088	22,270	213,941	6,199	146,039	.....	147,904	200	8,000	17*	176
1943	98	3,331	23,858	237,771	11,210	318,424	1,903	197,431	162	6,000	.....	.....
1944	13	437	23,509	227,632	6,924	217,701	1,582	171,166	225	12,000	3	90
1945	46	1,238	30,246	282,656	7,369	233,708	1,910	179,001	225	10,870	.....	.....
1946	90	2,532	35,243	384,677	8,042	237,491	1,975	180,405	295	17,450	2	1,200
Total	**23,232**	**541,216**	**960,918**	**7,010,270**	**112,138**	**2,431,963**	.....	**4,741,478**	**160,288**	**2,236,866**	**1,650**	**108,976**

* Garnet schist.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Gypsum		Iron Oxides		Magnesitic Dolomite		Magnesium Sulphate		Manganese Bog	
	tons	$	tons	$	tons	$	tons	$	tons	$
1874	67,830	68,164								
1875	91,485	91,613								
1876	92,765	94,386								
1877	111,980	98,897								
1878	105,455	93,805								
1879	104,993	80,864								
1880	136,035	124,060								
1881	121,270	116,349								
1882	150,272	147,597								
1883	166,152	169,228								
1884	130,141	134,451								
1885	97,552	106,415								
1886	162,000	178,742	350	2,350						
1887	154,008	157,277	485	3,733						
1888	175,887	179,393	397	7,900						
1889	213,273	205,108	794	15,280						
1890	226,509	194,033	275	5,125						
1891	203,605	206,251	900	17,750						
1892	241,048	241,327	390	5,800						
1893	192,568	196,150	1,070	17,700						
1894	223,631	202,031	611	8,690						
1895	226,178	202,608	1,339	14,600						
1896	207,032	178,061	2,362	16,045						
1897	239,691	244,531	3,905	23,560						
1898	219,256	232,515	2,226	17,450						
1899	244,566	257,329	3,919	20,000						
1900	252,101	259,009	1,966	15,398						
1901	293,799	340,148	2,233	16,735						
1902	333,599	379,479	4,955	30,495						
1903	314,489	388,459	6,266	32,760						
1904	345,961	373,474	3,925	24,995						
1905	442,158	586,168	5,105	34,675						
1906	469,022	643,294	6,758	36,125						
1907	485,921	646,914	5,828	35,570						
1908	340,964	575,701	4,746	30,440	120	840				
1909	473,129	809,632	3,940	28,093	330	2,508				
1910	525,246	934,446	4,813	35,185	323	2,160				
1911	518,383	993,394	3,622	28,333	991	5,531				
1912	578,458	1,324,620	7,654	32,410	1,714	9,045				
1913	636,370	1,447,739	5,987	41,774	515	3,335				
1914	516,889	1,156,207	5,890	51,725	358	2,240				
1915	474,815	854,929	6,248	48,353	14,779	126,584				
1916	342,915	738,503	8,811	58,711	55,413	563,829				
1917	336,332	881,984	9,409	87,605	58,090	728,275	929	4,645		
1918	152,287	823,006	17,317	112,440	39,365	1,016,765	1,949	14,565		
1919	299,063	1,215,287	11,862	113,427	11,273	328,465	738	9,115		
1920	429,144	1,893,991	19,128	157,909	18,378	512,756	1,947	39,886		
1921	386,550	1,785,538	9,048	93,610	3,730	81,320	2,029	39,506		
1922	559,265	2,160,898	7,285	110,608	2,849	76,294	1,021	24,017		
1923	578,301	2,243,100	10,424	129,636	4,801	134,382	121	6,580		
1924	646,016	2,208,108	7,266	91,160	3,873	101,356				
1925	740,323	2,389,891	7,118	91,913	5,576	122,323				
1926	883,728	2,770,813	6,626	101,843	4,571	137,431				
1927	1,063,117	3,251,015	6,125	103,536	7,337	230,309				
1928	1,246,368	3,743,648	5,414	111,198	13,195	346,990			385	2,237
1929	1,211,689	3,345,696	6,518	115,932	18,809	491,170			301	1,830
1930	1,070,968	2,818,788	6,596	83,873	13,336	336,162			275	1,650
1931	863,752	2,111,517	5,520	49,205	11,411	295,579			77	462
1932	438,629	1,080,379	5,240	46,161	(e)	262,890				
1933	382,736	675,822	4,357	53,450	(e)	360,128	120	3,360		
1934	461,237	863,776	4,959	60,166	(e)	382,927	42	1,100		
1935	541,864	932,203	5,516	77,075	(e)	486,084	340	7,965		
1936	833,822	1,278,971	5,854	69,630	(e)	768,742	654	13,712		
1937	1,047,187	1,540,483	6,197	83,640	(e)	677,207	727	14,456		
1938	1,008,799	1,502,265	5,821	71,769	(e)	420,261	470	9,400		
1939	1,421,934	1,935,127	6,015	88,418	(e)	474,418	550	9,900		
1940	1,448,788	2,065,933	9,979	111,874	(e)	897,016				
1941	1,593,406	2,248,428	10,045	142,069	(e)	831,041	265	7,343		
1942	566,106	1,254,182	9,304	151,653	(e)	*1,059,374	1,140	38,760		
1943	446,848	1,381,468	8,401	135,893	(e)	1,260,056				
1944	596,164	1,511,978	8,599	150,250	(e)	1,139,281				
1945	839,781	1,783,290	10,314	172,053	(e)	1,278,596				
1946	1,810,037	3,671,503	12,695	152,268	(e)	1,225,593				
Total	**35,555,493**	**74,022,279**	**356,722**	**3,884,024**	.....	**17,179,835**	**13,042**	**244,310**	**1,638**	**6,179**

(e) Quantity not published since 1931.
* Includes value of brucite granules shipped from Wakefield, Quebec, to Canadian Refineries Ltd.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Mica		Mineral Waters		Natro-Alunite		Phosphate		Pulpstones	
	tons	$	Imp. gals.	$	tons	$	tons	$	tons	$
1870							1,200	13,600		
1871							200	2,100		
1872										
1873										
1874										
1875										
1876										
1877										
1878							10,743	208,109		
1879							8,446	122,035		
1880							13,060	190,086		
1881							11,968	218,456		
1882							17,153	308,357		
1883							19,716	427,668		
1884							21,709	424,240		
1885							28,969	496,293		
1886		29,008					20,495	304,338		
1887		29,816					23,690	319,815		
1888	15	30,207	124,850	11,456			22,485	242,285		
1889		28,718	424,600	37,360			30,988	316,662		
1890		68,074	561,165	66,031			31,753	361,045		
1891		71,510	427,485	54,268			23,588	241,603		
1892		104,745	640,380	75,348			11,932	157,424	60	900
1893		75,719	725,096	108,347			7,890	61,962	120	1,400
1894		46,581	767,460	110,040			6,861	41,166	90	1,500
1895		65,000	739,382	126,048			1,822	9,565	80	1,280
1896		60,000	706,372	111,736			570	3,420	60	900
1897		76,000	749,691	141,477			908	3,984	100	1,600
1898		118,375	555,000	100,000			733	3,665	200	3,200
1899		163,000		100,000			3,000	18,000	375	7,000
1900		166,000		75,000			1,415	7,105	360	6,160
1901		160,000		100,000			1,033	6,280	547	8,415
1902	1,059	135,904		100,000			856	4,953	250	4,100
1903		177,857		100,000			1,329	8,214	115	1,840
1904		160,777		100,000			817	4,590	140	1,960
1905		178,235		100,000			1,300	8,425	68	1,875
1906	574	303,913		100,000			850	6,375	40	600
1907	774	312,599		136,020			824	6,018		
1908	436	139,871		151,953			1,596	14,794	158	4,725
1909	369	147,782		175,173			998	8,054	240	6,640
1910	758	190,385		199,563			1,478	12,578	125	3,700
1911	590	128,677		223,758			621	5,206	160	3,960
1912	580	143,976		172,465			164	1,640	125	4,000
1913	1,104	194,304		173,677			385	3,643	100	3,400
1914	595	109,061		134,111			954	7,275	40	4,000
1915	417	91,905		115,274			217	2,502		
1916	1,208	255,239		127,806			203	2,514		
1917	1,166	358,851		145,814			149	1,486	47	2,750
1918	747	271,550		154,468			140	1,200	180	8,400
1919	2,754	273,788		71,015			24	331	14	420
1920	2,203	376,022		24,582					125	10,000
1921	702	70,063	328,723	21,716	30	1,500	30	450	200	22,000
1922	3,349	152,263	221,433	14,220	50	2,500	190	1,796	150	12,000
1923	3,525	326,974	232,451	16,455	15	750	30	600	260	25,100
1924	4,091	357,272	209,353	15,421					624	58,113
1925	4,020	261,463	190,134	28,413	20	1,000	16	189	781	57,781
1926	2,545	229,204	215,356	20,721			40	800	1,155	89,541
1927	2,738	174,377	303,530	14,624	7	248	151	1,717	911	75,242
1928	3,660	87,168	269,045	33,498			641	8,276	581	52,659
1929	4,053	118,549	321,905	16,139			1,185	5,380	754	62,336
1930	1,170	96,001	227,141	24,481			40	760	573	49,897
1931	1,339	54,066	217,408	13,234					342	27,305
1932	309	6,828	76,714	7,170			1,316	12,333	60	3,500
1933	944	49,284	38,818	5,441			2,214	5,475	214	9,870
1934	998	97,071	97,440	17,738			81	683	523	27,225
1935	628	82,038	146,516	16,500			186	1,103	288	14,109
1936	801	74,556	154,286	18,516			525	4,927	87	4,500
1937	945	133,731	225,019	20,586			100	900	87	4,875
1938	518	80,989	188,309	21,619			208	1,886		
1939	1,068	147,321	123,679	19,105			157	1,712		
1940	975	237,145	140,663	20,892			358	4,039		
1941	1,743	335,288	181,064	72,531			2,487	33,376		
1942	3,010	383,567	157,085	74,505			1,264	17,431		
1943	4,025	553,856	139,611	67,541			1,451	18,385		
1944	3,342	841,026	156,150	79,031			482	6,716		
1945	3,522	233,270	244,761	126,499			209	4,356		
1946	4,360	199,039	217,842	122,404			57	869		
Total		**10,624,861**		**4,640,880**	**122**	**5,998**	**348,740**	**4,743,220**	**11,509**	**690,778**

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Nepheline Syenite	Quartz*		Salt		Sharpening Stones		Silica Brick		Sodium Carbonate	
	$	tons	$	tons	$	tons	$	M	$	tons	$
1886				62,359	227,195						
1887				60,173	166,394						
1888				59,070	185,460						
1889				32,832	129,547						
1890		200	1,000	43,754	198,857						
1891				45,021	161,179						
1892				45,486	162,041						
1893		100	500	62,324	195,926						
1894				57,199	170,687						
1895				52,376	160,455						
1896		10	50	43,960	169,693						
1897				51,348	225,730						
1898		284	570	57,142	248,639	33	985				
1899		600	1,200	59,339	254,390	24	1,000				
1900				62,055	279,458						
1901				59,428	262,328						
1902				64,456	292,581						
1903				62,452	297,517						
1904				69,477	321,778						
1905				67,340	320,858	12	600				
1906		48,376	65,705	76,720	329,130	18	900				
1907		56,585	124,148	72,697	342,315	30	1,500				
1908		44,741	52,830	79,975	378,798	27	1,350				
1909		56,924	71,285	84,037	415,219	33	1,650				
1910		88,205	91,951	84,092	409,624	36	1,800				
1911		60,526	83,865	91,582	443,004	54	2,000				
1912		100,242	195,216	95,053	459,582	38	1,300				
1913		78,261	169,842	100,791	491,280	74	2,425				
1914		54,148	84,583	107,038	493,648	115	1,254				
1915		127,108	205,153	119,900	600,226	281	3,615				
1916		136,745	251,226	132,903	717,853	224	2,614				
1917		216,288	496,182	138,909	1,047,792	307	4,302				
1918		268,155	629,813	131,727	1,285,039	56	3,500				
1919		94,991	527,635	148,301	1,397,929	45	3,392				
1920		128,295	467,821	209,855	1,544,724	56	3,987				
1921		100,350	312,947	164,658	1,673,685	17	1,430			197	14,775
1922		109,947	208,598	181,794	1,628,323	18	1,450			202	3,027
1923		264,076	599,250	202,397	1,713,516	35	3,500			265	3,975
1924		150,896	323,156	207,979	1,374,780	36	3,600			510	5,173
1925		107,224	363,612	233,746	1,410,697	46	4,600			1,120	8,140
1926		232,082	553,161	262,547	1,480,149	27	2,700	2,665	130,702	595	5,370
1927		233,984	496,364	268,672	1,614,667	23	2,300	1,791	79,527	805	9,995
1928		282,522	523,933	299,445	1,495,971	24	2,400	3,224	155,502	519	4,922
1929		265,949	561,527	330,264	1,578,086	155	6,617	3,951	173,581	600	8,100
1930		226,200	418,127	271,695	1,604,631	22	2,250	2,418	97,370	364	4,550
1931		195,724	303,158	259,047	1,904,149	81	2,634	900	35,746	712	7,351
1932		189,132	276,147	263,543	1,947,551	68	2,899	93	4,304	495	5,450
1933		185,783	297,820	280,115	1,939,874	123	4,970	636	23,185	559	5,773
1934		272,563	482,265	321,753	1,954,953	111	4,710	2,528	85,945	244	1,920
1935		233,002	424,882	360,343	1,880,978	47	5,400	2,461	96,194	242	2,430
1936	37,426	1,046,649	597,781	391,316	1,773,144	122	4,872	2,393	97,285	192	1,677
1937	121,481	1,377,448	1,129,011	458,957	1,799,465	74	4,147	3,744	181,126	286	2,574
1938	142,737	1,380,011	961,617	446,045	1,912,913	21	3,408	1,788	100,403	252	2,268
1939	140,148	1,582,935	1,100,214	424,500	2,486,632	20	3,088	2,493	124,807	300	2,400
1940	117,849	1,858,302	1,203,527	464,714	2,823,209	(a) 51	2,685	3,438	182,786	220	1,760
1941	227,583	2,052,878	1,366,187	560,845	3,196,165	18	3,000	4,111	238,433	186	1,488
1942	246,893	1,738,174	1,538,162	653,672	3,844,187	16	2,000	4,273	263,006	256	2,048
1943	292,010	1,776,749	1,608,448	687,686	4,379,378	2	225	4,165	295,505	468	5,148
1944	217,989	1,740,262	1,658,409	695,217	4,074,021			3,997	312,092	44	484
1945	275,706	1,513,628	1,535,458	673,076	4,054,720			4,208	317,263	286	3,146
1946	229,198	1,413,378	1,554,798	537,985	3,626,165			2,902	197,804		
Total	**2,049,080**	**22,180,632**	**23,919,254**	**12,687,182**	**71,048,745**	**2,620**	**113,059**	**58,179**	**3,192,575**	**9,919**	**113,944**

* Commencing in 1936 includes low-grade fluxing sand.
(a) Includes 33 tons grinding pebbles valued at $165, from Saskatchewan.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Sodium Sulphate		Sulphur*		Talc and Soapstone		Volcanic Dust		Strontium Minerals	
	tons	$	tons	$	tons	$	tons	$	tons	$
1886			42,906	193,077	50	400				
1887			38,043	171,194	100	800				
1888			63,479	285,656	140	280				
1889			72,225	307,292	195	1,170				
1890			49,227	123,067	917	1,239				
1891			25,542	203,193						
1892			26,000	179,310	1,374	6,240				
1893			22,245	175,626	717	1,920				
1894			16,616	121,581	916	1,640				
1895			14,021	102,594	475	2,138				
1896			13,823	101,155	410	1,230				
1897			15,953	116,730	157	350				
1898			13,209	128,872	405	1,000				
1899			11,352	110,748	450	1,960				
1900			16,413	155,164	1,420	6,365				
1901			14,457	130,544	259	842				
1902			14,603	138,939	689	1,804				
1903			13,933	127,713	990	2,739				
1904			15,244	134,033	840	1,875				
1905			13,669	125,486	500	1,800				
1906			17,525	169,990	1,234	3,030				
1907			18,960	212,491	1,534	4,602				
1908			19,408	224,824	1,016	3,048				
1909			26,504	222,814	4,350	10,300				
1910			22,087	187,062	7,112	22,308				
1911			33,893	365,820	7,300	22,100				
1912			33,426	314,081	8,270	23,132				
1913			65,012	521,181	12,250	45,980				
1914			93,609	744,508	10,808	40,418				
1915			116,157	985,190	11,885	40,554				
1916			116,975	1,084,095	13,104	49,423				
1917			155,453	1,610,762	15,803	76,539				
1918			154,269	1,705,219	18,169	119,197				
1919			65,674	522,704	18,642	116,295			48	336
1920	811	19,496	67,608	719,110	21,671	166,934			75	2,675
1921	623	18,850	12,213	116,326	10,124	144,565				
1922	504	11,980	6,900	74,303	13,195	188,458				
1923	733	10,189	11,073	113,020	10,366	150,507				
1924	1,083	6,004	9,742	95,620	11,332	154,480	245	1,103		
1925	3,876	19,380	7,587	58,899	14,474	205,835	160	1,380		
1926	6,775	13,550	8,975	63,899	15,767	217,193	90	630		
1927	5,659	11,319	25,229	198,388	16,521	236,105	105	735		
1928	6,016	68,804	38,589	321,033	16,058	219,358	485	9,795		
1929	5,018	64,112	42,781	350,843	16,698	229,198	300	6,000		
1930	31,571	293,847	37,730	314,835	27,247	186,216	242	4,840		
1931	44,957	421,097	50,107	429,457	21,916	157,083	128	2,560		
1932	22,466	271,736	53,172	470,014	13,275	159,038	180	3,600		
1933	50,080	485,416	57,373	510,299	16,829	190,836	118	2,360		
1934	66,821	587,986	51,537	515,502	15,532	180,777	31	620		
1935	44,817	343,764	67,446	634,235	15,301	171,532				
1936	75,598	552,681	122,132	1,033,055	16,587	177,270				
1937	79,884	618,028	130,913	1,154,992	15,939	163,814				
1938	63,009	553,307	112,395	1,044,817	13,814	144,848				
1939	71,485	628,151	211,278	1,668,025	18,241	170,066				
1940	94,260	829,589	170,630	1,298,018	23,791	229,639				
1941	115,608	931,554	260,023	1,702,786	34,632	360,809			27	280
1942	131,258	1,079,692	303,714	1,994,891	29,868	310,824				
1943	107,121	1,025,151	257,515	1,753,425	26,163	266,685	50	257		
1944	102,421	987,842	248,088	1,755,739	32,597	357,249				
1945	93,068	884,322	250,114	1,881,321	27,088	294,888				
1946	105,919	1,117,683	234,771	1,784,666	29,353	303,684				
Total	**1,331,441**	**11,855,530**			**666,860**	**6,350,611**	**2,134**	**33,880**	**150**	**3,291**

* From 1891 to 1927 figures show sulphur content of pyrites shipped. Since 1927 figures include sulphur in pyrites shipped plus sulphur recovered from smelter gases. 1886 to 1890 inclusive tonnage of pyrites shipped.

Historical Summary of Canada's Mineral Production—Dominion Totals —Continued

Year	Clay Products	Cement		Lime		Sand and Gravel	
	$	Brls.	$	tons	$	tons	$
1886	1,126,057	.....	.....	.....	283,755	124,865	24,226
1887	1,398,907	69,843	81,909	.....	394,859	180,860	30,307
1888	1,494,673	50,668	35,593	.....	339,951	260,929	38,398
1889	1,652,334	90,474	69,790	.....	362,848	283,044	52,647
1890	2,041,001	102,216	92,405	.....	412,308	342,158	65,518
1891	1,802,932	93,479	108,561	.....	251,215	243,724	59,501
1892	2,177,968	117,408	147,663	.....	411,270	297,878	85,329
1893	2,619,590	158,597	194,015	.....	900,000	329,116	121,795
1894	2,560,236	108,142	144,637	.....	900,000	324,656	86,940
1895	2,487,248	128,294	173,675	.....	700,000	277,162	118,339
1896	2,227,962	149,090	201,651	.....	650,000	224,769	80,110
1897	2,325,903	205,213	275,273	.....	650,000	152,963	76,729
1898	2,690,974	250,209	397,580	.....	650,000	165,954	90,498
1899	2,988,099	396,753	633,291	.....	800,000	242,450	101,640
1900	3,195,105	417,552	662,910	.....	800,000	197,558	101,666
1901	3,382,706	450,394	660,030	.....	830,000	197,302	117,465
1902	3,625,489	722,525	1,127,550	.....	892,000	159,793	119,120
1903	4,034,289	719,993	1,225,247	.....	900,000	355,792	124,006
1904	3,841,560	967,172	1,338,239	.....	780,000	399,809	189,803
1905	4,709,842	1,360,732	1,924,014	.....	750,000	306,935	152,805
1906	5,072,635	2,128,374	3,170,859	183,064	1,009,177	336,550	139,712
1907	5,772,117	2,441,868	3,781,371	166,436	974,595	298,095	119,853
1908	4,500,702	2,666,333	3,709,954	126,051	712,947	298,954	161,387
1909	6,450,840	4,067,709	5,345,802	195,752	1,132,756	481,584	236,166
1910	7,629,956	4,753,975	6,412,215	204,685	1,137,079	624,824	407,974
1911	8,359,933	5,692,915	7,644,937	263,673	1,517,599	573,494	408,110
1912	10,575,869	7,132,732	9,106,556	266,654	1,844,849	.....	1,512,099
1913	9,504,314	8,658,805	11,019,418	264,547	1,609,398	.....	2,258,874
1914	6,871,957	7,172,480	9,187,924	246,000	1,360,628	.....	2,505,310
1915	3,914,488	5,681,032	6,977,024	176,654	1,015,702	.....	1,624,767
1916	4,120,805	5,369,560	6,547,728	192,246	1,091,463	8,156,207	1,838,320
1917	4,779,038	4,768,488	7,724,246	229,851	1,558,487	9,182,417	2,326,249
1918	4,583,489	3,591,481	7,076,503	222,738	1,876,025	11,262,282	2,367,018
1919	7,906,366	4,995,257	9,802,433	250,163	2,310,607	10,364,481	2,880,460
1920	10,664,929	6,651,980	14,798,070	329,957	3,818,553	11,530,795	4,201,067
1921	8,857,818	5,752,885	14,195,143	240,767	2,781,197	11,574,862	2,537,249
1922	11,438,456	6,943,972	15,438,481	314,054	3,165,005	11,666,374	3,502,935
1923	10,483,016	7,543,589	15,064,661	351,236	3,266,608	12,752,515	3,016,518
1924	9,215,077	7,498,624	13,398,411	319,793	3,178,541	11,603,500	3,181,083
1925	9,529,691	8,116,597	14,046,704	358,979	3,387,652	11,018,647	3,220,410
1926	10,357,323	8,707,021	13,013,283	413,901	3,781,484	17,112,798	4,941,434
1927	11,173,189	10,065,865	14,391,937	444,753	3,923,388	22,952,819	6,055,601
1928	12,381,718	11,023,928	16,739,163	508,889	4,534,568	28,102,917	5,809,431
1929	13,904,643	12,284,081	19,337,235	674,087	5,908,610	27,846,945	7,317,814
1930	10,593,578	11,032,538	17,713,067	490,802	4,038,698	28,547,511	8,344,913
1931	7,841,288	10,161,658	15,826,243	344,785	2,764,415	21,748,586	6,651,165
1932	3,650,218	4,498,721	6,930,721	320,650	2,394,537	14,469,942	4,480,596
1933	2,262,835	3,007,432	4,536,935	323,540	2,432,306	11,738,823	4,464,285
1934	2,680,410	3,783,226	5,667,946	368,113	2,745,797	14,854,159	4,035,477
1935	3,012,563	3,648,086	5,589,043	405,419	2,925,791	21,213,489	6,389,440
1936	3,471,027	4,508,718	6,908,192	468,401	3,335,970	22,124,160	6,921,399
1937	4,516,859	6,168,971	9,095,867	549,353	3,824,917	27,001,301	10,492,696
1938	4,536,084	5,519,102	8,241,350	486,922	3,542,652	32,223,882	12,002,554
1939	5,151,236	5,731,264	8,511,211	552,209	4,003,514	31,294,341	11,241,102
1940	6,344,547	7,559,648	11,775,345	716,730	5,194,555	31,375,415	11,759,245
1941	7,575,336	8,368,711	13,063,588	860,885	6,357,941	31,604,806	10,375,723
1942	7,081,723	9,126,041	14,365,237	884,830	6,530,839	26,349,907	9,005,414
1943	6,608,193	7,302,289	11,599,033	907,768	6,832,992	25,744,469	9,005,857
1944	6,997,425	7,190,851	11,621,372	885,142	6,926,844	28,399,986	10,280,119
1945	8,913,092	8,471,679	14,246,480	832,253	6,525,038	29,750,703	10,568,363
1946	12,207,367	11,560,483	20,122,503	840,799	7,074,940	39,949,994	15,529,700
Total	**353,875,125**	**277,907,723**	**443,229,221**	.....	**117,006,870**	.....	**215,774,751**

Historical Summary of Canada's Mineral Production—Dominion Totals

—Concluded

Year	Limestone (a)		Sandstone		Granite		Marble		Slate	
	tons	$	tons	$	tons	$	tons	$	tons	$
		$								
1886		650,384			6,062	63,309	501	9,900	5,345	64,675
1887		581,367			21,217	142,506	242	6,224	7,357	89,000
1888		664,825			21,352	147,305	191	3,100	5,314	90,689
1889		937,000			10,197	79,624	83	980	6,935	119,160
1890		984,787			13,307	65,985	780	10,776	6,368	100,250
1891		723,004			13,637	70,056	240	3,752	5,000	65,000
1892		633,188			24,302	89,326	340	3,600	5,180	69,070
1893		1,131,006			22,521	94,393	590	5,100	7,112	90,825
1894		1,269,645			16,392	109,936	.....	.....	.....	75,550
1895		1,136,603			19,238	84,838	200	2,000	.....	58,900
1896		1,042,850			18,717	106,709	224	2,405	.....	53,370
1897		1,037,448			10,345	61,034	.....	.....	.....	42,800
1898		1,335,403			23,897	81,073	.....	.....	.....	40,791
1899		1,551,886			13,418	90,542	.....	.....	.....	33,406
1900		1,564,582			.....	80,000	.....	.....	.....	12,100
1901		1,837,737			.....	155,000	.....	.....	715	9,980
1902		2,127,055			.....	210,000	.....	.....	.....	19,200
1903		2,230,939			.....	200,000	.....	.....	5,510	22,040
1904		2,114,315			.....	150,000	.....	.....	5,277	23,247
1905		2,072,758			.....	226,305	.....	.....	.....	21,568
1906		2,084,056			.....	278,419	.....	.....	.....	24,446
1907		1,832,550			151,136	194,712	.....	.....	4,335	20,056
1908		1,681,293			.....	282,320	.....	125,000	2,950	13,496
1909	.....	2,139,691	.....	374,179	.....	454,824	.....	158,441	4,000	19,000
1910	.....	2,249,576	.....	502,148	.....	739,516	.....	158,779	3,959	18,492
1911	.....	2,594,926	.....	451,183	.....	1,119,865	.....	162,783	1,833	8,248
1912	.....	2,762,936	.....	329,352	.....	1,373,119	.....	260,764	1,894	8,939
1913	.....	3,204,001	.....	396,782	.....	1,653,791	.....	249,975	1,432	6,444
1914	.....	2,672,781	.....	487,140	.....	2,176,602	.....	132,533	1,075	4,837
1915	.....	2,312,081	.....	249,336	.....	1,525,553	.....	158,027	397	2,039
1916	.....	2,224,094	.....	146,244	.....	1,247,267	.....	118,810	1,262	6,223
1917	.....	2,283,659	.....	261,256	.....	639,412	.....	55,820	1,422	7,789
1918	.....	2,342,403	.....	102,750	.....	590,871	.....	550	933	5,124
1919	.....	3,074,815	.....	86,577	.....	850,563	.....	213,982	1,632	10,853
1920	.....	5,665,693	.....	165,149	.....	1,508,916	.....	240,593	.....	14,200
1921	3,322,024	5,155,046	28,426	78,036	319,398	937,894	1,650	172,720	.....	22,325
1922	3,152,124	4,175,941	25,221	80,908	457,925	1,486,250	1,912	231,894	1,899	14,871
1923	3,087,663	4,475,921	22,766	66,547	398,432	1,150,303	2,473	201,518	1,836	17,289
1924	4,249,061	4,831,684	94,603	240,273	419,971	1,013,345	4,379	322,455	.....	.....
1925	4,643,853	5,049,563	87,502	145,757	971,718	2,014,535	3,046	254,922	.....	.....
1926	5,283,745	5,657,328	44,127	112,347	1,064,423	1,574,627	5,295	521,572	.....	.....
1927	6,438,379	7,145,917	132,799	232,793	730,009	1,383,557	5,209	503,037	.....	.....
1928	6,949,420	7,267,437	100,951	223,236	1,195,810	2,366,946	7,753	414,682	.....	.....
1929	7,720,840	8,172,681	159,407	398,974	1,728,165	3,080,815	14,012	414,062	.....	.....
1930	7,732,675	8,075,616	384,610	769,060	1,851,132	3,379,951	26,089	809,582	150	3,000
1931	6,262,430	6,305,538	924,101	1,332,883	1,390,887	2,763,050	20,442	668,713	250	5,000
1932	3,687,241	3,227,715	500,480	349,458	490,822	1,110,582	12,379	250,706	250	3,750
1933	2,572,911	2,142,516	99,043	108,562	256,723	679,585	19,897	65,913	250	3,750
1934	3,747,779	3,157,832	115,169	143,280	200,285	781,739	13,783	69,475	738	4,802
1935	3,631,665	3,253,573	342,824	838,005	326,354	1,126,287	15,975	85,369	1,129	4,329
1936	3,731,548	3,143,872	285,508	495,856	941,743	1,319,313	22,866	169,698	1,247	5,414
1937	5,542,806	4,673,942	235,165	343,871	1,135,099	1,827,433	21,642	88,595	900	5,519
1938	4,288,507	3,864,619	101,854	218,405	705,307	1,379,417	19,375	87,274	979	6,311
1939	4,149,589	3,817,551	176,265	331,830	1,102,395	2,119,501	14,124	200,054	1,149	6,760
1940	6,108,591	5,126,075	176,475	305,543	1,147,747	1,884,410	13,739	75,409	1,113	7,522
1941	7,151,049	6,057,727	169,885	305,528	600,922	1,498,786	17,049	126,081	1,296	12,562
1942	6,442,583	6,468,525	153,865	226,810	1,366,425	1,946,249	13,824	88,209	1,369	16,801
1943	6,265,181	6,105,749	164,163	250,003	780,422	1,522,072	11,848	68,022	1,336	17,735
1944	5,565,286	5,528,459	146,766	223,453	269,964	1,303,790	11,829	85,374	1,147	18,101
1945	5,677,192	6,284,379	291,430	406,397	221,630	1,284,748	13,388	113,337	1,915	17,839
1946	7,217,600	8,178,513	495,777	778,213	319,354	2,006,297	21,796	201,817	1,733	20,871
Total	.....	*170,876,462	.....	*12,618,727	.....	59,895,073	.....	8,372,384	.....	1,486,356

* Total value from 1909 to 1946.

(a) Exclusive of limestone used in making cement and lime.

Values of the Mineral Production of Canada, by Provinces, since 1932

Year	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	$	$	$	$	$
1932	16,201,279	2,223,505	25,638,466	85,910,030	9,058,365
1933	16,966,183	2,107,682	28,141,482	110,205,021	9,026,951
1934	23,310,729	2,156,151	34,269,945	145,565,871	9,776,934
1935	23,183,128	2,821,027	39,124,696	158,934,269	12,052,417
1936	26,672,278	2,587,791	49,736,919	184,532,892	11,315,527
1937	30,314,188	2,763,643	65,160,215	230,042,517	15,751,645
1938	26,253,645	3,802,565	68,965,594	219,801,994	17,173,002
1939	30,746,200	3,949,433	77,335,908	232,519,948	17,137,930
1940	33,318,587	3,435,916	86,313,401	261,483,349	17,828,522
1941	32,569,867	3,690,375	99,651,044	267,435,727	16,689,867
1942	32,783,165	3,609,158	104,300,010	259,114,946	14,345,046
1943	29,979,837	3,676,834	101,610,678	232,948,959	13,412,266
1944	33,981,977	4,133,902	90,182,553	210,706,307	13,830,406
1945	32,220,659	4,182,100	91,518,120	216,541,856	14,429,423
1946	35,350,271	4,813,166	92,785,148	191,544,429	16,403,549

Year	Saskatchewan	Alberta	British Columbia	Yukon	Northwest Territories (*)
	$	$	$	$	$
1932	1,681,728	21,174,061	27,326,173	1,993,195	21,423
1933	2,477,425	19,702,953	30,794,504	2,041,223	279,729
1934	2,977,061	20,228,851	41,206,965	1,628,879	199,604
1935	3,816,943	22,280,681	48,692,056	1,302,708	541,638
1936	6,970,497	23,305,726	54,407,036	2,220,372	775,834
1937	10,271,463	25,597,117	73,555,798	3,784,528	994,518
1938	7,782,847	28,966,272	64,549,130	3,959,570	1,614,076
1939	8,794,090	30,691,617	65,216,745	4,961,321	3,248,777
1940	11,505,858	35,092,337	74,134,485	4,118,333	2,594,157
1941	15,020,555	41,364,385	76,841,180	3,117,992	3,860,298
1942	20,578,749	47,359,831	77,247,932	3,453,568	3,976,267
1943	26,735,984	48,941,210	68,442,386	1,625,819	2,679,993
1944	22,291,848	51,066,662	57,246,073	939,319	1,440,069
1945	22,336,074	51,753,237	64,063,842	1,239,058	470,812
1946	24,480,990	60,082,513	74,622,846	1,093,904	1,039,525

* Values of pitchblende products not included since 1941.

Historical Summary of the Mineral Production of Nova Scotia

—	Antimony		Arsenic		Barite		Clay products	Coal	
	pounds	$	pounds	$	tons	$	$	tons	$
1866								(c)2,649,416	4,139,714
1867								596,332	931,769
1868								574,106	897,041
1869								647,727	1,012,074
1870								719,211	1,123,767
1871								754,827	1,179,417
1872								1,003,806	1,568,446
1873								1,108,245	1,731,632
1874								972,954	1,520,240
1875								930,613	1,454,084
1876								837,755	1,308,991
1877								880,215	1,375,329
1878								875,994	1,368,741
1879								866,220	1,353,469
1880								1,177,669	1,840,108
1881								1,280,050	2,000,079
1882								1,524,947	2,382,730
1883								1,578,609	2,466,576
1884								1,543,829	2,412,233
1885							50,630	1,547,990	2,418,735
1886							43,746	1,698,018	2,653,152
1887							56,995	1,858,596	2,904,057
1888								1,942,231	3,034,735
1889							60,520	1,918,827	2,998,167
1890							54,755	2,181,033	3,407,864
1891							93,611	2,267,919	3,543,624
1892							*	2,159,389	3,374,046
1893							*	2,444,924	3,820,194
1894								2,527,982	3,949,970
1895							*	2,225,145	3,476,790
1896					145	715	*	2,508,579	3,919,655
1897					571	3,060	*	2,493,554	3,896,179
1898							†173,280	2,563,180	4,004,970
1899							†110,695	3,148,822	5,622,898
1900							†108,210	3,623,536	8,088,250
1901					653	3,842	†103,695	4,158,068	6,496,982
1902					1,096	3,857	†152,025	5,161,316	9,216,636
1903					1,163	3,931	†150,100	5,653,338	10,095,246
1904					1,382	3,702	†157,762	5,596,241	9,993,288
1905					3,360	7,500	†90,146	5,646,583	10,083,184
1906					4,000	12,000	160,506	6,220,505	11,108,044
1907					1,344	3,000	125,560	6,354,133	12,764,999
1908					4,312	19,021	117,833	6,652,539	13,364,476
1909					179	1,120	188,185	5,652,089	11,354,643
1910							204,782	6,431,142	12,919,705
1911					50	400	274,249	7,004,420	14,071,379
1912					464	5,104	272,053	7,783,888	17,374,750
1913					641	6,410	332,272	7,980,073	17,812,663
1914					612	6,169	266,204	7,370,924	16,452,955
1915	(b)2,576,000	77,300			550	6,875	221,881	7,463,370	16,659,308
1916					1,368	19,393	238,470	6,912,140	18,514,662
1917					3,490	54,027	331,542	6,327,091	19,410,737
1918					580	9,145	303,515	5,818,562	21,095,470
1919					468	8,154	432,900	5,720,373	22,078,729
1920					751	22,983	541,114	6,429,291	32,238,129
1921					270	9,567	361,761	5,784,928	27,782,050
1922					289	9,537	431,618	5,569,072	24,629,921
1923			45,000	2,250	209	4,368	413,974	6,597,838	28,170,458
1924			381,092	15,244	151	3,308	†359,288	5,557,441	22,280,554
1925					95	2,259	†425,710	3,842,978	15,826,680
1926					100	2,307	362,667	6,747,477	26,845,226
1927			35,000	700	56	1,268	416,417	7,071,876	27,194,671
1928					127	2,847	496,577	6,743,504	27,427,556
1929					105	2,341	653,157	7,056,133	28,071,956
1930					66	1,484	495,333	6,252,552	24,528,880
1931					16	363	467,126	4,955,563	19,016,720
1932							172,557	4,084,581	15,167,793
1933							125,500	4,557,590	15,969,793
1934							157,158	6,341,625	21,860,093
1935							270,478	5,822,075	20,391,227
1936							355,254	6,649,102	22,973,281
1937	(a) 48,163	7,394					406,846	7,256,954	25,640,819
1938	(a) 24,560	2,200					340,253	6,236,417	22,523,802
1939	(a) 1,200	148					339,952	7,051,176	25,611,271
1940					25	162	490,543	7,848,921	28,766,196
1941					6,561	72,468	529,435	7,387,762	28,446,203
1942					17,750	172,060	618,441	7,204,852	29,116,118
1943					22,550	263,419	478,571	6,103,085	27,121,861
1944					106,106	970,774	402,694	5,745,671	30,728,535
1945					108,434	1,165,623	433,455	5,112,615	28,350,278
1946					117,691	987,473	671,466	5,452,898	30,253,654
Total		**87,042**	**461,092**	**18,194**	**407,780**	**3,872,136**	**16,093,467**	**342,953,022**	**1,040,981,294**

* No production recorded, or production not available by provinces.
(a) Metal content of ore.
(b) Ore.
(c) From 1785 to 1866.
† Includes Prince Edward Island production.

Historical Summary of the Mineral Production of Nova Scotia—Continued

—	Copper		Diatomite		Gold		Grindstones		Gypsum (a)	
	pounds	$	tons	$	fine oz.	$	tons	$	tons	$
1861					*	*				
1862					6,863	141,871				
1863					13,180	272,448				
1864					18,883	390,349				
1865					24,011	496,357				
1866					23,776	491,491				
1867					25,763	532,563				
1868					19,377	400,555				
1869					16,855	348,427				
1870					18,740	387,392				
1871					18,139	374,972				
1872					12,352	255,349				
1873					11,180	231,122				
1874					8,623	178,244			67,830	68,164
1875					10,576	218,629			86,065	86,193
1876					11,300	233,585			87,720	87,590
1877					15,925	329,205			106,950	93,867
1878					11,864	245,253			88,631	76,695
1879					12,980	268,328			95,623	74,353
1880					12,472	257,823			125,685	111,833
1881					10,147	209,755			110,303	100,284
1882					13,307	275,090			133,426	121,070
1883					14,571	301,207			145,448	132,834
1884					15,168	313,554			107,653	100,446
1885					20,945	432,971			81,887	77,898
1886					22,038	455,564	1,765	24,050	123,753	118,110
1887					20,009	413,631	1,710	25,020	116,346	116,346
1888					21,137	436,939	1,971	20,400	124,818	120,429
1889					24,673	510,029	712	7,128	165,025	142,850
1890					22,978	474,990	850	8,536	181,285	154,072
1891					21,841	451,503	1,980	10,800	161,934	153,955
1892					18,865	389,965	2,462	27,610	197,019	170,021
1893					18,436	381,095	2,112	21,000	152,754	144,111
1894					18,834	389,338	2,128	16,000	168,300	147,644
1895					21,919	453,119	1,400	14,000	156,809	133,929
1896			644	9,960	23,876	493,568	1,450	14,500	136,590	111,251
1897			15	150	27,195	562,165	1,407	17,500	155,572	121,734
1898			1,017	16,660	26,054	538,590	1,422	12,350	132,086	106,610
1899			1,000	15,000	29,876	617,604	1,378	10,300	126,754	102,055
1900			336	1,950	28,955	598,553	1,411	12,600	138,712	108,828
1901			850	15,300	26,459	546,963	358	3,200	170,100	136,047
1902			1,052	16,470	30,348	627,357	1,074	8,118	206,087	184,425
1903			835	16,700	25,533	527,806	1,337	9,562	189,427	173,881
1904			320	6,400	10,362	214,209	1,029	7,332	218,580	153,600
1905			300	3,600	13,707	283,353	1,020	10,200	272,252	298,248
1906					12,223	252,676	1,023	9,680	333,312	395,414
1907			30	225	13,675	282,686	551	4,480	357,411	380,859
1908			30	195	11,842	244,799	473	4,803	234,455	230,433
1909					10,193	210,711	312	3,204	345,682	304,379
1910			22	134	7,928	163,891	3,586	43,700	400,455	458,638
1911			20	122	7,781	160,854	380	4,382	353,399	406,457
1912			38	230	4,385	90,638	374	3,760	376,082	481,493
1913			620	12,138	2,174	44,935	350	4,900	404,801	479,515
1914			650	13,000	2,904	60,031	350	5,270	303,155	368,931
1915			317	12,119	6,636	137,180	285	5,300	298,864	339,857
1916			620	12,139	4,562	94,305	273	5,800	238,212	278,160
1917			600	18,000	2,210	45,685	375	9,875	215,472	301,261
1918			500	12,500	1,176	24,310	256	8,000	49,365	115,976
1919			565	11,300	850	17,571	283	9,000	163,852	250,174
1920			260	8,600	690	14,263	211	8,440	269,661	573,752
1921			341	11,268	418	8,641	183	6,990	206,831	511,883
1922			219	5,781	1,128	21,598	102	3,692	332,404	580,148
1923			130	3,250	680	13,556	258	7,006	341,705	747,934
1924			33	838	1,047	21,643	338	12,525	441,752	915,845
1925					1,626	33,612	439	16,723	551,230	1,070,408
1926					1,678	34,687	311	15,136	678,107	1,187,918
1927			266	6,650	3,151	65,137	11	220	829,438	1,512,015
1928			208	4,160	1,290	26,667			1,013,257	1,850,243
1929			254	5,080	2,687	55,545	6	110	948,895	1,152,160
1930			398	7,960	1,272	26,293	6	110	827,063	982,287
1931			1,484	29,679	460	9,920			707,817	878,487
1932			1,438	28,760	964	22,634	12	433	341,508	398,861
1933			1,747	34,940	1,382	39,525	21	868	315,948	363,528
1934			1,320	52,800	3,525	121,613	50	1,762	378,287	488,044
1935			666	26,600	9,376	329,942	50	2,006	454,703	523,216
1936	770,307	73,855	565	11,300	11,960	418,959	70	2,242	729,019	808,294
1937	180,609	23,620	481	15,392	19,918	696,931	37	4,415	926,796	978,288
1938			384	13,480	26,560	934,248	131	7,006	870,856	908,383
1939	1,269,179	128,086	279	9,663	29,943	1,082,170	152	5,616	1,298,618	1,340,830
1940			241	7,786	22,219	855,432	53	2,378	1,278,204	1,302,347
1941			239	7,310	19,170	738,045			1,395,172	1,517,297
1942			218	6,541	12,989	500,076			394,216	512,762
1943			82	2,465	4,129	158,967			255,736	368,639
1944			5	175	5,840	224,840			401,284	489,932
1945			24	740	3,291	126,704	10	600	634,960	790,273
1946			49	1,505	4,321	158,797			1,538,738	1,812,845
Total	**2,229,095**	**225,561**	**21,712**	**497,073**	**1,100,345**	**25,523,600**	**40,296**	**509,538**	**26,959,716**	**33,393,329**

* No production recorded, or data not available by provinces.

(a) 1874-1885 inclusive—exports.

NOTE.—In 1921 there were produced 16 tons of feldspar, valued at $117. In 1940 there were produced 17 tons of fluorspar valued at $365; in 1941 there were 300 tons at $3,900 and in 1942, 300 tons at $6,584.

Historical Summary of the Mineral Production of Nova Scotia—Continued

—	Iron Ore		Lime		Manganese Ore and Bog Manganese		Quartz	
	tons	$	bushels	$	tons	$	tons	$
1876	15,274							
1877	16,879				97			
1878	36,600				127	5,505		
1879	29,889				145	7,170		
1880	51,193				223	7,931		
1881	39,843				231			
1882	42,135				205			
1883	52,410				150	12,462		
1884	54,885				302¼			
1885	48,129				353½			
1886	44,388		16,000	3,800	427			
1887	43,532		49,400	11,442	306	21,260		
1888	42,611		29,450	6,480	106	6,460		
1889	54,161				67	3,947		
1890	49,206		217,944	44,565				
1891	53,649							
1892	78,258							
1893	102,201							
1894	89,379							
1895	83,792				108	6,348		
1896	58,810				123¼	3,975		
1897	23,400				15¼	1,166		
1898	19,079				11	325		
1899	28,000				67	2,328		
1900	18,940							
1901	18,619							
1902	16,172							
1903	40,335							
1904	61,293							
1905	84,952							
1906	97,820	151,386	50,000	13,600				
1907	89,839	137,161	45,000	16,000				
1908	11,802	17,620	51,068	16,102				
1909			57,730	16,729				
1910	18,134	51,330	55,750	13,490				
1911	22	50	639,200	130,535	5¼	300		
1912	30,857	168,877	709,596	145,121	75	1,875		
1913	20,436	21,049	854,812	171,339				
1914			517,722	103,748	28	1,120		
1915			915,086	183,017	51	5,760		
1916			911,534	182,506	646	70,371		
1917			986,106	197,344	158	14,836		
1918	130		748,314	149,663				
1919			366,543	73,309	45	3,600		
1920			201,500	40,300	62	4,140		
1921			25,914	6,085	68	3,400		
1922					73	2,044		
1923			42,370	7,199	200	1,400		
1924			2,229	936				
1925			8,243	3,464			1,352	6,760
1926			453,797	59,777			8,333	29,018
1927			873,200	100,254			4,834	16,721
1928			1,032,971	175,876			7,424	28,022
1929			1,200,029	154,187			11,845	31,388
1930			888,971	113,250	4	60	8,057	18,494
1931			526,571	79,418	60	2,400	3,116	6,836
1932			186,657	35,534				
1933			111,829	30,160			1,017	1,447
1934			254,857	67,954			7,292	12,107
1935			323,743	82,698			9,640	13,978
1936			447,543	119,230			6,764	10,819
1937			505,343	150,115			11,732	14,078
1938			352,886	110,648			4,701	8,415
1939			422,314	129,511	4	88	10,547	18,927
1940			628,971	184,094	152	4,315	8,755	15,670
1941			598,314	199,577			11,477	24,100
1942			624,286	226,334	61	91	10,708	23,557
1943			278,086	113,344			9,486	16,126
1944			96,057	42,957			10,100	27,350
1945			13,400	5,771			10,734	36,171
1946							7,525	15,550
Total							**165,439**	**375,534**

Nova Scotia had a production of lead in 1936 which amounted to 1,901,712 pounds valued at $74,414 and in 1937 there were produced 418,086 pounds valued at $21,364 and in 1939, 2,545,122 pounds valued at $80,655.

In 1917 and 1918 there was a small production of molybdenite—some 274 pounds worth $301.

Historical Summary of the Mineral Production of Nova Scotia—Continued

—	Salt		Sand and Gravel		Silica Brick		Silver	
	tons	$	tons	$	M	$	fine oz.	$
1914	.....	.....	.....	.....	.....	.....	.....	.....
1915	.....	.....	368,049	71,821	.....	.....	.....	.....
1916	.....	.....	175,571	84,631	.....	.....	.....	.....
1917	.....	.....	225,457	129,620	.....	.....	.....	.....
1918	.....	.....	.....	.....	.....	.....	.....	.....
1919	174	2,188	.....	.....	.....	.....	.....	.....
1920	3,023	32,000	.....	.....	.....	.....	.....	.....
1921	2,638	23,269	.....	.....	.....	.....	.....	.....
1922	5,053	54,666	154,021	54,974	.....	.....	.....	.....
1923	4,480	39,151	203,416	55,928	.....	.....	.....	.....
1924	4,551	37,469	306,873	60,849	.....	.....	44	29
1925	6,598	49,889	286,614	55,362	.....	.....	86	59
1926	8,165	68,781	230,307	52,952	1,358	64,461	112	70
1927	14,391	102,590	812,976	522,723	1,238	50,978	125	70
1928	19,604	118,342	296,266	111,103	1,627	69,179	77	45
1929	27,819	157,662	332,599	151,368	2,385	93,207	132	70
1930	23,058	136,226	525,683	310,407	2,040	78,259	67	26
1931	27,718	143,761	403,858	198,757	621	22,044	48	14
1932	31,897	150,708	423,487	136,677	.....	.....	47	15
1933	34,278	161,889	282,228	126,031	453	15,834	104	39
1934	42,886	191,917	256,572	114,597	2,159	71,215	321	152
1935	38,701	161,659	1,423,557	685,973	1,968	73,218	372	241
1936	38,774	183,915	1,947,471	†941,366	1,922	70,570	107,642	48,576
1937	47,865	216,401	2,992,429	1,457,266	2,926	121,146	26,990	12,113
1938	44,950	194,759	2,077,378	1,013,266	1,193	49,811	988	430
1939	47,885	213,029	2,139,427	1,225,827	1,890	75,212	173,877	70,399
1940	42,495	220,328	1,440,140	867,490	2,809	120,125	725	277
1941	54,007	307,637	749,441	332,531	2,828	119,511	673	257
1942	50,199	317,798	775,795	371,970	3,090	142,511	446	188
1943	47,775	245,157	917,376	585,007	3,113	109,783	144	65
1944	38,809	281,482	911,970	411,041	2,931	177,003	188	81
1945	37,825	254,138	1,308,848	555,809	3,040	185,865	112	53
1946	38,371	329,579	1,105,980	484,585	2,055	119,272	146	122
Total	783,989	4,396,390	.....	.....	.....	.....	.....	.....

† Includes production in Prince Edward Island.

Historical Summary of the Mineral Production of Nova Scotia—Concluded

—	Stone								Zinc		Other products
	Granite		Limestone		Marble		Sandstone				
	tons	$	tons	$	tons	$	tons	$	pounds	$	$
1908	.....	.....	.....	.....	(a)	(a)	.....	.....	.....	.....	216,161
1909	.....	5,832	.....	161,022	.....	.....	.....	21,850	.....	.....	71,715
1910	.....	18,201	.....	192,919	.....	.....	.....	16,425	.....	.....	54,981
1911	.....	24,258	.....	245,216	.....	.....	.....	23,440	.....	.....	68,735
1912	.....	28,041	.....	275,944	.....	.....	.....	20,645	.....	.....	53,705
1913	.....	29,302	.....	258,719	.....	.....	.....	62,490	.....	.....	101,196
1914	.....	65,727	.....	94,239	.....	.....	.....	61,124	.....	.....	86,121
1915	.....	79,636	.....	255,024	.....	.....	.....	33,264	.....	.....	.....
1916	.....	164,870	.....	263,803	.....	.....	.....	30,625	.....	.....	82,527
1917	.....	111,529	.....	433,987	.....	.....	.....	24,005	.....	.....	22,000
1918	.....	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.....	.....	119,229
1919	.....	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.....	.....	145,099
1920	.....	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.....	.....	226,121
1921	11,822	47,101	44,269	55,436	.....	.....	2,832	14,065	.....	.....	70,028
1922	12,725	44,489	68,122	56,936	.....	.....	7,108	18,067	.....	.....	10,028
1923	17,296	54,892	118,222	102,750	.....	.....	3,164	19,448	.....	.....	4,429
1924	7,554	33,021	57,069	56,323	.....	.....	2,912	22,480	.....	.....	.....
1925	14,961	54,524	84,939	73,717	.....	.....	2,223	6,445	.....	.....	.....
1926	4,884	41,738	82,753	97,255	.....	.....	4,678	11,799	.....	.....	.....
1927	611	36,770	68,294	75,292	.....	.....	3,546	8,745	.....	.....	.....
1928	39,360	102,295	72,350	79,320	160	2,975	9,298	29,185	.....	.....	.....
1929	76,742	98,357	175,981	199,384	132	2,515	11,851	75,966	.....	.....	.....
1930	7,856	38,107	79,941	88,545	.....	.....	64,666	193,664	.....	.....	.....
1931	24,895	72,009	21,684	69,415	.....	.....	36,602	84,208	.....	.....	.....
1932	3,635	18,461	9,974	27,990	.....	.....	21,052	40,856	.....	.....	.....
1933	8,145	36,675	21,514	43,011	.....	.....	11,790	16,043	.....	.....	.....
1934	325	12,300	105,620	135,962	.....	.....	17,123	23,055	.....	.....	.....
1935	525	23,800	8,988	19,188	.....	.....	202,952	578,844	.....	.....	.....
1936	66,507	99,855	20,860	36,365	.....	.....	167,205	239,109	6,180,219	204,[illegible]	.....
1937	16,430	50,966	24,398	35,914	.....	.....	137,893	192,218	5,485,550	268,[illegible]	.....
1938	5,765	31,768	20,957	34,696	.....	.....	36,940	80,480	.....	.....	.....
1939	885	20,809	17,239	33,941	.....	.....	31,711	79,167	9,152,856	280,[illegible]	.....
1940	87,975	155,458	24,160	46,717	.....	.....	69,316	111,469	4,755,502	162,[illegible]	.....
1941	410	30,537	46,973	69,501	.....	.....	66,219	169,307	.....	.....	.....
1942	429	41,985	185,232	645,680	.....	.....	43,856	76,502	.....	.....	.....
1943	703	28,407	174,933	264,197	.....	.....	72,232	128,265	.....	.....	.....
1944	1,886	37,532	50,734	123,613	.....	.....	45,813	63,968	.....	.....	.....
1945	379	25,695	60,387	158,644	.....	.....	62,668	130,840	.....	.....	.....
1946	8,394	49,176	84,805	215,257	.....	.....	90,534	251,020	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....	.....	.....	**25,574,127**	**916,887**	.....

(a) Included with other products.
(b) Not shown by kinds 1918-1920. Total values for all kinds of stone for those years were: 1918, $478,721; 1919, $[illegible] and 1920, $420,175.
* In 1918 tungsten concentrates amounting to 1,063 pounds valued at $372 were produced in Nova Scotia. In 1940, 3,[illegible] pounds valued at $5,22[illegible]; in 1942, 4,300 pounds worth $3,967 and in 1943, 19,370 pounds valued at $18,564.

Historical Summary of the Mineral Production of New Brunswick

—	Clay Products	Coal (a)		Graphite		Grindstones (b)		Gypsum		Iron Ore	
	$	tons	$	tons	$	tons	$	tons	$	tons	$
1875	...	...	...	...	...	...	...	(c) 5,420	5,420	...	...
1876	...	...	...	...	...	...	...	4,925	6,616	...	...
1877	...	...	...	...	...	...	...	5,030	5,030	...	...
1878	...	...	...	...	...	...	...	16,335	16,435	...	...
1879	...	...	...	...	...	...	...	8,791	8,791	...	...
1880	...	...	...	...	...	...	...	10,375	10,987	...	...
1881	...	...	...	...	...	...	...	10,310	15,025	...	...
1882	...	...	...	...	...	...	...	15,597	24,581	...	...
1883	...	...	...	...	...	...	...	20,242	35,557	...	...
1884	...	...	...	...	...	...	...	21,800	32,751	...	...
1885	...	...	...	...	...	...	...	15,140	27,730	...	...
1886	33,218	...	...	300	4,000	2,255	22,495	32,421	48,632	...	...
1887	46,541	10,040	23,607	300	2,400	3,582	38,988	20,102	29,216	...	...
1888	34,364	5,730	11,050	150	1,200	3,793	30,729	44,369	48,764	...	...
1889	93,425	5,673	11,733	200	1,600	2,602	23,735	40,866	49,130	...	...
1890	70,430	7,110	13,850	150	1,200	4,034	33,804	39,024	30,986	...	...
1891	47,071	5,422	11,030	260	1,560	2,499	22,787	36,011	33,996	...	...
1892	52,853	6,768	9,375	...	...	2,821	23,577	39,709	65,707	...	...
1893	...	6,200	9,837	...	...	2,488	17,379	36,916	41,846	...	...
1894	...	6,469	10,264	...	...	1,029	16,717	52,962	48,200	...	...
1895	...	9,500	14,250	150	900	2,075	17,932	66,949	63,839	...	...
1896	...	7,500	11,250	45	315	2,263	18,810	67,137	59,024	...	...
1897	...	6,000	9,000	89	890	3,165	24,840	82,658	118,116	...	...
1898	113,400	6,160	9,240	260	2,600	3,513	32,425	86,083	121,704	...	...
1899	85,600	10,528	15,792	...	...	3,133	32,965	116,792	150,206	...	...
1900	80,920	10,000	15,000	120	1,440	4,128	40,850	112,294	145,850	...	...
1901	50,229	17,630	51,857	240	2,880	4,223	42,490	121,595	189,709	...	...
1902	150,945	18,795	39,680	200	2,400	3,559	36,000	124,041	170,153	...	...
1903	150,675	16,000	40,000	...	...	4,201	38,740	119,182	172,080	...	...
1904	150,830	9,112	18,224	60	480	3,620	35,450	120,991	187,524	...	...
1905	45,010	29,400	58,800	60	480	4,520	52,175	163,553	232,586	...	...
1906	49,220	34,076	68,152	...	...	4,340	50,134	131,246	250,960	...	...
1907	57,377	34,584	77,814	...	...	4,803	55,896	118,106	213,638	...	...
1908	75,513	60,000	135,000	40	360	3,370	43,325	81,520	191,312	...	...
1909	65,570	49,029	98,496	...	...	3,963	51,460	98,716	226,975	...	...
1910	56,475	55,455	110,910	...	...	3,586	43,700	90,236	213,579	5,336	11,910
1911	38,000	55,781	111,562	...	...	4,186	49,560	93,205	115,044	31,120	69,464
1912	54,910	44,780	89,560	...	...	4,038	48,330	82,757	185,821	71,520	127,716
1913	62,269	70,311	166,637	...	...	4,487	46,425	103,954	279,395	86,416	153,820
1914	66,502	98,049	241,075	...	...	3,620	49,234	79,083	200,080	4,775	10,844
1915	35,780	127,391	309,612	...	...	2,205	30,468	74,501	184,929	3,683	8,261
1916	42,881	143,540	389,016	...	...	3,205	46,982	39,546	153,064	...	...
1917	51,364	189,095	708,010	...	...	2,148	35,879	38,556	191,631	...	...
1918	39,055	268,212	1,331,710	...	...	2,816	75,005	27,225	214,114	...	...
1919	52,941	166,377	735,386	...	...	1,737	51,516	42,409	315,656	...	...
1920	73,484	171,610	1,091,440	...	...	2,233	79,696	49,505	428,183	...	...
1921	66,600	187,192	920,666	...	...	1,098	57,077	54,030	360,220	...	...
1922	75,425	287,513	1,107,643	...	...	903	40,650	82,462	517,668	...	...
1923	62,587	276,637	1,196,772	...	...	1,758	72,177	104,740	564,680	...	...
1924	74,994	217,121	932,185	...	...	2,113	99,299	86,738	476,804	...	...
1925	69,473	208,012	815,367	...	...	1,642	79,661	71,745	408,917	...	...
1926	75,851	173,111	710,245	...	...	1,684	90,975	59,546	468,411	...	...
1927	87,185	203,950	885,038	...	...	1,860	97,197	85,203	524,550	...	...
1928	72,192	207,738	869,104	...	...	1,609	80,451	75,033	501,252	...	...
1929	160,006	218,706	909,169	...	...	1,731	103,514	70,482	485,982	...	...
1930	162,536	209,349	864,118	...	...	495	35,689	82,674	513,677	...	...
1931	143,348	182,181	743,196	...	...	299	12,308	58,857	451,264	...	...
1932	68,151	212,695	794,168	...	...	256	11,802	38,019	297,520	...	...
1933	46,917	312,303	1,041,744	...	...	277	12,051	30,391	88,500	...	...
1934	59,897	314,750	1,026,343	...	...	535	27,091	30,398	104,709	...	...
1935	92,478	346,024	1,129,019	...	...	456	21,475	30,796	105,960	...	...
1936	102,526	368,648	1,190,032	...	...	412	17,982	38,470	123,500	...	...
1937	123,876	364,714	1,180,611	...	...	288	12,139	36,906	131,727	...	...
1938	123,625	342,238	1,133,346	...	...	175	9,192	48,418	159,203	...	...
1939	129,085	468,421	1,566,359	...	...	152	9,662	29,765	134,286	...	...
1940	171,745	517,064	1,963,012	...	...	255	12,000	52,218	192,980	...	...
1941	193,643	523,344	2,021,394	...	...	188	11,500	56,172	150,530	...	...
1942	246,041	435,203	1,826,403	...	...	210	10,000	36,623	111,316	...	...
1943	216,446	372,873	1,641,069	...	...	164	6,225	36,263	148,315	143,062	579,990
1944	207,051	345,123	1,845,277	...	...	225	12,000	42,040	200,748	...	...
1945	232,783	361,184	2,021,806	...	...	215	10,270	46,755	236,833	...	...
1946	336,971	366,735	2,069,992	...	...	295	17,450	38,839	550,972	...	...
Total	...	**9,815,106**	**38,449,297**	**2,821**	**24,705**	**134,387**	**2,329,435**	**4,241,058**	**13,572,848**	**345,912**	**962,002**

(a) For the years 1919-1942 the tonnage shown is the total output from all mines. For previous years the figures given include only sales, colliery consumption and coal used by the operators.

(b) Includes pulpstones, etc.

(c) From 1875 to 1885, inclusive, the figures shown are exports.

Historical Summary of the Mineral Production of New Brunswick—Continued

—	Lime		Manganese Ore		Manganese Bog		Mineral Waters	Natural Gas		Petroleum	
	bushels	$	tons	$	tons	$	$	M cu. ft.	$	barrels	$
1886	316,380	58,120									
1887	478,410	103,463									
1888	440,225	82,993									
1889	1,005,685	162,157									
1890	814,662	136,586									
1891	67,430	15,285									
1892	(a)	(a)									
1893											
1894											
1895											
1896											
1897											
1898											
1899											
1900											
1901											
1902											
1903											
1904											
1905											
1906	405,450	94,290									
1907	554,330	124,786									
1908	155,748	34,262					14,894				
1909	697,466	154,151					14,003				
1910	470,050	105,593					16,000			1,485	1,826
1911	613,728	132,897					19,843			2,461	3,019
1912	616,835	133,742						173,003	36,549	2,679	3,799
1913	392,985	98,841						828,003	174,147	2,111	3,762
1914	391,739	102,980						425,826	54,249	1,725	2,742
1915	369,117	93,797	150	3,600				430,692	60,383	1,020	1,423
1916	424,113	104,635	(b)	(b)				610,148	79,028	1,345	2,663
1917	532,251	171,248						796,775	103,735	2,341	5,460
1918	482,548	221,935						792,396	107,842	3,009	7,402
1919	468,533	223,193						682,890	120,510	4,225	13,141
1920	701,859	365,030						682,502	130,506	5,148	19,963
1921	562,447	203,084						708,743	139,375	7,479	33,022
1922	560,834	187,895						753,898	148,040	7,778	32,732
1923	329,548	143,814						640,300	126,068	8,826	35,642
1924	208,180	108,890	584	4,088				599,972	113,577	5,561	21,313
1925	202,106	92,216						639,235	122,394	5,376	18,756
1926	477,226	196,477						648,316	128,300	10,544	29,940
1927	343,111	148,321						630,755	124,637	18,244	41,748
1928	321,743	130,784			385	2,237		660,081	324,344	8,045	21,391
1929	443,371	174,553			300	1,800		678,456	333,002	7,499	19,909
1930	357,743	135,304	269	1,296	275	1,650		661,975	325,751	6,758	17,378
1931	321,171	127,054	57	493	77	462		655,891	323,184	6,577	15,461
1932	330,629	109,184						662,452	326,191	6,408	14,332
1933	481,400	134,786						618,033	302,706	8,835	18,111
1934	450,057	126,409						623,601	306,005	11,106	22,277
1935	464,914	124,775	100	800				615,454	303,886	12,954	18,230
1936	509,771	128,016	221	1,596				606,246	298,849	17,112	24,075
1937	568,542	150,362	85	817				576,671	283,922	18,089	25,496
1938	435,629	119,556						577,492	284,689	19,276	27,246
1939	533,571	151,898	392	3,600				606,382	292,403	22,799	32,082
1940	606,743	175,407						616,041	300,543	22,167	31,220
1941	621,486	180,133						653,542	317,437	31,359	44,102
1942	640,771	197,481	374	8,841				619,380	299,688	28,089	39,467
1943	495,200	174,368	48	985				675,029	327,787	24,530	34,342
1944	537,086	227,647						702,464	341,636	23,296	32,832
1945	572,600	241,651						653,230	317,568	30,140	42,413
1946	626,143	286,401						541,010	262,441	28,584	40,018
Total								**22,049,254**	**7,641,942**	**424,978**	**798,735**

(a) No record 1892-1905.

(b) Included with other products.

Historical Summary of the Mineral Production of New Brunswick—Concluded

—	Sand and Gravel		Granite		Limestone		Sandstone		Peat Moss		Other products
	tons	$	tons	$	tons	$	tons	$	tons	$	$
1908	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(b)85,510
1909	.....	.....	.....	11,541	.....	30	.....	30,609	.....	.....	4,200
1910	.....	.....	.....	6,880	.....	315	.....	51,793	.....	.....	.....
1911	.....	.....	.....	37,994	.....	110	.....	35,537	.....	.....	.....
1912	.....	.....	.....	22,317	.....	.....	.....	68,260	.....	.....	.....
1913	.....	.....	.....	32,945	.....	.....	.....	70,787	.....	.....	22,868
1914	.....	.....	.....	24,525	.....	.....	.....	236,647	.....	.....	25,095
1915	323,192	19,014	.....	8,335	.....	.....	.....	145,177	.....	.....	.....
1916	803,014	120,988	.....	59,325	.....	6,900	.....	46,032	.....	.....	69,073
1917	518,401	47,062	.....	61,170	.....	22,875	.....	27,105	.....	.....	.....
1918	.....	.....	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....	39,217
1919	.....	.....	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....	73,933
1920	(b)	(b)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....	59,472
1921	239,192	24,171	14,325	92,790	.....	.....	800	4,500	.....	.....	.....
1922	448,322	49,500	11,380	95,352	.....	.....	638	9,378	.....	.....	.....
1923	608,528	94,634	11,509	143,473	10,689	21,981	250	629	.....	.....	.....
1924	141,897	23,999	4,921	80,812	14,308	33,299	.....	.....	.....	.....	.....
1925	70,156	12,331	9,027	89,731	16,364	35,012	.....	.....	.....	.....	.....
1926	70,931	11,360	3,524	66,423	15,054	30,722	230	2,400	.....	.....	.....
1927	388,066	118,768	1,634	53,695	25,124	56,146	3,150	11,250	.....	.....	.....
1928	491,471	54,183	5,485	66,435	30,772	57,650	10,075	18,896	.....	.....	.....
1929	525,857	46,167	5,142	91,610	20,710	33,360	1,500	80,000	.....	.....	.....
1930	357,551	41,303	46,209	139,212	40,262	97,841	25,141	47,816	.....	.....	.....
1931	183,475	18,149	2,583	148,881	35,378	73,398	24,364	119,712	.....	.....	.....
1932	569,150	447,239	4,309	102,699	10,707	31,554	1,729	20,665	.....	.....	.....
1933	496,901	331,497	1,792	82,771	14,262	41,904	660	6,695	.....	.....	.....
1934	568,064	322,238	5,984	76,793	30,356	78,441	1,578	5,948	.....	.....	.....
1935	1,813,206	845,981	31,091	103,275	53,213	86,001	840	19,447	.....	.....	.....
1936	970,945	567,797	1,485	73,784	53,781	55,564	4,165	4,410	.....	.....	.....
1937	1,136,013	715,652	936	74,961	51,929	55,600	4,603	8,480	.....	.....	.....
1938	3,833,540	1,825,383	954	71,600	7,985	19,855	4,340	28,870	.....	.....	.....
1939	3,373,303	1,363,051	1,492	72,005	52,505	142,927	21,412	51,175	.....	.....	.....
1940	944,033	278,710	1,326	69,833	159,812	206,916	5,015	33,550	.....	.....	.....
1941	962,483	423,772	1,529	63,184	131,941	274,000	4,678	10,680	.....	.....	.....
1942	923,020	540,541	964	29,334	82,623	281,296	4,350	10,650	295	8,100	.....
1943	719,531	372,936	1,522	15,856	51,406	128,915	655	2,600	990	27,000	.....
1944	1,960,382	958,524	1,857	47,504	66,731	165,258	1,400	31,425	2,000	64,000	.....
1945	1,627,371	686,267	4,669	41,983	84,639	198,326	10,020	88,200	2,000	64,000	.....
1946	2,203,646	807,045	358	27,683	115,565	283,301	5,200	76,000	2,247	54,892	.....

(a) Not recorded by kinds.—Total stone production in 1918 was $99,044, in 1919 it was $125,294 and in 1920 it was $280,167.

(b) Includes marble.

NOTE.—In addition to the above items 13,440 pounds of antimony valued at $2,688 were produced in 1915. In 1917 there were 33,920 pounds of copper valued at $9,219 and 400 ounces of silver valued at $326 produced. Also in 1918 tungsten concentrates amounting to 22,000 pounds valued at $8,693 were produced.

Historical Summary of the Mineral Production of Quebec

Year	Aluminum	Asbestos (b)		Cement		Chromite		Clay Products	Copper	
	pounds	tons	$	barrels	$	tons	$	$	pounds	$
1877	...	...	...	...	...	...	...	...	...	...
1878	...	...	...	...	...	...	...	...	...	...
1879	...	...	...	...	...	...	...	...	...	...
1880	...	380	24,700	...	...	...	...	...	...	...
1881	...	540	35,100	...	...	...	...	...	...	...
1882	...	810	52,650	...	...	...	...	...	...	...
1883	...	955	68,750	...	...	...	...	...	...	...
1884	...	1,141	75,097	...	...	...	...	...	...	...
1885	...	2,440	142,441	...	...	...	...	...	...	...
1886	...	3,458	206,251	...	...	60	945	83,025	3,340,000	367,400
1887	...	4,619	226,976	...	...	38	570	80,117	2,937,900	330,514
1888	...	4,404	255,007	...	...	...	...	223,161	5,562,894	927,107
1889	...	6,113	426,554	...	...	...	...	278,845	5,315,000	730,813
1890	...	9,860	1,260,246	...	...	...	...	458,597	4,710,606	741,926
1891	...	9,279	999,878	...	...	...	...	500,957	5,401,704	695,462
1892	...	6,082	390,462	...	...	...	...	489,470	4,883,480	564,042
1893	...	6,331	310,156	...	...	...	...	...	4,468,352	480,348
1894	...	7,630	420,825	...	...	1,000	20,000	...	2,176,430	208,067
1895	...	8,756	368,175	...	...	3,177	41,300	...	2,242,462	241,288
1896	...	12,250	429,856	...	...	2,342	27,004	...	2,407,200	261,903
1897	...	30,442	445,368	...	...	2,637	32,474	...	2,474,970	270,424
1898	...	23,785	491,197	...	...	2,021	24,252	820,758	2,100,235	252,658
1899	...	25,536	485,849	...	...	2,010	21,842	828,868	1,632,560	287,494
1900	...	29,141	748,431	...	...	2,335	27,000	866,060	2,220,000	359,418
1901	283,747	40,217	1,259,759	...	...	1,274	16,744	884,166	1,527,442	246,178
1902	1,083,252	40,416	1,148,319	...	...	900	13,008	946,755	1,640,000	190,666
1903	1,750,599	41,677	920,757	...	...	3,509	51,129	1,028,246	1,152,000	152,467
1904	2,302,178	48,465	1,226,352	...	...	6,074	67,146	917,894	760,000	97,455
1905	2,590,329	68,263	1,503,259	...	...	8,575	93,301	896,000	1,621,243	252,752
1906	4,696,949	82,185	2,060,143	...	...	9,035	91,859	769,458	1,981,169	321,930
1907	5,921,299	90,426	2,505,042	...	...	7,196	72,901	1,214,108	1,517,990	303,659
1908	972,146	90,773	2,573,335	704,492	984,350	7,223	82,008	893,717	1,282,024	169,330
1909	6,083,695	87,300	2,301,775	1,011,194	1,314,550	2,470	26,604	1,153,832	1,088,212	141,272
1910	9,647,958	102,215	2,573,603	1,563,714	1,954,646	299	3,734	1,442,842	877,347	111,757
1911	9,679,080	127,414	2,943,108	1,614,730	1,963,439	157	2,587	1,341,467	2,436,390	301,503
1912	12,029,046	136,301	3,137,279	2,714,685	3,134,486	...	...	1,580,460	3,282,210	536,346
1913	14,065,028	161,086	3,849,925	2,940,211	3,430,023	...	...	1,606,816	3,455,887	527,679
1914	14,550,959	117,573	2,909,806	2,846,061	3,331,601	136	1,210	1,267,700	4,201,497	571,488
1915	18,368,524	136,842	3,574,985	2,390,724	2,812,797	12,341	179,543	918,425	4,197,482	725,115
1916	21,184,791	154,140	5,228,869	2,150,475	2,525,863	27,517	311,460	993,664	5,703,347	1,551,424
1917	22,088,067	153,771	7,228,233	2,079,625	3,274,989	36,725	499,682	983,310	5,015,560	1,363,229
1918	23,535,689	158,259	8,970,797	1,564,360	3,003,573	21,324	835,727	817,357	5,869,649	1,445,577
1919	21,582,264	159,236	10,975,369	2,260,422	4,340,010	8,541	228,898	1,577,576	2,601,605	503,105
1920	22,384,702	199,573	14,792,201	3,013,463	6,545,054	11,016	251,379	2,276,029	880,638	153,724
1921	6,335,083	92,761	4,906,230	2,135,631	5,410,275	2,798	55,696	1,744,760	352,308	44,045
1922	12,867,305	163,706	5,552,723	2,660,935	5,907,300	767	11,503	2,494,236	...	...
1923	24,245,756	231,476	7,519,906	3,173,993	6,347,986	3,558	52,659	2,439,508	...	...
1924	27,243,004	225,572	6,618,930	2,758,316	4,796,959	...	...	2,435,695	1,893,008	246,516
1925	31,105,293	290,387	8,987,459	3,365,802	5,689,994	...	...	2,426,887	2,510,141	352,474
1926	38,910,914	279,389	10,095,488	3,727,377	1,535,386	...	...	2,702,298	2,674,058	368,886
1927	82,735,038	274,778	10,621,013	4,636,751	5,383,058	...	...	2,734,738	3,119,848	403,084
1928	82,797,804	273,033	11,238,369	4,913,820	6,305,396	...	...	3,097,205	33,697,949	4,909,791
1929	63,439,528	306,055	15,172,581	5,169,408	7,120,374	...	...	3,187,702	55,337,169	10,019,901
1930	76,217,209	242,114	8,390,163	4,865,909	7,031,528	...	...	2,464,044	80,310,363	10,425,891
1931	68,103,008	164,296	4,832,889	4,942,323	7,092,895	...	...	2,360,908	68,376,985	5,723,154
1932	39,585,847	122,977	3,039,721	2,210,584	3,155,702	78	1,115	1,964,551	67,336,692	4,296,216
1933	35,532,104	158,367	5,211,177	1,517,555	2,128,900	30	343	580,088	69,943,882	5,214,177
1934	34,865,362	155,980	4,936,326	1,613,641	2,294,847	71	1,098	632,322	73,968,545	5,487,048
1935	46,342,747	210,467	7,054,614	1,751,012	2,472,008	346	5,371	593,162	79,050,906	6,162,350
1936	50,280,250	301,287	9,958,183	2,093,130	2,945,074	545	8,508	691,765	66,340,175	6,287,058
1937	93,812,965	410,025	14,505,541	2,578,523	3,537,798	210	3,286	1,053,153	94,653,132	12,378,757
1938	142,407,743	289,793	12,890,195	2,730,329	3,693,188	...	...	1,022,194	112,645,797	11,233,039
1939	165,680,869	364,454	15,858,492	3,027,759	4,035,294	...	...	1,274,776	117,238,897	11,831,749
1940	218,288,565	346,805	15,619,865	3,854,339	5,432,105	335	5,789	1,546,246	134,166,955	13,532,079
1941	427,746,534	477,846	21,468,849	4,048,749	5,798,188	2,372	42,679	1,914,358	143,783,978	14,502,052
1942	681,192,951	439,459	22,663,283	4,446,416	6,487,078	11,456	343,568	1,741,297	140,911,876	14,212,372
1943	991,499,296	467,196	23,169,505	3,394,895	4,899,578	29,595	919,878	1,504,428	131,163,776	15,411,744
1944	924,130,162	419,265	20,619,516	3,249,302	4,736,004	27,054	748,494	1,881,791	108,055,176	12,966,620
1945	431,425,942	466,894	22,802,511	3,872,373	5,985,077	5,755	160,752	2,534,630	102,685,069	12,886,270
1946	388,234,533	558,181	25,240,283	5,046,156	7,910,548	3,110	61,123	3,457,168	69,797,697	8,934,195
Total	...	**10,122,656**	**406,509,670**	...	...	**268,914**	**5,446,141**	...	**1,863,069,727**	**204,285,515**

Year	Arsenic		Year	Arsenic	
	pounds	$		pounds	$
1941	2,056,000	89,024	1945	1,821,263	118,557
1942	6,349,074	428,562	1946	420,654	21,580
1943	2,744,921	221,085			
1944	2,268,067	153,944	**Total**	**15,659,979**	**1,032,752**

Data for cement production are not available prior to 1908. Cement was produced in Quebec as early as 1840.
(b) 1880 to 1886—exports.

Historical Summary of the Mineral Production of Quebec—Continued

—	Feldspar		Gold		Graphite		Iron Ore†		Iron Oxides Ochre	
	tons	$	fine oz.	$	tons	$	tons	$	tons	$
1876										
1877			583	12,057						
1878			868	17,937						
1879			1,160	23,972						
1880			1,605	33,174						
1881			2,741	56,661						
1882			827	17,093						
1883			860	17,787						
1884			422	8,720						
1885			103	2,120						
1886			193	3,981					350	2,350
1887			78	1,604			13,404		485	3,733
1888			181	3,740			10,710		387	7,900
1889			58	1,207	42	1,560	14,533		794	15,280
1890	700	3,500	65	1,350	25	4,000	22,305		275	5,125
1891	685	3,425	87	1,800			14,380		900	17,750
1892	175	525	628	12,987	167	3,763	22,690		390	5,800
1893	575	4,525	759	15,696			22,076		1,070	17,710
1894			1,412	29,196	5	400	19,492		611	8,690
1895			62	1,281	70	5,250	17,783		1,339	14,600
1896	972	2,583	145	3,000	94	9,140	17,630		2,362	16,045
1897	1,400	3,290	44	900	247	12,350	22,436		3,905	23,560
1898	2,500	6,250	295	6,089	100	5,098	17,873		2,226	17,450
1899	3,000	6,000	238	4,916	90	8,000	19,420		3,919	20,000
1900	155	542			302	5,600	19,000		1,966	15,398
1901	334	1,068	145	3,000	220	4,400	15,489		2,233	16,735
1902			391	8,075	100	10,000	18,524		4,955	30,495
1903	18	32	180	3,712			12,035		6,266	32,760
1904			140	2,900	25	2,300	16,152		3,925	24,995
1905			191	3,940			12,681		5,105	34,675
1906			165	3,412	125	8,300	9,933	32,938	* 6,758	* 36,125
1907					120	5,000	12,748	34,956	* 5,828	* 35,570
1908					1	165	10,103	22,094	4,746	30,440
1909	97	1,719	193	3,990	134	10,176	4,150	5,508	3,940	28,096
1910	90	1,800	124	2,565	155	16,000	4,503	8,252	4,813	33,185
1911	17	255	613	12,672	374	33,084	3,616	6,479	3,612	28,173
1912	100	2,000	642	13,270	604	50,680	1,185	4,232	7,654	32,410
1913	74	1,554	701	14,491	103	9,620	5,102	26,999	5,987	41,774
1914	98	2,156	1,292	26,708	261	18,886			5,890	51,725
1915	572	2,005	1,099	22,720	73	5,431			6,248	48,353
1916	4,610	18,075	1,034	21,375	479	75,776	3,209	8,308	8,811	58,711
1917	1,188	8,204	1,511	31,235	541	106,305	17,189	54,815	9,409	87,605
1918	191	4,279	1,939	40,083	180	40,018	8,159	44,531	17,317	112,440
1919	925	13,073	1,470	30,388	20	400	321	1,005	11,862	113,427
1920	649	10,052	955	19,742	233	31,913	960	3,000	19,128	157,909
1921	9,737	80,180	635	13,127	38	2,423			8,879	92,765
1922	12,472	127,826			24	1,500	526	1,410	7,282	110,488
1923	12,026	102,779	667	13,788	45	2,316	60	186	9,911	123,186
1924	16,147	142,118	883	18,251	46	3,275	1,408	3,771	7,146	88,540
1925	11,287	94,730	1,602	33,116	359	30,900	3,978	11,934	6,985	89,173
1926	13,168	111,136	3,680	76,072	326	29,516	200	600	6,518	100,923
1927	12,730	104,618	8,331	172,217	34	2,043	2,029	8,980	5,931	102,186
1928	12,943	104,789	60,006	1,240,434	50	4,668	2,244	6,732	5,278	109,383
1929	15,790	133,492	90,798	1,876,961	173	12,652	2,748	7,359	6,220	113,932
1930	17,074	163,802	141,747	2,930,170	197	9,850	412	1,239	6,590	83,753
1931	10,381	86,842	300,075	6,471,075			1,509	10,261	5,410	48,205
1932	3,390	39,062	401,105	9,417,572					5,017	44,161
1933	6,183	59,283	382,886	10,950,519	43	2,222			4,192	51,935
1934	9,207	78,853	390,097	13,458,347	129	6,426	2,023	14,161	4,798	64,566
1935	7,002	63,075	470,552	16,558,725	21	1,281	2,288	16,400	5,357	75,388
1936	8,115	75,703	660,905	23,361,683			2,566	18,318	5,458	65,630
1937	12,285	105,612	711,480	24,894,685			4,229	26,432	5,617	77,640
1938	5,874	62,878	881,263	30,998,426			207	1,449	5,387	67,209
1939	5,399	60,923	953,377	34,455,998			3,694	21,267	5,465	82,501
1940	8,548	89,004	1,019,175	39,238,238			5,535	24,510	9,603	107,926
1941	14,218	137,160	1,089,339	41,939,552			12,651	49,110	8,770	139,185
1942	16,802	164,588	1,092,388	42,056,938			10,218	51,841	8,866	147,049
1943	17,190	176,222	922,533	35,517,521			69,437	308,290	7,998	131,057
1944	17,842	177,271	746,784	28,751,184			33,973	165,195	8,117	142,050
1945	26,389	247,242	661,608	25,471,908			14,147	67,575	9,917	170,068
1946	29,758	330,981	618,339	22,723,958			1,406	7,735	12,258	146,401
Total	**351,291**	**3,217,081**	**11,642,454**	**413,182,631**	**6,377**	**593,687**			**348,456**	**3,802,324**

NOTE.—2 tons of garnets valued at $150 were produced in 1927. * Includes a small production from Ontario.

† From 1911 shipments consisted almost entirely of titanium ores; in 1942 included 187 tons of straight iron ore valued at $[illegible].

Historical Summary of the Mineral Production of Quebec—Continued

—	Kaolin		Lead		Lime		Magnesitic Dolomite		Mica		Mineral Waters (Natural)	
	tons	$	pounds	$	bushels	$	tons	$	tons	$	imp.gal.	$
1886	...	...	...	...	401,700	75,700	...	...	...	6,991	...	...
1887	...	...	...	...	424,310	79,137	...	...	...	8,276	...	...
1888	...	...	...	...	356,646	61,489	...	...	(a)	(a)	...	...
1889	...	...	...	...	187,220	36,831	...	...	...	1,496	...	...
1890	...	...	105,000	4,704	116,593	23,274	...	...	...	9,590	...	...
1891	...	...	88,665	3,857	506,700	77,462	...	...	...	37,000	...	...
1892	...	...	...	...	*	*	...	...	...	23,000	...	...
1893	...	...	3,931	146	...	...	...	...	...	...	...	...
1894	...	...	...	...	...	...	...	...	...	...	...	...
1895	...	...	...	...	...	...	...	...	...	...	...	...
1896	...	...	...	...	...	...	...	...	...	...	...	...
1897	...	...	177,084	6,340	...	...	...	...	...	26,000	...	...
1898	...	...	221,760	8,382	...	...	...	...	...	106,375	...	...
1899	...	...	...	...	...	...	...	...	...	133,000	...	...
1900	...	...	11,200	490	...	...	...	...	...	106,000	...	...
1901	...	...	318,052	13,784	...	...	...	...	...	120,000	...	...
1902	...	...	420,000	17,090	...	...	...	...	66	34,304	...	...
1903	...	...	...	...	...	...	...	...	...	74,119	...	...
1904	...	...	...	...	...	...	...	...	...	76,487	...	...
1905	...	...	...	...	...	...	...	...	...	109,672	...	...
1906	...	...	...	...	923,563	201,816	...	...	283	159,334	...	...
1907	...	...	...	...	1,053,856	262,090	...	...	318	224,197	...	...
1908	...	...	...	...	857,700	201,357	120	840	148	82,613	...	75,533
1909	...	...	...	...	1,281,827	315,633	330	2,503	128	93,298	...	68,565
1910	...	...	...	...	1,227,555	299,126	323	2,160	316	87,295	...	68,194
1911	...	...	...	...	1,428,392	356,453	991	5,531	217	69,465	...	63,637
1912	20	160	...	...	1,727,614	474,595	1,714	9,645	196	81,044	92,873	36,736
1913	500	5,000	...	...	1,616,446	418,008	515	3,335	626	125,488	...	30,805
1914	1,000	10,000	...	...	1,767,935	389,064	358	2,240	246	62,794	...	16,566
1915	1,300	13,000	40,401	2,262	1,351,306	274,831	14,770	126,584	217	50,390	...	18,086
1916	1,750	17,500	698,760	59,485	1,498,845	267,119	54,778	554,304	844	192,343	93,782	16,223
1917	533	9,594	1,378,001	153,468	1,470,486	335,012	58,090	728,275	774	286,730	...	9,201
1918	863	19,299	2,110,059	195,180	1,527,784	418,888	39,365	1,016,765	481	229,110	...	7,609
1919	759	13,744	2,280,000	158,825	1,796,822	493,762	11,273	328,465	2,429	218,437	...	13,257
1920	683	15,022	905,472	80,949	2,108,203	826,044	18,378	512,756	737	281,460	24,219	10,109
1921	124	1,888	595,881	34,215	2,040,451	790,503	2,927	74,109	484	41,172	19,626	7,278
1922	1,197	17,866	...	...	2,259,313	689,799	2,849	76,294	1,360	97,748	12,161	3,692
1923	163	2,369	520,041	37,334	2,357,928	634,213	4,801	134,382	1,545	216,684	5,421	2,408
1924	...	...	1,058,983	85,820	2,386,445	699,937	3,873	101,356	1,677	185,020	7,683	2,288
1925	...	...	2,051,100	187,060	2,542,237	673,330	5,576	122,325	2,415	187,800	7,122	2,961
1926	...	...	3,729,636	251,788	2,849,035	766,116	4,571	137,431	1,664	170,118	6,956	2,444
1927	...	...	6,499,577	341,461	3,075,819	806,665	7,337	230,309	1,454	99,194	10,330	1,813
1928	...	...	6,218,336	284,520	3,260,857	896,782	13,195	346,990	1,101	54,224	15,415	5,608
1929	...	...	5,358,304	270,616	4,768,343	1,264,194	18,809	491,170	1,062	72,630	12,205	2,488
1930	...	...	...	...	3,695,714	967,650	13,336	336,162	430	61,729	12,941	3,727
1931	...	...	...	...	3,185,600	894,218	11,411	295,579	290	30,601	19,868	4,746
1932	...	...	...	...	2,680,371	587,901	...	262,860	41	4,076	15,506	4,697
1933	...	...	...	...	3,152,400	647,558	...	360,128	256	39,060	9,024	3,094
1934	...	...	...	...	3,105,429	631,984	...	382,927	322	85,967	75,665	16,116
1935	...	...	2,047,624	64,156	3,327,800	678,866	...	486,084	373	74,894	126,616	15,313
1936	...	...	2,047,689	80,126	3,807,257	718,585	...	768,742	272	63,123	131,186	17,399
1937	...	...	1,521,182	77,732	4,466,086	909,116	...	677,207	546	124,594	198,319	19,697
1938	...	...	...	...	3,923,257	843,331	...	420,261	218	72,982	159,893	19,033
1939	...	...	...	...	4,603,200	983,072	...	474,418	434	122,243	104,629	17,503
1940	...	...	...	...	6,669,114	1,480,466	...	897,016	436	202,583	109,025	18,466
1941	(b) 2	30	...	...	8,757,571	2,062,744	...	831,041	802	284,563	144,441	58,062
1942	408	6,130	437,634	14,713	9,959,314	2,323,707	...	1,059,374	1,329	285,263	129,062	60,316
1943	93	1,531	2,435,523	91,430	10,920,914	2,667,391	...	1,260,056	1,543	245,846	125,605	61,703
1944	424	5,758	10,487,842	471,953	9,788,056	2,504,078	...	1,139,281	1,137	178,890	148,965	78,226
1945	446	3,771	9,229,726	461,486	8,887,343	2,195,837	...	1,278,596	1,428	121,011	236,476	125,523
1946	821	5,775	7,359,708	496,780	8,471,228	2,304,826	...	1,225,593	1,199	108,667	211,842	121,526
Total	**11,086**	**148,437**	**70,354,171**	**3,956,152**	...	...	...	**17,163,094**	...	...	...	**1,110,418**

* Data are not available by provinces from 1892-1895.

(a) No record.

NOTE: One bushel of lime equals 70 pounds.

(b) Kaolin included in clay products 1941 to 1946.

Historical Summary of the Mineral Production of Quebec—Continued

Year	Molybdenite		Peat		Phosphate (b)		Pyrites (Sulphur content (c)		Quartz		Sand and Gravel	
	pounds	$	tons	$	tons	$	tons	$	tons	$	tons	$
1878	...	...	...	...	9,919	195,831	...	...	...	...	...	...
1879	...	...	...	...	6,604	101,470	...	...	...	...	...	...
1880	...	...	...	...	11,673	175,664	...	...	...	...	...	...
1881	...	...	...	...	9,497	182,339	...	...	...	...	...	...
1882	...	...	...	...	16,585	302,019	2,300	...	...	...	...	...
1883	...	...	...	...	19,666	427,168	...	...	...	...	...	...
1884	...	...	...	...	20,946	415,350	42,906	...	...	...	...	...
1885	...	...	...	...	28,535	490,331	...	...	...	...	...	...
1886	...	...	...	...	19,435	288,603	34,000	...	...	...	...	...
1887	...	...	...	...	19,589	264,452	36,000	...	...	...	...	...
1888	...	...	...	...	20,396	219,779	...	...	...	...	...	...
1889	...	...	...	...	27,552	287,400	...	...	...	...	...	...
1890	...	...	...	...	27,172	309,980	...	...	200	1,000	...	...
1891	...	...	...	...	20,244	206,416	...	...	...	...	...	...
1892	...	...	...	...	10,231	134,964	...	...	...	...	...	...
1893	...	...	...	...	7,650	60,076	...	...	100	500	...	...
1894	...	...	...	...	6,861	41,166	...	...	...	...	...	...
1895	...	...	...	...	1,822	9,565	...	...	...	...	...	...
1896	...	...	...	...	570	3,420	...	...	10	50	...	...
1897	...	...	...	...	908	3,984	...	...	...	...	...	...
1898	...	...	...	...	632	3,160	...	...	284	570	...	...
1899	...	...	...	...	1,279	7,674	...	...	600	1,290	...	...
1900	...	...	...	...	1,270	6,090	...	...	...	...	...	...
1901	...	...	...	...	1,033	6,280	...	...	...	...	...	...
1902	...	...	...	...	856	4,953	...	...	...	...	...	...
1903	...	...	...	...	1,329	8,214	...	...	...	...	...	...
1904	...	...	...	...	817	4,590	...	...	...	...	...	...
1905	...	...	...	...	1,300	8,425	...	...	...	...	...	...
1906	...	...	...	...	600	4,500	...	...	...	...	...	...
1907	...	...	...	...	408	3,410	...	...	...	...	...	...
1908	...	...	...	...	598	5,900	26,598	159,588	...	...	...	...
1909	...	...	...	...	525	4,800	35,300	130,009	...	...	...	...
1910	...	...	70	280	1,456	12,386	24,242	102,162	805	1,006	...	...
1911	...	...	200	800	586	4,909	39,122	247,555	548	684	...	...
1912	...	...	500	2,000	164	1,640	60,849	243,396	556	1,240	...	243,126
1913	...	...	2,000	8,000	385	3,643	87,314	349,265	1,008	2,000	...	638,778
1914	...	...	...	...	554	4,875	117,698	470,792	847	847	...	370,713
1915	...	...	...	...	200	2,400	142,735	570,940	778	778	...	260,983
1916	...	...	...	...	190	2,340	130,639	523,272	1,149	1,436	934,746	212,884
1917	216,693	216,693	...	...	123	1,230	122,882	501,351	550	1,788	998,600	265,282
1918	333,318	383,315	...	...	140	1,200	124,871	507,802	1,730	5,383	(a)	(a)
1919	83,002	69,203	486	4,811	22	300	52,746	203,222	2,221	7,773	(a)	(a)
1920	...	...	...	...	...	...	14,817	44,451	1,986	5,558	...	431,826
1921	...	...	...	...	30	450	1,986	10,463	5,994	29,824	700,669	110,752
1922	...	...	...	...	131	1,320	...	...	10,994	53,023	905,101	156,940
1923	...	...	...	...	30	600	...	...	13,376	68,936	1,055,817	206,175
1924	18,739	9,370	...	...	...	...	4,032	10,619	17,893	87,267	2,197,145	414,428
1925	22,350	11,176	...	...	16	189	12,250	36,750	6,459	30,064	2,203,196	533,850
1926	20,943	10,472	...	...	40	800	14,100	42,117	24,550	107,779	5,233,696	1,490,679
1927	...	...	...	...	31	399	13,021	42,795	49,141	132,615	8,615,738	1,880,931
1928	...	...	...	...	91	1,126	1,552	12,061	64,577	143,067	8,136,341	1,701,282
1929	16,150	6,400	1,607	8,839	40	800	9,926	73,119	46,444	132,532	6,203,231	1,534,699
1930	...	...	2,219	9,330	40	760	12,653	93,038	49,561	119,668	6,581,807	1,750,690
1931	...	...	1,170	5,937	...	...	14,586	108,617	26,987	69,759	7,657,964	1,952,959
1932	...	...	762	2,286	1,316	12,333	17,954	133,838	20,123	71,645	3,458,128	893,896
1933	...	...	681	2,549	105	805	19,167	146,261	28,294	109,533	3,356,232	942,429
1934	...	...	...	...	81	683	4,908	50,398	57,208	229,817	3,672,582	980,454
1935	...	...	...	...	116	1,043	7,370	47,779	51,948	226,830	5,268,987	1,442,468
1936	...	...	45	255	525	4,927	43,084	282,743	78,975	320,634	5,490,280	1,418,231
1937	...	...	...	...	100	900	28,534	194,496	127,535	448,327	9,476,000	2,637,495
1938	...	...	...	...	208	1,886	16,580	98,261	85,153	315,251	12,523,404	3,532,873
1939	2,240	600	...	...	157	1,712	61,476	275,951	104,827	369,172	10,050,985	2,703,032
1940	22,251	10,280	...	...	358	4,039	61,728	212,012	109,090	321,891	12,477,624	3,127,931
1941	196,600	88,470	*7,265	173,639	2,487	33,376	146,826	575,422	147,318	388,948	11,681,300	2,673,300
1942	222,276	131,906	*12,982	197,560	930	12,973	168,832	675,965	203,219	543,817	11,026,249	2,485,853
1943	784,715	549,515	14,920	302,747	1,050	14,272	136,007	545,229	214,959	605,916	10,601,376	2,362,635
1944	2,124,693	1,078,616	19,477	363,321	482	6,716	116,887	453,501	236,091	639,429	8,541,400	2,140,856
1945	978,117	411,663	18,517	387,499	291	4,236	105,613	445,534	195,857	626,079	8,971,060	1,279,537
1946	736,400	295,640	62,382	501,073	57	869	92,716	375,328	214,076	612,128	12,374,125	3,313,103
Total	**5,778,487**	**3,273,319**	...	...	**309,034**	**4,330,110**	...	...	**2,201,021**	**6,835,833**	...	...

(a) Included with other products.

(b) 1878-1885 exports and include a quantity of Ontario phosphate cleared through Montreal.

(c) 1871-1899 tons of pyrites shipped; data 1890-1907 not recorded by provinces. 1908-1927 tonnage of pyrites shipped 1928-1946 sulphur content of pyrites shipped.

* Moss only. In 1943, 522 tons peat fuel valued at $4,440 and in 1944, 444 tons worth $3,597.

Historical Summary of the Mineral Production of Quebec—Continued

Year	Selenium		Silver		Stone									
					Granite (b)		Limestone (b)		Marble (b)		Sandstone (b)		Slate†	
	pounds	$	fine oz.	$	tons	$	tons	$	tons	$	tons	$	tons	$
1884													5,345	64,675
1885													7,357	89,000
1886													5,314	90,689
1887			146,898	143,666									6,935	110,160
1888			149,388	140,425									6,368	100,250
1889			148,517	139,012									5,000	65,000
1890			171,545	170,436									5,180	69,070
1891			185,584	183,357									7,112	90,825
1892			191,910	168,113										75,550
1893			161,675	126,439										58,900
1894			101,318	63,830										53,370
1895			81,753	53,369										58,900
1896			70,000	46,942										53,370
1897			80,475	48,116										42,800
1898			74,932	43,655										40,791
1899			40,231	23,970										33,406
1900			58,400	35,817										12,100
1901			41,459	24,440									715	9,980
1902			12,500	22,168									squares	19,200
1903			28,600	15,287									† 3,510	22,040
1904			15,000	8,583									5,277	23,247
1905			19,620	11,841										21,568
1906			17,686	11,813										24,446
1907			16,000	10,452									4,335	20,056
1908			13,299	7,030						(a)			2,950	13,496
1909			13,233	6,815		257,096		972,253		130,000			4,000	19,000
1910			7,593	4,061		356,257		962,429		151,000			3,959	18,492
1911			18,435	9,827		462,678		1,296,577		135,187		450	1,833	8,248
1912			9,465	5,758		522,114		1,187,751		247,838			1,894	8,939
1913			34,573	20,672		790,896		1,307,428		231,137			1,432	6,444
1914			57,737	31,646		842,845		1,326,943		98,890		17,400	1,075	4,837
1915			63,450	31,524		594,744		1,189,633		145,400		36,417	397	2,039
1916			98,610	64,748		422,297		799,354		118,810		30,004	1,262	6,223
1917			136,194	110,885		281,242		625,711		55,820		28,820	1,422	7,789
1918			178,675	172,907	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	933	5,124
1919			140,926	156,600	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	† 1,632	10,853
1920			61,003	61,532	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)		14,200
1921			38,084	23,861	19,608	378,021	679,446	1,072,572	1,650	172,720	18,795	39,328		22,325
1922					88,169	665,406	884,311	1,420,223	1,912	231,894	12,963	24,793	1,899	14,871
1923			33,006	21,412	29,240	136,902	1,057,284	1,671,309	2,473	201,518	13,879	23,092	1,836	17,289
1924			83,814	55,972	42,283	442,933	1,465,237	2,058,432	4,379	322,455	80,190	101,700		
1925			214,943	148,451	491,986	1,363,220	1,677,514	2,160,799	3,046	254,922	70,370	76,523		
1926			375,986	233,593	494,385	863,052	1,784,434	2,316,997	4,709	507,817	22,206	40,362		
1927			740,864	417,625	162,180	757,582	2,251,499	2,863,690	4,609	484,437	116,243	162,606		
1928			908,959	528,796	230,660	1,241,668	2,684,305	3,116,753	6,643	380,307	70,584	110,472		
1929			813,821	431,268	508,471	1,623,860	2,827,740	3,139,389	13,081	397,074	135,179	157,536		
1930			571,164	217,922	711,943	2,042,783	2,811,300	2,774,539	11,619	717,362	283,264	218,102		
1931			530,345	158,414	727,354	1,987,589	2,675,186	2,774,060	14,919	624,356	848,070	507,037		
1932			628,902	199,184	143,520	541,089	1,622,802	1,337,688	9,832	206,502	470,671	275,022		

Historical Summary of the Mineral Production of Quebec—Continued

Year	Selenium		Silver		Stone									
					Granite (b)		Limestone (b)		Marble (b)		Sandstone (b)		Slate†	
	pounds	$	fine oz.	$	tons	$	tons	$	tons	$	tons	$	tons	$
1933	22,131	16,600	471,419	178,351	131,837	408,207	1,029,248	940,019	7,983	42,283	73,425	58,231	.....	.....
1934	48,764	73,146	470,254	223,187	69,428	488,477	1,034,058	953,815	9,302	47,503	86,364	85,822	306	458
1935	206,421	396,328	668,836	433,338	131,096	806,685	1,143,983	1,087,320	10,518	43,455	104,920	122,301	819	1,229
1936	168,417	298,098	724,339	326,872	137,912	429,283	1,265,243	1,058,547	17,866	138,294	92,228	102,388	803	855
1937	208,531	360,759	908,590	407,784	218,743	611,125	1,653,556	1,474,653	14,957	61,348	70,726	65,424	414	471
1938	217,952	378,147	1,189,495	517,157	294,446	757,531	1,850,019	1,672,260	8,838	46,580	42,587	51,010	494	547
1939	23,841	42,175	1,167,444	472,675	503,011	1,276,859	1,904,658	1,726,653	7,600	168,612	112,403	150,792	683	683
1940	43,510	83,104	1,340,450	512,709	366,662	792,708	2,287,384	1,854,423	8,767	50,652	92,378	129,179	639	639
1941	203,162	388,039	1,657,082	634,016	316,372	866,182	3,370,875	2,567,422	10,809	92,916	76,928	82,701	346	346
1942	326,208	626,319	1,655,042	597,865	1,178,765	1,449,840	2,926,964	2,565,029	9,429	58,714	72,894	92,724	158	158
1943	216,498	378,872	2,212,115	1,001,071	634,920	1,194,463	2,709,320	2,696,205	7,596	41,720	75,298	94,388	191	191
1944	146,352	263,434	2,590,681	1,075,293	127,544	830,238	2,370,141	2,349,177	6,489	50,569	89,470	104,629	198	198
1945	160,720	308,583	2,149,570	1,010,298	77,145	887,113	2,372,758	2,877,684	7,410	65,556	211,902	224,352	946	1,567
1946	110,768	201,598	1,916,453	1,603,113	109,443	1,408,618	2,982,747	3,683,271	13,134	138,564	380,318	398,858	617	954
Total	**2,103,275**	**3,815,202**	**26,618,342**	**13,711,903**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

(b) Data not available prior to 1908. (c) Data not available by kinds. Total values for all grades were:—1918, $952,402; 1919, 1,441,919, and 1920, 2,189,425. †1903 to 1919 inclusive recorded in squares.

Historical Summary of the Mineral Production of Quebec—Concluded

—	Talc and Soapstone		Tellurium		Zinc (a)		Other products
	tons	$	pounds	$	pounds	$	$
1886	50	400					
1887	100	800					
1888	140	280					
1889	195	1,170					
1890	917	1,239					
1891							
1892	1,374	6,240					
1893	717	1,920					
1894	916	1,640					
1895	475	2,138					
1896	410	1,230					
1897	157	350					
1898	405	1,000			788,000	36,011	
1899	450	1,900					
1900					22,400	983	
1901							
1902							
1903							
1904							
1905							
1906							
1907							
1908							959,920
1909							
1910							
1911							
1912							
1913					670,000	6,700	24,063
1914					1,938,000	10,017	5,180
1915					600,000	16,500	6,390
1916					1,663,200	212,956	129,275
1917					1,786,740	159,038	351
1918					2,802,928	228,691	182,902
1919					1,752,000	128,562	248,707
1920	150	1,050			1,120,200	85,931	
1921							
1922	150	4,950					
1923	500	19,993			366,240	24,197	
1924	449	20,273			2,909,008	184,547	
1925	704	30,130			9,936,000	757,322	
1926	885	38,209			12,904,176	956,199	
1927	1,276	51,504			17,189,046	1,064,690	
1928		40,171			21,057,760	1,156,745	
1929		47,986			19,653,440	1,058,731	
1930		50,168			9,754,160	351,150	
1931		34,439					
1932		46,751					
1933		47,680					
1934		44,297					
1935		32,053	1,708	3,416	5,322,844	164,955	
1936		32,770	19,502	34,519	6,896,123	228,606	
1937		40,513	26,439	45,739	8,566,927	419,951	
1938		35,038	41,577	71,512	5,315,852	163,356	
1939		41,471	2,940	4,760	28,758,759	882,606	
1946		74,905			27,696,721	944,735	
1941		155,925			46,389,581	1,582,349	*
1942	14,369	136,529			73,940,811	2,522,121	(b)
1943	14,204	135,469			128,169,810	5,126,792	(c)
1944	19,013	204,127			137,378,439	5,907,273	(d)
1945	14,225	153,694			111,909,565	7,206,976	
1946	14,914	150,004			89,650,129	7,001,675	(e)
Total		**1,690,466**	**92,166**	**159,955**		**38,590,365**	

(a) 1898-1900, pounds of zinc contained in ore or concentrates shipped from the mines; 1913-1915, pounds of ore shipped from the mines; 1916-1946, pounds of zinc recovered by Canadian smelters and estimated recoveries by foreign smelters.

* 101 tons of barite valued at $808 and 980 pounds of tungsten concentrates worth $627.

(b) Includes 141,081 pounds of magnesium (produced in Ontario from Quebec brucite) valued at $62,076 and 2,981 pounds tungsten concentrates worth $2,612.

(c) Includes 5,401 pounds of tungsten concentrates valued at $5,369.

(d) Includes 18 tons of fluorspar valued at $670.

(e) Includes 6,484 pounds of bismuth valued at $9,078.

Historical Summary of the Mineral Production of Ontario

—	Actinolite		Arsenic		Asbestos		Barite		Bismuth		Cement (d)	
	tons	$	pounds	$	tons	$	tons	$	pounds	$	barrels	$
1885			880,000	17,600								
1886			240,000	5,460								
1887			60,000	1,200								
1888			60,000	1,200								
1889												
1890			50,000	1,500								
1891			40,000	1,000								
1892												
1893												
1894			14,000	420								
1895												
1896												
1897	205	1,845										
1898												
1899			114,000	4,872								
1900			606,000	22,725								
1901	521	3,126	1,390,000	41,676								
1902	550	4,400	1,600,000	48,000								
1903	550	3,108	514,000	15,420								
1904												
1905												
1906			402,000	14,058								
1907			630,000	36,209								
1908			1,431,000	41,060							1,519,930	1,910,630
1909			2,258,000	64,100							2,462,027	3,084,218
1910	30	330	3,004,000	75,328							2,504,650	3,150,479
1911	67	736	4,194,000	76,237							3,090,786	3,741,039
1912	92	1,000	4,090,000	89,262							3,044,713	3,372,897
1913	66	720	3,384,000	101,463							3,992,989	4,311,183
1914	119	1,304	3,474,000	104,015							2,775,142	3,062,129
1915	220	2,420	4,792,000	147,830							2,407,670	2,597,807
1916	250	2,750	4,372,000	262,349							2,230,385	2,312,677
1917	120	1,320	5,312,000	658,231	10	2,150					1,676,904	2,267,610
1918	228	2,508	4,994,000	520,525			60	1,020			1,220,003	1,976,815
1919	80	880	5,718,000	488,706							2,023,280	3,650,585
1920	100	1,160	3,662,000	425,617							2,035,594	4,377,814
1921	78	975	2,982,000	233,763							2,723,071	6,424,356
1922	50	575	4,116,000	299,940							3,104,386	6,393,566
1923	53	583	5,158,617	582,785	6	2,600	200	4,180			3,296,428	5,855,589
1924	90	1,225	3,745,225	313,281	172	91,900			12,863	27,913	3,564,499	5,668,671
1925	40	500	2,156,441	113,324	2	901			19,667	18,566	3,462,358	5,253,911
1926	80	1,000	4,055,477	135,549	14	3,035			6,440	6,440	3,398,860	4,792,857
1927	86	1,075	4,963,178	197,068					2,072	1,003	3,751,789	5,144,326
1928	70	875	4,097,226	178,149					14,002	5,067	3,911,795	5,520,897
1929	30	375	3,742,913	154,887					27,446	23,413	4,624,712	6,608,246
1930	34	437	2,750,887	109,932					12,732	6,366	3,942,690	5,779,404
1931	35	456	3,575,936	135,170					7,331	3,532	3,470,056	5,606,826
1932			2,424,342	98,714					16,798	7,289	1,599,342	2,288,975
1933			1,468,022	56,534			20	60	7,580	3,731	1,095,845	1,587,812
1934	30	365	1,647,513	56,412					7,552	3,444	1,702,128	2,403,590
1935			2,558,789	75,326					7,079	6,796	1,243,836	1,752,148
1936			1,365,606	42,491					3,552	3,516	1,542,463	2,180,895
1937			1,389,426	41,032	1	250			5,714	5,654	2,650,052	3,657,067
1938			2,175,646	56,538					9,546	9,754	1,818,032	2,555,214
1939			1,741,947	52,257	18	720	323	3,639			1,709,263	2,437,777
1940			2,093,275	62,798			305	4,577	17,789	24,620	2,355,352	3,518,247
1941			1,482,000	84,171					7,499	10,379	2,748,854	4,019,656
1942			1,504,049	152,331					2,333	3,219	2,784,782	3,998,294
1943			408,617	32,924							1,972,009	2,872,732
1944			358,955	26,922							1,863,210	2,730,381
1945			224,467	12,352	3	2,046					2,460,996	3,805,131
1946			325,231	16,684		279					3,677,695	6,025,503
Total	**3,874**	**36,018**	**119,794,755**	**6,567,997**	**226**	**105,381**	**908**	**13,476**	**187,962**	**170,702**	**101,459,173**	**148,097,954**

In 1925 Ontario produced 1,751 pounds of antimony valued at $206 and in 1926 some 1,596 pounds worth $281 were produced.

In 1929 4,456 pounds of beryl crystals, $114.

(d) Data not available prior to 1908; cement was produced in Ontario as early as 1867.

Historical Summary of the Mineral Production of Ontario—Continued

—	Chromite		Clay Products	Cobalt		Copper		Corundum		Diatomite	
	tons	$	$	pounds	$	pounds	$	tons	$	tons	$
1886			881,039			165,000	18,150				
1887			1,187,453			322,524	36,284				
1888			1,123,671								
1889			1,182,397			1,406,752	201,678				
1890			1,347,278			1,303,065	205,233				
1891			1,076,154			4,127,697	531,234				
1892			1,313,877			2,203,795	254,538				
1893						3,641,504	391,461				
1894						5,207,679	497,854				
1895						4,576,337	492,414				
1896						3,167,256	344,598				
1897						5,500,652	621,023				
1898			1,419,536			8,375,223	1,007,539				
1899			1,828,936			5,723,324	1,007,877				
1900			2,009,915			6,740,058	1,091,215	3	300		
1901			2,222,620			8,695,831	1,401,507	387	46,415		
1902			2,149,451			7,408,202	864,278	768	84,465		
1903			2,402,520			7,172,533	949,285	703	77,510		
1904			2,306,200	32,000	19,960	4,913,594	630,070	993	109,545		
1905			2,696,500	236,000	100,000	8,779,259	1,368,986	1,644	149,153		
1906			3,136,870	642,000	80,704	10,638,231	2,050,838	2,274	204,973		
1907			3,123,372	1,478,000	104,426	14,104,337	2,821,432	1,892	177,922		
1908			2,476,152	2,448,000	111,118	15,005,171	1,981,883	1,089	100,398		
1909			3,425,841	3,066,000	94,965	15,746,699	2,044,237	1,491	162,492		
1910			3,667,810	2,196,000	54,699	19,259,016	2,453,213	1,870	198,680		
1911			3,916,575	1,704,000	170,890	17,932,263	2,219,297	1,472	161,873		
1912			4,864,700	1,898,000	314,381	22,250,601	3,635,971	1,960	239,091		
1913			5,220,467	1,642,000	420,386	25,885,929	3,952,522	1,177	137,036		
1914			3,979,606	889,027	571,710	28,948,211	3,937,536	548	72,176		
1915			2,254,863	504,212	536,268	39,361,464	6,799,693	262	33,138		
1916			2,145,036	840,536	924,590	44,997,035	12,240,094	67	10,307		
1917			2,575,304	1,079,572	1,727,315	42,867,774	11,651,461	188	32,153		
1918			2,434,215	1,347,544	3,368,860	47,074,475	11,593,502	137	26,112		
1919			4,574,790	530,371	1,325,928	24,346,623	4,550,627				
1920			5,613,488	546,023	1,365,058	32,059,993	5,596,392	196	24,547		
1921			5,183,125	251,986	755,958	12,821,385	1,602,930	403	55,965		
1922			6,944,218	569,960	1,852,370	10,943,636	1,464,477				
1923			6,270,615	888,061	2,530,974	31,656,800	4,565,227				
1924			5,089,209	948,704	1,682,395	37,113,193	4,833,622				
1925			5,195,084	1,116,482	2,328,517	39,718,777	5,577,314				
1926			5,356,469	664,778	1,136,014	41,312,867	4,828,964				
1927			5,853,035	880,590	1,764,534	45,341,295	4,946,533				
1928			6,177,604	954,860	1,671,900	66,607,510	8,770,149				
1929			6,830,162	929,415	1,801,915	88,879,853	14,622,572				
1930			5,221,214	694,163	1,444,007	327,718,871	15,187,259			10	140
1931			3,552,800	521,051	651,179	112,882,625	9,096,493			60	840
1932			1,039,508	490,631	587,057	77,055,413	4,407,928			11	309
1933			1,024,579	466,702	597,732	145,504,720	10,118,847			28	1,298
1934	40	480	1,261,006	594,671	592,497	205,059,539	14,822,704			46	1,920
1935		9,576	1,370,225	681,419	512,705	252,027,928	19,295,965			100	4,600
1936		5,070	1,573,936	887,591	804,676	287,914,078	20,898,920			40	2,000
1937		39,964	2,033,845	507,064	818,145	322,039,208	41,716,364			38	1,868
1938			2,083,496	459,226	790,913	309,030,106	30,405,500				
1939			2,345,638	732,561	1,213,454	328,429,665	32,637,305			5	280
1940			2,508,540	794,359	1,235,220	347,931,013	34,742,229				
1941			3,087,616	263,257	255,904	333,829,767	33,192,644				
1942			2,549,486	83,871	* 88,444	308,282,414	30,625,404				
1943			2,453,829	175,961	191,407	277,840,560	32,232,027				
1944			2,347,306	36,283	34,106	285,307,278	33,845,632	173	17,111		
1945			3,107,189	109,123	90,026	239,450,875	29,771,633	1,317	130,393		
1946			4,288,780	73,900	70,215	179,424,639	22,502,528	742	102,340		
Total		**55,090**		**35,825,964**	**36,524,442**	**5,004,092,122**	**562,154,759**	**21,756**	**2,351,095**	**338**	**13,755**

* Exclusive of cobalt in ore placed on government stock pile at Deloro, Ontario.

Historical Summary of the Mineral Production of Ontario—Continued

—	Feldspar		Fluorspar		Gold		Graphite		Gypsum†	
	tons	$	tons	$	fine oz.	$	tons	$	tons	$
1876									120	180
1877										
1878									489	675
1879									579	720
1880									875	1,240
1881									657	1,040
1882									1,249	1,946
1883									462	837
1884									688	1,254
1885									525	787
1886									5,826	12,000
1887					327	6,760			8,560	11,715
1888									6,700	10,200
1889									7,382	13,128
1890									6,200	8,075
1891					97	2,000			5,660	18,300
1892					344	7,118			4,320	5,399
1893					708	14,637			2,898	10,195
1894					1,917	39,624			2,369	6,187
1895					3,015	62,320			2,420	4,840
1896					5,563	115,000	650	13,000	3,305	7,786
1897					9,157	189,294	100	3,000	1,461	4,661
1898					12,863	265,889	300	6,000	1,087	4,201
1899					20,394	421,591	1,220	16,179	1,020	3,978
1900	163	570			14,391	297,495	1,500	24,000	1,095	4,331
1901	4,816	9,632			11,844	244,837	1,750	31,500	1,504	5,692
1902	7,576	15,152			11,118	229,828	795	15,900	1,917	7,699
1903	13,910	18,934			9,096	188,036	728	23,745	2,720	21,988
1904	11,083	22,166			1,935	40,000	367	8,980	2,390	18,350
1905	11,700	23,400	12	84	4,402	91,000	481	16,255	1,853	23,834
1906	16,948	40,890			3,202	66,193	262	10,000	2,965	24,420
1907	12,584	29,819			3,212	66,398	459	11,000	10,404	52,417
1908	7,877	21,099			3,212	66,398	210	5,040	10,380	42,456
1909	12,680	38,664			1,569	32,425	730	37,624	11,741	48,278
1910	15,719	45,867	2	15	3,089	63,849	1,237	58,087	15,055	67,229
1911	17,706	51,084	34	238	2,062	42,625	895	36,492	27,399	98,018
1912	13,633	28,916	40	240	86,523	1,788,596	1,436	66,442	53,119	176,056
1913	16,716	59,241			219,801	4,543,690	2,059	80,662	62,315	208,029
1914	17,962	68,668			268,264	5,545,509	1,386	88,317	81,219	204,053
1915	13,987	55,796			406,577	8,404,693	2,560	118,792	81,172	190,422
1916	14,878	33,332	1,284	10,238	492,481	10,180,485	3,476	249,586	36,668	116,086
1917	18,274	81,622	4,249	68,756	423,261	8,749,581	3,173	296,587	48,947	130,138
1918	18,591	108,449	7,187	150,779	411,976	8,516,299	2,934	208,852	38,214	151,564
1919	13,754	73,158	3,425	59,281	505,739	10,454,553	1,340	99,821	58,899	278,120
1920	37,224	270,843	3,758	68,475	564,995	11,679,483	1,957	133,704	74,707	404,162
1921	20,115	150,457	119	1,744	708,213	14,640,062	899	63,439	84,790	433,053
1922	15,255	120,576	284	3,905	1,000,340	20,678,802	573	29,853	110,227	621,668
1923	17,199	134,822	64	597	971,704	20,086,904	1,068	65,537	99,958	542,317
1924	28,657	216,422	76	1,343	1,241,728	25,668,795	1,288	72,842	88,121	467,097
1925	17,394	141,059	12	200	1,461,039	30,202,357	2,210	127,863	82,020	491,833
1926	22,783	199,102			1,497,215	30,950,180	2,401	165,344	89,987	496,059
1927	17,119	154,533			1,627,050	33,634,108	1,795	109,613	83,998	500,688
1928	18,954	180,153			1,578,434	32,629,126	1,047	52,373	85,811	553,271
1929	21,737	206,979	70	1,120	1,622,267	33,535,234	1,288	90,522	100,347	832,689
1930	9,722	104,667	80	1,240	1,736,012	35,886,532	1,338	88,542	94,946	776,069
1931	7,962	100,119	40	620	2,085,814	44,980,280	548	32,149	53,358	374,469
1932	3,657	42,920	32	464	2,280,105	53,534,743	346	18,483	35,655	186,175
1933	4,387	45,350	73	1,064	2,455,519	61,647,843	362	16,145	24,460	312,319
1934	7,302	61,665	150	2,100	2,105,319	72,634,195	1,389	64,998	33,234	441,389
1935	8,656	75,003	75	900	2,220,336	78,133,624	1,701	78,500	38,247	164,807
1936	8,409	70,840	75	900	2,378,503	83,318,960		88,812	40,191	182,783
1937	9,061	72,610	150	2,550	2,587,095	90,522,454		125,343	53,789	233,895
1938	8,106	65,964	217	3,906	2,896,477	101,883,578		41,590	57,503	242,479
1939	7,061	51,056	240	4,995	3,086,076	111,538,873		61,684	59,440	260,792
1940	32,907	98,619	4,437	58,952	3,241,688	125,574,988		94,038	75,271	313,512
1941	11,822	107,124	5,234	93,867	3,194,308	122,980,858		132,924	90,599	276,459
1942	5,468	49,353	4,340	113,957	2,763,819	106,407,032		117,904	82,796	304,170
1943	6,659	61,549	10,385	301,424	2,117,215	81,512,777	1,903	197,431	92,448	335,637
1944	5,667	50,361	6,906	217,031	1,731,836	66,675,686	1,582	171,166	90,288	348,873
1945	3,857	35,414	7,369	233,708	1,625,368	62,576,668	1,910	179,001	92,174	385,516
1946	5,485	53,696	8,042	237,491	1,813,333	66,639,988	1,975	180,405	122,524	492,179
Total	**683,188**	**3,768,315**	**68,158**	**1,642,184**	**55,249,967**	**1,680,899,913**		**1,124,086**	**2,651,688**	**12,472,853**

† 1876 to 1885, inclusive, exports.

Garnets: 1923—1,245 tons, value $100,000.
1924— 360 tons, value $7,200

Grinding pebbles: 1920—560 tons, value not available.
1925—105 tons, value $945
1926— 64 tons, value $576

Garnet schist: 1941—16 tons, value $160
1942—17 tons, value $176
1944— 3 tons, value $90
1946— 2 tons, value $1,200

Historical Summary of the Mineral Production of Ontario—Continued

—	Iron Ore		Lead		Lime		Mica		Mineral Waters (Natural)		Magnesium	
	tons	$	pounds	$	bushels	$	tons	$	imp.gals	$	pounds	$
1886	16,032	...	...	...	783,450	140,290	...	22,017	...	...	...	...
1887	16,598	...	...	...	1,239,451	178,153	...	21,540	...	...	...	...
1888	16,894	...	...	...	1,296,343	169,194	15	30,207	...	...	...	...
1889	...	...	...	...	1,622,892	136,814	...	27,222	...	...	...	...
1890	5,000	*	...	...	1,234,975	185,602	...	58,484	...	...	...	...
1891	...	...	...	...	1,227,681	152,286	...	44,510	...	...	...	...
1892	...	...	...	...	...	...	...	81,745	...	...	...	...
1893	...	...	...	...	...	...	...	...	...	...	...	...
1894	...	...	...	...	...	...	...	...	...	...	...	...
1895	...	...	...	...	...	...	...	...	...	...	...	...
1896	15,270	...	...	...	1,880,000	222,000	...	*	...	...	...	...
1897	2,770	...	...	...	*	*	...	50,000	...	...	...	...
1898	21,111	...	...	...	2,620,000	308,000	...	12,000	...	...	...	...
1899	25,126	...	...	...	4,342,500	535,000	...	29,475	...	...	...	...
1900	82,950	...	...	...	3,983,000	544,000	...	60,000	...	...	...	...
1901	272,538	...	...	...	4,100,000	550,000	...	40,000	...	...	...	...
1902	359,288	...	...	...	4,300,000	617,000	993	101,600	...	...	...	...
1903	209,634	...	50,000	2,119	3,400,000	520,000	...	103,738	...	...	...	...
1904	141,601	...	885,000	38,135	2,600,000	406,800	...	84,290	...	...	...	...
1905	193,464	...	284,212	13,378	3,100,000	424,700	...	68,563	...	...	...	...
1906	141,078	337,918	2,200,000	124,454	2,885,000	406,785	291	144,579	...	...	...	...
1907	207,769	488,324	...	...	2,333,879	393,474	456	88,402	...	...	...	...
1908	216,177	528,475	...	...	2,087,731	358,507	288	57,258	...	61,526	...	...
1909	263,893	653,808	...	...	2,619,553	434,147	241	54,484	...	92,610	...	...
1910	231,445	513,722	...	...	2,988,020	476,137	442	103,090	...	111,369	...	...
1911	175,586	446,326	...	...	3,360,265	538,902	373	59,212	...	136,778	...	...
1912	112,321	222,490	...	...	3,376,193	573,269	384	62,932	...	131,529	...	...
1913	195,680	427,975	33,000	1,537	3,254,482	573,209	478	68,816	...	138,072	...	...
1914	240,079	531,200	...	...	3,393,078	556,850	349	46,267	...	115,215	...	...
1915	394,429	766,166	88,985	4,983	1,903,914	328,515	200	41,515	...	95,788	...	...
1916	271,967	700,799	685,932	58,393	2,031,396	367,115	364	62,896	...	110,333	...	...
1917	198,113	703,301	1,586,711	176,712	2,846,850	668,308	392	72,121	...	135,231	...	...
1918	201,119	833,722	1,684,366	155,804	2,660,791	762,976	266	42,431	...	145,400	...	...
1919	195,649	686,381	1,487,586	103,625	3,578,834	1,143,973	325	55,351	...	55,958	...	...
1920	126,900	507,600	2,255,520	201,643	5,109,635	1,962,086	1,466	94,562	...	14,473	...	...
1921	58,499	227,134	3,312,493	190,203	3,530,517	1,344,188	218	28,891	308,647	14,438	...	...
1922	16,190	52,055	2,890,397	180,216	4,980,183	1,767,543	1,989	54,515	209,072	10,528	...	...
1923	30,447	113,543	4,401,494	315,983	6,002,621	1,893,603	1,980	110,290	227,030	14,047	...	...
1924	44	*	5,055,368	409,687	5,419,307	1,840,152	2,414	172,252	201,670	13,133	...	...
1925	...	...	7,209,534	657,510	6,304,831	2,044,125	1,605	82,663	183,012	25,452	...	...
1926	...	...	7,398,795	580,730	6,522,747	2,051,446	881	59,086	208,400	27,277	...	...
1927	...	...	7,990,709	528,729	6,946,630	2,198,239	1,284	75,183	293,200	12,811	...	...
1928	...	...	6,814,757	402,289	7,919,660	2,467,843	2,559	32,944	253,630	27,890	...	...
1929	...	...	4,769,506	294,431	10,575,943	3,364,411	2,091	45,919	309,700	13,651	...	...
1930	...	...	2,193,856	116,034	7,201,886	2,177,587	740	34,275	214,200	20,754	...	...
1931	...	...	985,633	41,647	4,218,857	1,222,270	1,049	23,465	197,540	8,578	...	...
1932	...	...	86,477	1,828	4,762,943	1,273,230	268	2,752	61,208	2,473	...	...
1933	...	...	29,910	692	4,176,943	1,227,197	666	9,371	29,794	2,347	...	...
1934	...	...	21,558	525	5,548,314	1,536,289	618	9,059	21,775	1,622	...	...
1935	...	...	22,532	706	6,289,714	1,696,867	255	7,144	19,900	1,477	...	...
1936	...	...	17,442	683	7,045,514	1,946,060	529	11,433	23,100	1,117	...	...
1937	...	...	29,840	1,525	8,413,343	2,152,644	399	9,137	26,700	889	...	...
1938	...	...	22,363	748	7,727,943	1,989,259	252	6,445	28,416	2,586	...	...
1939	123,508	341,594	39,130	1,240	8,635,971	2,236,952	564	22,078	19,140	1,602	...	...
1940	414,603	1,211,305	345,455	11,614	10,646,686	2,752,787	458	31,962	31,638	2,426	...	...
1941	516,037	1,426,057	1,622,823	51,552	12,317,857	3,246,648	794	47,047	36,623	14,469	...	...
1942	545,119	1,516,142	3,183,159	107,018	11,877,085	3,125,574	1,400	89,243	28,023	14,189	473,910	208,520
1943	498,232	1,452,250	2,273,896	85,362	11,769,171	3,115,194	2,127	296,189	14,006	5,748	7,153,974	2,074,652
1944	553,252	1,909,608	1,065,741	47,958	12,265,285	3,311,177	1,743	646,745	7,185	805	10,579,878	2,575,695
1945	1,135,444	3,635,095	668,762	33,438	10,389,914	3,131,676	1,452	95,123	8,285	976	7,358,545	1,607,284
1946	1,549,523	6,822,947	699,244	47,199	11,776,314	3,316,231	2,354	66,952	6,000	878	320,677	75,538
Total	...	...	**74,392,195**	**4,993,337**	...	...	...	**3,960,370**	...	**1,586,445**	**25,886,984**	**6,541,689**

10 tons iron oxides at $100 in 1911.

Historical Summary of the Mineral Production of Ontario—Continued

—	Molybdenite		Natural Gas		Nepheline Syenite	Nickel		Peat		Petroleum		Phosphate (a)	
	pounds	$	M cu. ft.	$	$	pounds	$	tons	$	barrels	$	tons	$
1870												1,200	13,600
1871												200	2,100
1872													
1873													
1874													
1875													
1876													
1877													
1878												* 824	12,278
1879												* 1,842	20,565
1880												* 1,387	14,422
1881										368,987		* 2,471	36,117
1882										389,573		* 568	6,338
1883										472,866		* 50	500
1884										571,000		* 763	8,890
1885										587,563		* 434	5,962
1886										584,061	525,655	1,060	15,735
1887										713,728	556,708	4,101	55,363
1888										695,203	713,695	2,089	22,506
1889						830,477	498,286			704,690	653,600	3,436	29,262
1890						1,435,742	933,232			795,030	902,734	4,581	51,065
1891						4,035,347	2,421,208			755,298	1,010,211	3,344	35,187
1892				150,000		2,413,717	1,399,956			779,753	984,438	1,701	22,460
1893				376,233		3,982,982	2,071,151			798,406	874,255	240	1,886
1894				313,754		4,907,430	1,870,958			829,104	835,322		
1895				423,032		3,888,525	1,360,984			726,138	1,086,738		
1896				276,301		3,397,113	1,188,990			726,822	1,155,647		
1897				325,873		3,997,647	1,399,176			709,857	1,011,546		
1898				322,123		5,517,690	1,820,838			758,391	1,061,747	101	505
1899				387,271		5,744,000	2,067,840			808,570	1,202,020	1,721	10,326
1900				417,094		7,080,227	3,327,707	400	1,200	710,498	1,151,007	145	1,015
1901				339,476		9,189,047	4,594,523	220	600	622,392	1,008,275		
1902				195,992		10,693,410	5,025,903	475	1,663	530,624	951,190		
1903				196,535		12,505,510	5,002,204	1,100	3,300	486,637	1,048,874		
1904				253,524		10,547,883	4,219,153	800	2,400	503,474	935,895		
1905				316,476		18,876,315	7,550,526	80	260	634,095	856,028		
1906				533,446		21,490,955	8,948,834	474	1,422	569,753	761,760	250	1,875
1907				746,499		21,189,793	9,535,407	50	200	788,872	1,057,088	416	2,608
1908				949,297		19,143,111	8,231,538	60	180	527,987	747,102	998	8,894
1909				1,145,307		26,282,991	9,461,877	60	240	420,755	559,604	473	3,254
1910				1,271,303		37,271,033	11,181,310	771	2,324	314,410	386,724	22	192
1911			10,863,871	1,807,513		34,098,744	10,229,623	1,263	3,017	288,631	354,054	35	297
1912			12,529,463	2,036,245		44,841,542	13,452,463	200	900	240,657	341,251		
1913			12,474,745	2,055,768		49,676,772	14,903,032	600	2,100	225,969	402,677		
1914		1,500	14,094,521	2,215,808		45,517,937	13,655,381	685	2,470	212,693	338,182	400	2,400
1915	23,300	25,800	15,211,523	2,622,838		68,308,657	20,492,597	300	1,050	214,444	299,149	17	102
1916			17,953,109	2,765,105		82,958,564	29,035,497	300	1,500	196,778	389,621	13	174

Historical Summary of the Mineral Production of Ontario—Continued

—	Molybdenite		Natural Gas		Nepheline Syenite	Nickel		Peat		Petroleum		Phosphate (a)	
	pounds	$	M cu. ft.	$	$	pounds	$	tons	$	barrels	$	tons	$
1917	68,213	68,213	19,868,035	3,641,587	...	84,330,280	33,732,112	...	...	202,991	473,477	26	256
1918	42,931	49,371	13,029,524	2,884,460	...	92,507,293	37,002,917	...	...	288,692	777,737	...	...
1919	...	...	11,024,041	2,690,400	...	44,544,883	17,817,953	500	1,750	219,804	625,342	2	31
1920	...	...	10,529,374	2,929,731	...	61,335,706	24,534,282	4,550	18,650	180,071	726,286	...	...
1921	...	...	8,422,774	3,080,130	...	19,293,060	6,752,571	1,666	6,664	172,859	559,198	...	...
1922	...	...	8,060,114	4,076,206	...	17,597,123	6,158,993	3,000	14,500	164,731	526,316	59	476
1923	...	...	8,128,412	4,066,244	...	62,453,843	18,332,077	...	...	159,400	478,149	...	...
1924	...	...	7,150,078	3,798,381	...	69,536,350	19,470,178	...	...	154,368	441,952	...	...
1925	...	...	7,143,962	3,958,006	...	73,857,114	15,946,672	1,370	8,394	143,134	386,555	...	...
1926	...	...	7,764,996	4,409,593	...	65,714,294	14,374,163	...	...	137,850	379,221	...	...
1927	...	...	7,311,215	4,331,780	...	66,798,717	15,262,171	...	...	139,606	288,347	82	824
1928	...	...	7,632,800	4,535,312	...	96,755,578	22,318,907	1,497	5,845	134,094	249,737	...	...
1929	...	...	8,586,475	4,959,695	...	110,275,912	27,115,461	1,000	4,500	121,104	253,678	...	...
1930	...	...	7,965,761	5,034,828	...	103,768,857	24,455,133	628	1,602	117,302	235,746	...	...
1931	1,222	280	7,419,534	4,635,497	...	65,666,320	15,267,453	504	1,096	122,365	219,993	...	...
1932	...	...	7,380,154	4,719,297	...	30,327,968	7,179,862	2,486	5,307	130,343	247,468	...	...
1933	...	...	7,166,659	4,523,085	...	83,264,658	20,130,480	450	900	136,058	253,486	...	...
1934	...	...	7,682,851	4,741,368	...	128,687,340	32,139,425	1,878	7,343	141,385	299,874	...	...
1935	...	...	8,158,825	4,938,084	...	138,516,240	35,345,103	1,340	5,761	165,041	346,156	70	60
1936	...	...	10,006,743	6,052,294	37,426	169,739,393	43,876,525	1,296	7,121	165,495	350,767	...	...
1937	16,000	8,147	10,746,334	6,588,798	121,481	224,790,974	59,469,423	478	2,676	165,205	350,000	...	...
1938	14,000	4,500	10,952,806	6,460,764	142,737	210,572,738	54,914,494	620	3,500	172,641	359,268	...	...
1939	482	216	11,966,581	7,261,928	140,148	226,105,865	59,920,305	445	2,445	206,379	401,430	...	...
1940	...	...	13,053,401	7,745,834	117,849	245,557,871	59,822,591	30	75	187,644	397,078	...	...
1941	...	...	11,828,703	7,140,130	227,583	282,258,235	68,656,795	(b) 4,670	44,863	160,238	337,760	...	...
1942	423	150	10,476,770	6,809,901	246,893	285,211,803	69,998,427	(c) 9,599	148,933	143,845	306,242	334	4,458
1943	...	...	7,914,408	6,543,913	292,010	288,018,615	71,675,322	11,380	139,155	132,492	311,356	401	4,113
1944	2,815	1,082	7,082,508	4,694,097	217,989	274,598,620	69,204,152	12,600	146,620	125,067	296,420	...	...
1945	...	...	7,199,970	4,837,586	275,766	245,130,983	61,982,333	11,785	225,162	113,325	268,478	8	120
1946	...	...	7,051,309	4,656,528	229,198	192,124,537	45,385,155	17,320	229,801	123,082	291,719	...	...
Total	...	...	...	**169,179,360**	**2,049,080**	**4,619,161,310**	**1,244,124,429**	...	...	**21,990,320**	...	**35,864**	**396,216**

(a) No record of production 1872-1877. (b) Includes 4,315 tons of moss valued at $42,708. (c) Includes 9,427 tons of moss valued at $147,729. Exports.

Peat fuel in 1945 was 118 tons valued at $1,062 and in 1946, 145 tons worth $1,305.

Historical Summary of the Mineral Production of Ontario—Continued

—	Platinum		Palladium		Other Platinum Metals		Quartz (a)		Salt	
	fine oz.	$	fine oz.	$	fine oz.†	$	tons	$	tons	$
1890							200	1,000		
1891										
1892										
1893							100	500		
1894										
1895										
1896							10	50		
1897										
1898							284	570	57,142	248,639
1899							600	1,260	59,339	254,390
1900									62,055	279,458
1901									59,428	262,328
1902			4,411	86,014					64,456	292,581
1903			3,177	61,952					62,452	297,517
1904			952	18,564					69,477	321,778
1905			1,562	28,116					67,340	320,858
1906			314	5,652			48,376	65,765	76,720	329,130
1907							56,585	124,148	72,697	342,315
1908							44,741	52,830	79,975	378,798
1909							56,924	71,285	84,037	415,219
1910							87,400	90,945	84,092	409,624
1911							59,978	83,181	91,582	443,004
1912							90,686	193,976	95,053	459,582
1913							77,253	167,842	100,791	491,280
1914							52,947	83,628	107,038	493,648
1915							95,771	143,257	119,900	600,226
1916							94,519	167,636	132,903	717,653
1917							177,983	362,251	138,909	1,047,792
1918							216,539	474,772	131,727	1,285,039
1919	25	1,447	62	3,534			60,055	179,549	148,112	1,395,291
1920	578	36,961	913	58,392	513	31,815	90,433	321,093	206,832	1,512,724
1921	269	20,184	501	38,257	57	9,690	72,068	220,806	161,987	1,649,626
1922	458	44,709	724	47,060	391	31,280	81,528	118,054	176,741	1,573,657
1923	1,210	141,010	1,732	138,560	304	45,000	225,110	483,285	197,917	1,674,365
1924	9,181	1,090,858	8,923	811,993	593	51,120	111,645	192,855	203,428	1,337,311
1925	8,692	1,027,477			8,288	648,969	188,560	324,526	226,315	1,352,504
1926	9,471	919,349			10,024	640,178	192,733	339,304	252,345	1,388,672
1927	11,217	716,653			11,545	554,190	159,150	266,204	254,181	1,510,777
1928	10,452	704,360			13,087	605,563	194,503	308,608	279,841	1,377,629
1929	12,474	843,928			17,141	802,453	187,973	316,050	302,445	1,420,424
1930	34,000	1,542,172			34,040	894,511	167,487	274,674	248,637	1,558,405
1931	44,725	1,595,117			46,918	1,217,717	87,888	148,642	231,329	1,760,388
1932	27,284	1,097,021			37,613	90,890	66,135	93,574	231,138	1,789,751
1933	24,746	858,190			31,009	645,043	66,562	86,146	244,107	1,755,087
1934	116,177	4,488,712			83,932	1,699,282	89,838	134,572	276,751	1,734,196
1935	105,335	3,444,455			84,772	1,962,937	83,034	120,005	320,003	1,698,508
1936	131,551	5,319,922			103,671	2,483,075	884,585	216,037	350,044	1,557,078
1937	139,355	6,751,750			119,829	3,179,782	1,142,372	633,073	407,701	1,539,599
1938	161,310	5,196,279			130,803	3,077,342	1,173,259	597,037	388,130	1,637,140
1939	148,877	5,221,712			135,402	4,199,622	1,333,342	665,148	370,843	2,200,189
1940	108,464	4,239,424			91,522	3,520,746	1,581,367	810,285	412,401	2,371,780
1941	124,257	4,747,860			97,432	3,396,304	1,745,244	899,687	477,170	2,512,166
1942	285,188	10,897,033			222,573	8,279,221	1,367,733	914,256	558,407	2,793,328
1943	219,706	8,458,681			126,004	5,233,068	1,350,640	852,196	594,889	3,356,870
1944	157,523	6,064,635			42,929	1,960,085	1,326,288	868,389	603,806	2,906,117
1945	208,234	8,017,010			458,674	18,671,074	1,165,238	820,664	578,697	2,920,973
1946	121,771	7,672,791			117,566	5,162,801	1,052,644	852,713	441,679	2,408,279
Total							**17,427,310**	**14,142,298**	**10,962,989**	**62,383,693**

† Other platinum metals include palladium from 1925 to 1946.

(a) From 1936 includes low grade silica fluxing sand.

Historical Summary of the Mineral Production of Ontario—Continued

—	Sand and Gravel		Selenium		Silica Brick		Silver	
	tons	$	pounds	$	M	$	fine oz.	$
1887	...	...	...	...	...	...	190,495	186,304
1888	...	...	...	...	...	...	208,064	195,580
1889	...	...	...	...	...	...	181,609	169,986
1890	...	...	...	...	...	...	158,715	166,066
1891	...	...	...	...	...	...	225,633	222,926
1892	...	...	...	...	...	...	41,581	36,425
1893	...	...	...	...	...	...	...	8,089
1894	...	...	...	...	...	...	...	...
1895	...	...	...	...	...	...	...	...
1896	...	...	...	...	...	...	...	...
1897	...	...	...	...	...	...	5,000	2,990
1898	...	...	...	...	...	...	85,000	49,521
1899	...	...	...	...	...	...	202,000	120,352
1900	...	...	...	...	...	...	161,650	99,140
1901	...	...	...	...	...	...	151,400	89,250
1902	...	...	...	...	...	...	145,000	75,632
1903	...	...	...	...	...	...	17,777	9,502
1904	...	...	...	...	...	...	206,875	118,376
1905	...	...	...	...	...	...	2,451,356	1,479,442
1906	...	...	...	...	...	...	5,401,766	3,607,894
1907	...	...	...	...	...	...	9,982,363	6,521,178
1908	...	...	...	...	...	...	19,398,545	10,254,847
1909	...	...	...	...	...	...	24,822,000	12,784,126
1910	...	...	...	...	...	...	30,366,366	16,241,755
1911	...	...	...	...	...	...	30,540,754	16,279,443
1912	...	...	...	...	...	...	29,214,025	17,772,352
1913	...	...	...	...	...	...	28,411,261	16,987,377
1914	...	...	...	...	...	...	25,139,214	13,779,055
1915	3,033,383	727,426	...	...	...	...	22,748,609	11,302,419
1916	3,711,231	818,947	...	...	...	...	21,608,158	14,188,133
1917	4,283,076	1,170,052	...	...	...	...	19,301,835	15,714,975
1918	(c)	(c)	...	...	...	...	17,198,737	16,643,562
1919	(c)	(c)	...	...	...	...	12,117,878	13,465,628
1920	...	1,931,924	...	...	...	...	9,907,626	9,996,795
1921	6,273,173	1,496,729	...	...	...	...	9,761,607	6,116,037
1922	6,285,123	2,184,174	...	...	...	...	10,811,903	7,300,305
1923	8,146,433	2,006,958	...	...	...	...	10,540,943	6,838,226
1924	6,174,284	2,041,959	...	...	...	...	11,272,567	7,527,933
1925	5,201,604	1,779,129	...	...	...	...	10,529,131	7,271,944
1926	6,483,163	2,292,678	...	...	1,307	66,241	9,274,965	5,760,402
1927	7,512,763	2,405,729	...	...	553	28,549	9,307,953	5,246,893
1928	10,389,408	2,230,307	...	...	1,597	86,323	7,242,601	4,213,456
1929	11,358,568	3,462,379	...	...	1,566	80,374	8,890,726	4,711,462
1930	12,027,082	3,783,830	...	...	378	19,120	10,205,683	3,893,876
1931	7,465,017	2,562,477	16,899	32,108	279	13,702	7,438,951	2,222,034
1932	6,994,447	1,971,239	...	...	93	4,304	6,335,788	2,006,648
1933	5,967,994	2,517,230	26,090	53,745	183	7,351	4,535,680	1,715,975
1934	7,880,959	1,821,689	51,574	91,286	369	14,730	5,321,160	2,525,470
1935	8,770,117	2,211,406	75,363	144,697	493	22,976	5,161,651	3,344,229
1936	8,498,153	2,227,620	106,300	188,151	471	26,715	5,219,366	2,355,343
1937	8,832,526	3,613,854	116,696	201,884	818	59,980	4,693,047	2,106,286
1938	8,531,281	3,046,043	54,577	94,691	595	50,592	4,318,837	1,877,701
1939	9,350,875	3,537,216	126,930	224,539	603	49,595	4,689,422	1,898,653
1940	9,678,745	4,025,026	136,350	260,429	629	62,661	5,563,101	2,127,831
1941	11,569,382	4,524,463	142,408	272,171	1,283	118,922	4,977,476	1,904,432
1942	8,420,358	3,433,986	76,000	145,920	1,183	120,495	4,452,787	1,877,562
1943	8,285,309	3,620,852	82,000	143,500	1,052	126,722	2,671,320	1,208,879
1944	9,526,803	4,417,427	65,000	117,000	1,066	135,089	3,143,275	1,351,608
1945	10,466,891	4,466,862	158,000	322,560	1,168	131,398	3,185,369	1,497,123
1946	14,881,918	6,738,595	270,606	492,503	847	78,532	2,485,215	2,078,882
Total	...	...	**1,514,883**	**2,785,184**	**16,533**	**1,303,371**	**482,621,915**	**289,548,890**

(c) Included with Other Products, data not available by provinces.

Historical Summary of the Mineral Production of Ontario—Continued

—	Stone									
	Granite		Limestone		Marble		Sandstone		Slate	
	tons	$	tons	$	tons	$	tons	$	tons	$
1909	.....	42,700	.....	639,674	.....	3,441	.....	62,824	.....	.....
1910	.....	109,678	.....	722,763	.....	4,100	.....	62,247	.....	.....
1911	.....	131,816	.....	680,461	.....	25,996	.....	54,032	.....	.....
1912	.....	174,946	.....	862,052	.....	12,926	.....	59,240	.....	.....
1913	.....	324,062	.....	1,196,130	.....	18,238	.....	54,738	.....	.....
1914	.....	309,720	.....	853,906	.....	30,300	.....	59,923	.....	.....
1915	.....	140,894	.....	634,728	.....	10,927	.....	19,588	.....	.....
1916	.....	135,826	.....	688,114	.....	.....	.....	33,083	.....	.....
1917	.....	119,301	.....	808,658	.....	.....	.....	64,516	.....	.....
1918	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....
1919	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....
1920	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....
1921	165,418	233,353	2,547,625	3,927,836	.....	.....	3,037	6,393	.....	.....
1922	185,738	412,995	2,128,769	2,547,561	.....	.....	2,758	9,370	.....	.....
1923	188,998	293,454	2,436,453	2,542,320	.....	.....	5,473	23,378	.....	.....
1924	214,691	208,219	2,614,911	2,551,111	.....	.....	10,571	30,038	.....	.....
1925	263,567	242,150	2,750,115	2,530,021	.....	.....	9,030	44,562	.....	.....
1926	398,253	359,217	3,214,544	2,742,424	586	13,755	8,659	41,892	.....	.....
1927	390,679	294,098	3,854,421	3,716,419	.....	.....	9,860	50,192	.....	.....
1928	605,275	566,601	3,967,098	3,421,064	.....	.....	9,556	53,903	.....	.....
1929	850,927	926,977	4,380,706	3,759,357	.....	.....	8,039	49,929	.....	.....
1930	856,124	876,110	4,524,661	3,876,527	7,345	51,085	8,103	46,806	.....	.....
1931	133,905	232,557	3,215,697	2,594,328	4,323	29,173	5,439	25,386	.....	.....
1932	73,272	186,357	1,825,793	1,419,049	2,065	40,175	4,008	9,435	.....	.....
1933	19,650	39,433	1,222,752	910,419	2,614	21,083	8,890	12,333	.....	.....
1934	75,526	128,386	2,370,339	1,788,107	4,331	20,556	10,104	28,458	120	600
1935	44,473	93,465	2,061,206	1,680,810	4,726	35,210	12,536	54,407	.....	.....
1936	492,227	582,603	2,205,992	1,773,764	4,765	29,204	3,436	10,805	260	2,080
1937	625,160	769,860	3,582,175	2,841,469	6,685	27,247	8,680	22,934	300	2,258
1938	254,917	351,941	2,242,964	1,911,841	10,537	40,694	4,662	16,220	211	2,469
1939	495,619	625,880	1,931,285	1,624,618	6,519	30,642	4,124	16,322	47	649
1940	529,440	704,421	3,302,596	2,649,809	4,792	22,157	3,446	11,008	.....	.....
1941	152,426	388,325	3,353,856	2,832,056	6,540	30,365	13,420	27,190	.....	.....
1942	90,530	288,828	2,992,885	2,636,431	4,295	27,675	18,835	33,004	.....	.....
1943	79,582	212,136	3,114,460	2,704,205	4,167	24,852	7,818	17,190	.....	.....
1944	125,604	307,497	2,852,241	2,549,402	5,215	32,650	5,223	20,431	.....	.....
1945	109,286	279,105	2,833,573	2,582,663	5,818	45,081	3,680	19,845	.....	.....
1946	122,562	406,403	3,747,948	3,415,261	8,402	58,333	11,365	43,975	.....	.....

(a) 1918-1920, total values of all kinds of stone—1918, $1,079,745; 1919, $1,936,268; 1920, $4,035,478.

Historical Summary of the Mineral Production of Ontario—Concluded

—	Sulphur (b)		Talc (a)		Tellurium		Tungsten Concentrates		Zinc (e)		Other products
	tons	$	tons	$	pounds	$	pounds	$	pounds	$	$
1886			50	400							
1887			100	800							
1888			140	280							
1889			195	1,170							
1890			917	1,239							
1891											
1892			1,374	6,240							
1893			717	1,920							
1894			916	1,640							
1895			475	2,138							
1896			410	1,230							
1897			157	350							
1898			405	1,000							
1899			450	1,960					814,000	46,805	
1900			1,420	6,365					190,400	8,359	
1901			259	842							
1902			689	1,804					142,200	6,882	
1903			990	2,739					900,000	48,600	
1904			840	1,875					477,568	24,350	
1905			500	1,800							
1906			1,234	3,030					500	6,700	
1907			1,534	4,602					217	3,000	
1908	20,738	65,236	1,016	3,048					452	3,215	(c)(d) 319,563
1909	29,344	92,812	4,350	10,300					895	8,950	(c) 383,875
1910	29,628	84,902	7,112	22,308					576	5,760	(c) 632,644
1911	43,544	118,265	7,300	22,100							408,110
1912	20,677	70,689	8,270	23,132					10	375	363,668
1913	71,252	171,925	12,259	45,980							638,771
1914	110,616	273,716	10,808	40,418							833,635
1915	143,303	414,250	11,885	40,554							
1916	177,552	555,523	13,051	48,575							17,956
1917	288,058	1,080,866	15,778	76,139							
1918	268,507	1,133,963	18,169	119,197							1,316,426
1919	117,011	285,832	18,542	115,795					147,692	10,838	1,192,516
1920	148,652	618,283	21,411	162,784					13,950	1,070	
1921	27,785	101,306	9,967	140,390							
1922	11,233	39,763	12,854	178,728							
1923	25,134	99,716	9,531	125,124							
1924	11,429	44,542	10,718	130,577							
1925	685	8,799	13,678	174,116					179,545	13,685	
1926	371	4,912	14,882	178,986							
1927	463	6,077	15,138	181,981							
1928	4,974	54,100	14,925	179,187					58,724	3,226	
1929	4,579	51,516	15,463	180,492					5,516,806	297,190	
1930	7,277	73,855	11,664	133,213					3,527,894	127,004	
1931	6,508	65,080	11,806	122,044							
1932	3,332	33,320	12,064	111,585							
1933	8,106	81,960	15,114	142,134							
1934	14,598	145,980	13,934	135,978	5,130	25,599					
1935	13,292	132,920	13,716	138,161	14,275	28,550					
1936	14,152	141,520	14,461	143,701	10,197	18,049					
1937	14,009	140,090	12,457	123,301	6,651	11,506			120,011	5,883	
1938	16,897	168,970	10,853	109,810							
1939	16,126	161,260	13,144	128,595							
1940	18,688	186,880	15,166	154,734	3,491	5,607	1,064	690			
1941	10,057	100,570	18,171	204,884	11,453	18,394	3,830	2,432	1,100,949	37,553	
1942	18,634	186,340	15,499	174,295	9,500	15,200	162,185	145,241	4,710,394	160,671	
1943	16,907	169,070	11,959	131,216	8,600	15,050	494,405	356,478	3,299,812	131,993	
1944	17,876	178,760	13,584	153,122	9,900	17,325	63,152	5,212	2,429,176	104,455	
1945	16,847	168,470	12,863	141,194			787	714	237,799	15,314	(f) 10,312
1946	15,433	154,330	14,439	153,680	14,200	21,868			42,628	3,329	(g) 68,720
Total	**1,784,364**	**7,666,368**	**511,758**	**4,644,982**	**93,397**	**177,148**	**725,423**	**510,767**		**1,075,207**	

(a) Includes some soapstone from 1925 to 1931.

(b) 1908 to 1927, sulphur content of pyrites shipped; 1928 to 1946, sulphur content of pyrites shipped plus sulphur recovered from smelter gas.

(c) Includes sand-lime brick and sand and gravel. (d) Includes peat.

(e) 1898 to 1904, pounds of zinc contained in ores or concentrates shipped; 1905 to 1915, tons of ore or concentrates shipped; 1916 to 1942, pounds of zinc recovered by Canadian smelters and estimated recoveries by foreign smelters.

(f) First commercial production of calcium, 22,720 pounds valued at $10,312.

(g) Includes 53,548 pounds of calcium worth $68,720.

NOTE.—In 1919 Ontario produced 48 tons of strontium minerals valued at $336, in 1920, 75 tons worth $2,675 were produced, and in 1941, 27 tons worth $280.

Historical Summary of the Mineral Production of Manitoba

—	Cadmium		Cement		Clay Products	Coal		Copper		Feldspar	
	pounds	$	barrels.	$	$	tons	$	pounds	$	tons	$
1886					14,475						
1887					8,125						
1888					2,400						
1889					19,636						
1890					15,300						
1891					13,300						
1892					67,450						
1893					*						
1894					*						
1895					*						
1896					*						
1897					*						
1898					34,000						
1899					25,000						
1900					25,000						
1901					20,000						
1902					(a)150,000						
1903					(a)150,000						
1904					(a)150,000						
1905					588,735						
1906					517,065						
1907					466,432						
1908			11,234	16,851	265,091						
1909			8,600	8,600	559,008						
1910			18,561	21,995	781,605						
1911			21,350	28,289	834,428						
1912			12,127	16,068	1,018,051						
1913			179,342	326,856	514,358						
1914			402,131	737,046	317,488						
1915			339,554	625,369	93,674						
1916			427,293	794,897	104,248						
1917			544,949	1,175,669	114,651			1,116,000	303,329		
1918			500,302	1,283,948	116,417			2,339,751	576,234		
1919					131,737			3,348,000	625,775		
1920					206,764			3,062,877	534,604		
1921					208,982						
1922			429,352	1,126,137	210,740						
1923			320,218	817,664	160,134						
1924			286,948	746,750	117,450						
1925			407,395	1,037,929	173,794						
1926			612,155	1,572,401	248,497						
1927			551,698	1,378,121	201,464						
1928			693,450	1,685,084	291,791						
1929			1,000,258	2,350,606	362,240						
1930			977,906	2,268,742	215,967			2,087,609	215,018		
1931			544,160	1,267,893	122,628	1,306	3,797	45,821,432	3,835,254		
1932			242,112	549,594	49,773	1,552	3,684	52,706,861	3,362,803		
1933			129,540	295,351	20,966	3,880	9,214	38,163,181	2,844,980	88	484
1934			181,166	411,247	37,916	4,113	8,952	30,867,141	2,290,126	1,793	6,763
1935			266,457	604,857	74,755	3,106	7,408	38,011,371	2,963,146	2,084	6,252
1936	148,133	131,838	348,042	783,095	55,564	4,020	9,525	29,853,220	2,820,190	1,322	7,932
1937	164,223	269,326	328,518	745,736	95,531	3,172	7,709	44,920,835	5,874,747		
1938	115,166	92,543	330,889	754,427	105,334	2,016	5,660	65,582,772	6,539,914	78	451
1939	73,830	52,029	343,717	773,363	78,892	1,138	3,110	70,458,890	7,110,711	40	330
1940	57,742	67,154	572,408	1,287,918	102,906	1,697	4,037	75,267,937	7,591,524		
1941	61,085	71,714	576,648	1,274,392	84,817	1,246	3,411	67,018,563	6,759,492		
1942	29,236	34,498	654,855	1,374,498	80,890	1,265	3,763	47,595,586	4,800,491		
1943	20,983	24,130	793,913	1,503,416	132,382	999	2,964	38,014,872	4,460,747		
1944	20,921	23,013	865,756	1,698,567	197,383			43,878,639	5,265,437		
1945	27,891	27,612	959,398	2,027,629	269,917			41,126,155	5,161,332		
1946	63,410	77,360	1,254,946	2,811,264	372,920			38,501,047	4,928,134		
Total	**782,620**	**871,217**	**16,137,348**	**36,182,269**		**29,519**	**73,234**	**779,742,439**	**78,878,997**	**5,405**	**22,212**

* Data not available by provinces.
(a) Includes production of Alberta and Saskatchewan.

Historical Summary of the Mineral Production of Manitoba—Continued

—	Gold		Gypsum		Lime		Natural Gas		Peat		Quartz		Salt	
	fine oz.	$	tons	$	bushels	$	M cu. ft.	$	tons	$	tons	$	tons	$
					1886— 2,000	400								
1901			600	7,800	1887— 32,800	8,500								
1902			1,554	20,202	1888— 57,600	8,940								
1903			3,160	20,510	1889— 52,460	6,646								
1904			4,000	14,000	1890— 69,550	10,700								
1905			4,500	31,500	1891-1905 Nil	Nil								
1906			2,500	22,500	620,201	119,792								
1907					431,548	84,793								
1908			14,500	111,500	138,786	24,192								
1909			17,000	170,000	423,954	69,670								
1910			19,500	195,000	606,679	100,808								
1911			43,000	372,000	706,888	140,629								
1912			66,500	481,250	818,237	168,257								
1913			65,100	479,500	576,938	107,281								
1914			53,423	382,563	526,167	92,898								
1915			20,278	139,721	281,432	71,372								
1916			28,489	191,283	355,301	83,754								
1917	440	9,095	33,347	258,934	393,982	92,932								
1918	1,926	39,814	37,483	341,352	462,544	134,725								
1919	724	14,966	32,903	371,337	476,452	147,131								
1920	781	16,145	44,371	487,894	695,399	210,984	200	60						
1921	207	4,279	40,859	480,282	413,283	136,375	200	60						
1922	156	3,225	34,072	440,914	525,184	163,799	200	60						
1923	31	641	31,575	386,554	524,128	161,226	200	60						
1924	1,180	24,393	29,375	348,212	394,229	121,518	200	60						
1925	4,424	91,452	35,088	417,868	450,315	170,230	200	60						
1926	188	3,886	35,172	461,461	685,389	251,269	200	60						
1927	182	3,762	39,895	512,008	648,975	246,279	200	60						
1928	19,813	409,571	51,285	609,039	523,194	319,699	200	60			(a) 1	360		
1929	22,455	464,186	67,269	631,051	921,314	361,104	600	180			10,045	35,610		
1930	23,189	479,359	34,157	298,297	688,514	260,325	600	180						
1931	102,069	2,220,512	23,076	231,124	600,400	207,401	600	180			67,214	76,624		
1932	122,507	2,876,359	12,739	113,739	521,090	172,110	600	180			87,453	102,493	508	7,092
1933	125,310	3,583,866	6,830	65,471	515,290	167,640	600	180			7,736	23,507	1,499	18,388
1934	132,321	4,565,075	9,657	81,553	473,371	163,608	600	180			931	3,031	1,664	20,137
1935	142,613	5,018,551	10,500	85,885	531,857	185,517	600	180			147	220	1,538	18,765
1936	139,273	4,878,733	12,064	87,076	621,714	211,035	600	180			90	45	2,498	32,151
1937	157,949	5,526,636	13,941	88,095	645,629	215,165	600	180					3,391	43,465
1938	185,706	6,532,209	14,571	92,129	566,400	198,685	600	180					2,920	34,970
1939	180,875	6,537,063	15,961	98,578	572,343	196,190	600	180					2,453	35,888
1940	152,295	5,863,357	23,108	137,051	633,343	217,547	600	180					3,076	45,731
1941	150,553	5,796,290	27,601	162,822	774,286	273,492	(b)	(b)	1,457	32,342			13,051	115,367
1942	136,226	5,244,701	29,218	179,780	754,971	265,079	(b)	(b)	2,224	55,832			22,706	397,101
1943	91,775	3,533,337	37,989	380,529	856,800	307,819	(b)	(b)	2,042	72,687			27,523	497,227
1944	74,168	2,855,468	38,330	368,498	854,129	301,132	(b)	(b)	1,128	41,878			27,267	488,776
1945	70,655	2,720,218	42,275	300,636	899,857	313,193			1,181	43,243			27,133	449,561
1946	79,402	2,918,024	63,187	428,133	1,067,428	392,304			1,771	65,039			26,166	446,472
Total	**2,120,293**	**72,235,164**	**1,271,982**	**11,585,631**	**24,302,171**	**7,664,205**					**173,617**	**241,890**	**163,393**	**2,651,100**

(a) Rose quartz. (b) No reports received; estimated in previous years.

NOTE.—In 1935 there were produced 19,179 lb. of lead, valued at $601; in 1937 lithium minerals valued at $1,694 were also produced.

Historical Summary of the Mineral Production of Manitoba—Continued

—	Sand and Gravel		Selenium		Silver		Stone					
							Granite		Limestone		Marble	
	tons	$	lb.	$	fine oz.	$	tons	$	tons	$	tons	$
1909	...	...	...	...	...	...	...	3,345	...	328,554	...	...
1910	...	...	...	...	...	...	...	3,643	...	328,029	...	...
1911	...	...	...	...	...	...	...	2,268	...	315,782	...	...
1912	...	101,653	...	...	...	...	...	1,523	...	381,572	...	...
1913	...	197,719	...	...	...	...	...	6,920	...	382,984	...	...
1914	...	314,081	...	...	...	...	...	15,654	...	346,258	...	...
1915	484,244	203,666	...	...	...	...	...	351	...	153,113	...	...
1916	1,157,605	243,542	...	...	...	...	...	...	...	372,894	...	...
1917	638,802	289,081	...	...	7,201	5,863	...	...	...	301,968	...	...
1918	...	...	...	...	13,316	12,886	(a)	(a)	(a)	(a)	(a)	(a)
1919	...	...	...	...	20,709	23,069	(a)	(a)	(a)	(a)	(a)	(a)
1920	...	...	...	...	15,510	15,449	(a)	(a)	(a)	(a)	(a)	(a)
1921	...	...	...	...	33	20	...	...	16,868	56,666	...	...
1922	780,231	207,415	...	...	20	14	...	...	34,356	106,638	...	...
1923	595,549	123,478	...	...	5	3	...	...	51,304	118,277	...	...
1924	359,535	81,897	...	...	140	93	...	...	54,065	93,876	...	...
1925	727,152	196,601	...	...	477	329	...	...	52,770	188,496	...	...
1926	989,581	178,059	...	...	18	11	...	...	101,571	357,884	...	...
1927	1,333,580	228,655	...	...	12	7	...	...	154,066	318,556	...	...
1928	1,653,929	262,006	...	...	1,763	1,026	114,000	114,000	121,864	494,217	...	...
1929	1,782,085	322,430	...	...	2,644	1,401	...	...	191,506	885,826	603	9,191
1930	1,253,103	453,944	...	...	94,653	36,114	...	...	146,316	1,075,485	762	9,994
1931	871,986	294,178	3,870	7,353	836,547	249,877	...	...	152,858	636,226	390	6,423
1932	440,309	188,974	...	...	1,036,497	328,275	18	232	78,405	299,050	...	...
1933	288,214	108,828	...	...	1,101,578	416,758	332	2,987	32,858	71,240	...	...
1934	334,026	95,426	4,127	6,190	1,252,920	594,647	213	2,702	42,914	50,843	...	...
1935	1,399,659	404,730	65,074	124,942	1,206,454	781,660	387	4,630	146,100	183,892	127	1,233
1936	1,852,606	545,130	50,760	89,845	791,489	357,175	185	2,038	49,261	69,837	60	90
1937	1,380,957	551,464	43,920	75,982	905,179	406,253	138	1,796	41,053	63,432	...	...
1938	1,216,084	645,812	57,788	100,262	1,198,315	520,991	329	6,120	39,049	95,497	...	...
1939	1,363,593	514,404	(b)	(b)	1,028,485	416,413	174	3,544	35,909	80,404	...	...
1940	1,851,645	839,993	(b)	(b)	1,033,512	395,308	218	4,324	48,488	74,116	...	...
1941	1,503,901	429,996	32,179	61,462	966,105	369,641	244	4,155	38,103	60,743	...	...
1942	1,443,001	427,150	21,209	40,721	821,824	346,530	133	2,452	43,355	69,514	...	...
1943	1,048,673	293,938	5,239	9,168	587,279	265,767	...	...	37,974	50,784	...	...
1944	1,102,448	296,086	12,957	23,323	569,873	245,045	357	4,967	31,572	48,587	...	...
1945	1,497,062	516,380	9,258	17,775	533,883	250,925	425	6,130	62,201	79,668	...	...
1946	1,333,890	416,431	46,118	83,935	528,017	441,686	256	3,766	64,876	238,704	...	...
Total	...	**9,973,147**	**352,499**	**640,958**	**14,554,449**	**6,483,436**	...	...	...	...	...	...

(a) Total by kinds not available. Total values all kinds of stone: 1918, $238,251; 1919, $89,067; 1920, $374,286.

Historical Summary of the Mineral Production of Manitoba—Concluded

Year	Tellurium		Zinc		Other products
	pounds	$	pounds	$	$
1908					(a) 145,000
1909					
1910					
1911					
1912					
1913					
1914					
1915					
1916					
1917					
1918					
1919					294,493
1920					1,340,449
1921					2,179,341
1922					1,047,453
1923					
1924					
1925					
1926					
1927					
1928					
1929					
1930					
1931			3,882,141	139,757	
1932			35,173,749	898,338	
1933			41,736,600	1,004,016	
1934			43,516,037	1,397,082	
1935			47,264,342	1,438,538	
1936	340	680	51,129,980	1,584,513	
1937	3,928	6,953	36,744,951	1,218,095	
1938	5,124	8,865	36,221,314	1,775,569	
1939	4,454	7,661	46,864,575	1,440,148	
1940	(b)	(b)	40,302,747	1,236,891	
1941	(b)	(b)	35,103,373	1,197,376	
1942	(b)	(b)	34,879,239	1,189,731	
1943	361	578	29,908,179	1,020,168	
1944	(b)	(b)	46,783,873	1,871,355	(c) 1,690
1945	113	198	45,822,278	1,970,358	
1946	89	171	34,860,754	2,245,033	
	349	537	35,580,537	2,778,840	
Total	**14,758**	**25,643**	**645,774,669**	**24,405,808**	

(a) Includes building stone, etc.

(b) No commercial recovery reported by smelter; sometimes recovered by copper refiner but presumed not paid for.

(c) 128 pounds of thallium valued at $1,690.

NOTE.—In addition there were 177 pounds of tungsten concentrates valued at $42 shipped in 1918 and 1,399 pounds valued at $1,300 in 1942; 16 pounds valued at $16 in 1943.

Historical Summary of the Mineral Production of Saskatchewan

—	Cadmium		Clay Products (b)	Coal*		Copper		Gold (e)		Natural Gas		Petroleum	
	pounds	$	$	tons	$	pounds	$	fine oz.	$	M cu. ft.	$	barrels	$
1886			9,400										
1887			4,300	(d) 400	800								
1888			1,650										
1889			9,210										
1890			10,000	200	200								
1891			23,000										
1892			24,937	5,400	9,325								
1893				8,325	12,485								
1894				(c) 15,051	15,153								
1895				15,769	31,538								
1896				16,706	25,059								
1897				25,000	37,500								
1898				25,000	37,500								
1899				25,000	37,500								
1900				40,500	60,750								
1901				45,000	72,000								
1902			(a)	70,400	112,640								
1903			(a)	116,703	169,618								
1904			(a)	124,885	187,021								
1905			103,278	107,596	152,334								
1906			136,022	108,398	164,146								
1907			125,459	151,232	252,437								
1908			87,566	150,556	253,790								
1909			145,516	192,125	296,333								
1910			160,856	181,156	293,929								
1911			226,958	206,779	347,248								
1912			332,943	225,342	368,135								
1913			189,820	212,897	358,192								
1914			98,349	232,299	374,245								
1915			44,406	240,107	365,246								
1916			78,668	281,300	441,836								
1917			78,251	355,445	662,451								
1918			133,935	346,847	722,148								
1919			270,989	379,347	819,390								
1920			471,448	335,222	797,828								
1921			166,244	335,632	823,180								
1922			134,704	382,437	802,053								
1923			119,405	438,100	858,448								
1924			137,280	479,118	886,668								
1925			95,952	471,965	870,875								
1926			214,113	439,803	819,895								
1927			311,240	470,216	868,867								
1928			377,896	471,713	831,491								
1929			502,522	580,189	993,220								
1930			349,283	579,424	968,863								
1931			166,257	662,836	945,259								
1932			109,739	887,139	1,229,449			11	258				

Historical Summary of the Mineral Production of Saskatchewan—Continued

—	Cadmium		Clay Products (b)	Coal*		Copper		Gold (e)		Natural Gas		Petroleum	
	pounds	$	$	tons	$	pounds	$	fine oz.	$	M cu. ft.	$	barrels	$
1933	.....	.....	92,207	927,649	1,285,996	3,223,941	240,338	5,400	154,440	.....	.....	.....	.....
1934	.....	.....	90,997	909,288	1,241,130	6,618,913	491,077	5,405	186,472	13,781	4,823	.....	.....
1935	.....	.....	98,150	921,785	1,293,668	11,429,452	890,074	14,323	504,026	75,558	7,555	.....	.....
1936	111,749	99,457	95,584	1,020,792	1,463,680	14,971,609	1,418,859	48,981	1,715,895	90,839	33,985	.....	.....
1937	144,553	237,067	115,330	1,049,348	1,494,337	22,436,843	2,934,290	65,886	2,305,351	100,380	35,130	.....	.....
1938	73,630	59,166	118,713	1,022,166	1,380,416	18,156,157	1,810,532	50,021	1,759,489	90,285	34,136	.....	.....
1939	66,608	46,939	148,774	959,505	1,255,142	18,133,149	1,829,997	77,120	2,787,194	96,423	36,640	.....	.....
1940	71,594	83,264	164,828	1,007,517	1,408,540	20,484,954	2,066,112	102,925	3,962,613	100,773	30,232	.....	.....
1941	108,832	127,769	221,897	1,322,763	1,713,478	32,324,512	3,260,250	138,015	5,313,578	106,168	31,850	.....	.....
1942	147,314	173,831	271,325	1,301,116	1,769,065	56,781,466	5,726,979	178,871	6,886,533	117,124	45,585	.....	.....
1943	166,955	191,998	348,725	1,665,972	2,432,249	85,948,719	10,098,974	174,090	6,702,465	116,201	45,568	.....	.....
1944	119,639	131,693	339,997	1,372,766	2,034,914	73,514,499	8,821,740	122,782	4,727,107	119,116	46,656	.....	.....
1945	107,741	106,663	271,288	1,532,995	2,327,082	65,900,701	8,270,538	108,568	4,179,868	163,824	58,165	14,374	15,362
1946	102,923	125,566	411,446	1,523,786	2,544,923	62,712,954	8,027,258	112,101	4,119,712	209,569	61,740	118,686	135,990
Total	**1,221,538**	**1,383,323**	.....	**37,067,097**	**42,012,581**	**492,637,869**	**55,887,918**	**1,204,493**	**45,304,911**	**1,400,041**	**472,065**	**133,060**	**151,352**

* For the years 1919-1946 the tonnage shown is the total output from all mines; for previous years the figures given include only sales, colliery consumption, and coal used by the operators.

(a) See Manitoba.

(b) Includes production from Alberta 1886-1892.

(c) Includes a small quantity from Manitoba.

(d) From Turtle Mountain district, Manitoba.

(e) Complete data relating to recovery of placer gold are not available.

NOTE.—In 1907 there were produced 3,700 bush. of lime valued at $1,480; in 1912, 4,000 bush. valued at $1,440; and in 1913, 35,000 valued at $10,000.

In 1920 there were produced 2 tons magnesium sulphate, valued at $103; and in 1921, 2 tons valued at $120.

Historical Summary of the Mineral Production of Saskatchewan—Concluded

—	Quartz*		Salt		Sand and Gravel		Selenium		Silver		Sodium Sulphate	
	tons	$	tons	$	tons	$	pounds	$	fine oz.	$	tons	$
1911												
1912						255,453						
1913						236,377						
1914						222,019						
1915					111,919	38,206						
1916					328,116	60,079						
1917					943,970	112,275						
1918												
1919											15	450
1920											811	19,496
1921			33	790							623	18,850
1922					924,944	306,733					504	11,980
1923					438,319	59,541					733	10,189
1924					702,713	97,045					1,083	6,004
1925					579,901	88,805					3,876	10,380
1926					863,901	145,296					6,775	13,550
1927					1,517,801	263,100					5,659	11,319
1928					2,225,524	431,475					6,016	68,804
1929					3,496,679	687,646					5,018	64,112
1930					3,680,553	751,779					31,571	293,847
1931					1,388,594	396,707					44,957	421,097
1932					362,841	66,942			14	4	22,466	271,736
1933	59,506	59,506	231	4,510	104,400	19,731			114,604	43,358	50,080	485,416
1934	92,447	88,748	452	8,703	533,575	169,033	459	689	87,551	41,552	66,821	587,986
1935	77,177	59,069	101	2,046	502,732	171,170	19,567	37,569	201,608	130,622	44,817	343,704
1936	76,089	49,458			716,910	284,531	25,380	44,923	642,497	289,940	75,598	552,681
1937	95,809	33,533			822,447	470,343	28,080	48,578	821,818	368,840	79,804	617,548
1938	116,898	40,914			1,037,753	662,511	28,612	49,642	898,413	390,603	62,920	552,180
1939	134,192	46,967			1,913,995	408,199	(a)	(a)	1,141,600	462,211	71,455	627,985
1940	159,090	55,681			1,472,885	741,353	(a)	(a)	1,691,540	646,997	94,250	829,539
1941	148,208	51,873			1,220,801	406,835	29,091	55,564	2,047,164	783,266	115,600	931,522
1942	155,699	54,495			679,079	435,798	71,952	138,148	2,664,132	1,123,358	131,258	1,079,692
1943	163,102	57,086			1,288,263	583,687	70,276	122,983	2,812,624	1,272,825	107,121	1,025,151
1944	143,101	50,085			1,163,097	533,175	74,283	133,709	1,735,773	746,382	102,421	987,842
1945	141,799	52,544			1,237,595	563,276	41,209	79,121	1,426,457	670,435	93,068	884,322
1946	130,105	47,542			1,732,731	910,661	94,375	171,762	1,498,496	1,253,492	105,919	1,117,683
Total	**1,693,222**	**717,501**				**10,579,781**	**483,284**	**882,688**	**17,784,291**	**8,223,885**	**1,331,239**	**11,854,105**

* Low grade silica sand for fluxing purposes.
(a) No commercial recovery reported by smelter; sometimes recovered by copper refiner but presumably not paid for.

—	Tellurium		Volcanic Dust		Zinc		Other products
	pounds	$	tons	$	pounds	$	$
1908							(a) 71,856
1909							(a) 15,591
1910							(a) 43,349
1911							(a) 64,700
1912							
1913							
1914							
1915							
1916							
1917							
1918							158,572
1919							415,402
1920							491,718
1921							105,036
1922							
1923							
1924			245	1,103			
1925			160	1,380			
1926			90	630			
1927			105	735			
1928			485	9,795			
1929			300	6,000			
1930			242	4,840			
1931			128	2,560			
1932			180	3,600			
1933			118	2,360	2,789,683	89,563	
1934			1	20	2,162,938	65,831	
1935	102	204			8,974,720	278,126	
1936	1,964	3,476			27,692,869	918,019	
1937	3,276	5,667			32,750,910	1,605,449	
1938	2,206	3,794			29,962,597	920,751	
1939	(c)	(c)			37,278,001	1,144,062	
1940	(c)	(c)			44,452,595	1,516,278	(b) 165
1941	(c)	(c)			62,142,288	2,119,673	
1942	1,223	1,957			84,461,520	2,880,983	
1943	(c)	(c)	50	257	96,350,404	3,854,016	
1944	648	1,134			87,130,087	3,746,594	
1945	395	758			75,413,851	4,856,652	
1946	1,299	2,000			71,077,110	5,551,122	
Total	**11,113**	**18,990**	**2,164**	**33,280**	**662,639,573**	**29,547,119**	

(a) Includes sand-lime brick, etc. (b) 33 tons of grinding pebbles valued at $165 in 1940.
(c) No commercial recovery reported by smelter; sometimes recovered by copper refiner but presumably not paid for.

Historical Summary of the Mineral Production of Alberta

—	Bituminous Sands		Cement		Clay Products	Coal*		Gold		Lime	
	tons	$	barrels	$	$	tons	$	fine oz.	$	bushels	$
1886	...	...	...	...	...	43,220	81,112	...	...	...	...
1887	...	...	...	...	...	74,152	157,577	102	2,100	...	...
1888	...	...	...	...	...	115,124	183,354	58	1,200	...	...
1889	...	...	...	...	...	97,364	179,640	967	20,000	...	...
1890	...	...	...	...	...	128,753	198,298	193	4,000	...	...
1891	...	...	...	...	...	174,131	437,243	266	5,500	...	...
1892	...	...	...	...	...	178,970	460,605	508	10,506	...	...
1893	...	...	...	...	...	230,070	586,260	466	9,640	...	...
1894	...	...	...	...	...	184,940	473,827	726	15,000	...	...
1895	...	...	...	...	...	169,885	382,526	2,419	50,000	...	...
1896	...	...	...	...	...	209,162	581,832	2,661	55,000	...	...
1897	...	...	...	...	...	242,163	630,408	2,419	50,000	...	...
1898	...	...	...	...	...	315,088	787,720	1,209	25,000	...	...
1899	...	...	...	...	...	309,600	774,000	726	15,000	...	...
1900	...	...	...	...	...	311,450	778,625	242	5,000	...	...
1901	...	...	...	...	...	340,275	850,687	726	15,000	...	...
1902	...	...	...	...	...	402,819	960,601	484	10,000	...	...
1903	...	...	...	...	...	495,893	1,117,541	48	1,000	...	...
1904	...	...	...	...	...	661,732	1,404,524	24	500	...	...
1905	...	...	...	...	191,287	931,917	1,993,915	121	2,500	...	...
1906	...	...	...	...	180,217	1,246,360	2,614,762	39	800	240,000	56,200
1907	...	...	...	...	353,672	1,591,579	3,836,286	33	675	173,040	41,225
1908	...	...	...	...	240,384	1,685,661	4,127,311	50	1,037	135,000	34,500
1909	...	...	...	...	442,486	1,994,741	4,838,109	25	525	281,125	67,350
1910	...	...	323,009	774,473	753,232	2,894,469	7,065,736	89	1,850	303,214	69,268
1911	...	...	512,176	1,241,535	1,052,751	1,511,036	3,979,264	10	207	434,038	100,407
1912	...	...	821,165	1,775,898	1,356,184	3,240,577	8,113,525	73	1,509	704,035	166,520
1913	...	...	956,169	1,947,933	893,408	4,014,755	10,418,941	...	...	465,259	115,355
1914	...	...	641,395	1,212,342	462,199	3,683,015	9,350,392	48	992	280,252	58,321
1915	...	...	233,648	415,009	115,696	3,360,818	8,283,079	195	4,026	74,152	14,445
1916	...	...	275,727	477,832	225,140	4,559,054	11,386,577	82	1,695	78,019	20,033
1917	...	...	259,423	567,969	309,991	4,736,368	14,153,685	...	...	104,540	35,516
1918	...	...	200,401	528,672	381,074	5,972,816	20,537,287	27	558	80,408	44,141
1919	...	...	(c)	(c)	571,949	4,933,660	18,205,205	24	500	109,067	41,276
1920	...	...	(c)	(c)	786,430	6,907,765	30,186,933	...	...	139,433	72,477
1921	...	...	(c)	(c)	710,477	5,909,217	27,246,514	49	1,013	107,083	48,332
1922	...	...	358,209	838,208	700,063	5,990,911	24,351,913	...	...	130,627	71,328
1923	...	...	318,756	740,940	590,565	6,854,397	28,018,303	...	...	87,753	37,999
1924	531	2,127	416,534	945,700	540,477	5,189,729	18,884,318	...	...	90,214	36,279
1925	1,148	4,594	395,857	913,529	618,860	5,869,031	20,021,484	...	...	98,938	39,852
1926	528	2,112	423,766	873,621	804,933	6,503,705	20,886,103	...	...	108,309	39,517
1927	2,706	10,824	601,699	1,303,880	889,358	6,934,162	21,982,058	42	868	130,596	46,947
1928	94	374	834,067	1,732,582	1,162,264	7,336,330	25,532,414	68	1,406	190,629	69,588
1929	989	3,956	808,796	1,770,786	1,342,427	7,150,693	22,928,182	5	103	219,457	79,569
1930	2,067	8,268	525,289	1,144,160	997,685	5,755,528	18,063,225	...	...	146,743	49,525
1931	1,015	4,060	626,483	1,286,080	529,716	4,564,015	13,342,675	195	4,205	146,229	46,785
1932	343	1,372	493,571	399,922	329,584	4,870,648	13,526,309	83	1,949	189,771	56,577
1933	466	1,662	149,206	299,530	198,373	4,718,788	12,307,258	324	9,267	214,314	62,037
1934	862	3,449	163,946	326,253	246,677	4,753,810	12,556,099	393	13,558	213,000	65,697
1935	40	160	219,555	436,914	326,679	5,462,894	14,094,705	150	5,279	188,114	57,108
1936	...	...	243,534	482,197	315,777	5,696,960	14,659,705	109	3,818	260,829	78,259
1937	35	142	267,106	531,541	338,638	5,562,839	14,563,911	46	1,610	304,314	93,478
1938	(d)	(d)	304,373	611,790	377,337	5,254,233	13,698,470	305	10,728	344,371	107,012
1939	(d)	(d)	377,846	744,357	461,079	5,519,208	14,415,281	359	12,974	357,115	108,632
1940	(d)	(d)	414,183	832,508	838,856	6,203,839	16,377,959	215	8,277	482,057	149,720
1941	(d)	(d)	492,515	985,030	952,144	6,969,962	19,382,471	215	8,277	512,857	151,296
1942	(d)	(d)	668,043	1,307,353	1,013,497	7,754,053	22,624,410	34	1,309	537,743	155,760
1943	(d)	(d)	606,703	1,176,442	978,649	7,676,726	24,030,686	21	808	520,428	149,455
1944	(d)	(d)	699,989	1,370,502	1,143,577	7,428,708	26,814,937	51	1,963	538,629	159,957
1945	(d)	(d)	620,337	1,246,346	1,401,875	7,800,151	27,751,377	7	269	567,286	169,322
1946	(d)	(d)	809,721	1,635,222	1,808,971	8,826,239	33,339,579	110	4,042	679,571	204,926
Total	...	...	...	...	**27,934,638**	**220,503,158**	**691,517,823**	**17,841**	**463,043**	**10,968,550**	**3,271,991**

(c) Included in other products.

(d) Now included under petroleum.

* For the year 1919-1946 the tonnage shown is the total output for all mines; for previous years the figures recorded include only sales, colliery consumption and coal used by operators.

Historical Summary of the Mineral Production of Alberta—Continued

—	Natural Gas		Petroleum		Salt		Sand and Gravel		Silver*	
	M cu. ft.	$	barrels	$	tons	$	tons	$	fine oz.	$
1903	.....	5,675	.....	.....	.....	.....	.....	.....	.....	.....
1904	.....	74,852	.....	.....	.....	.....	.....	.....	.....	.....
1905	.....	63,085	.....	.....	.....	.....	.....	.....	.....	.....
1906	.....	50,077	.....	.....	.....	.....	.....	.....	.....	.....
1907	.....	68,533	.....	.....	.....	.....	.....	.....	.....	.....
1908	.....	63,363	.....	.....	.....	.....	.....	.....	.....	.....
1909	.....	61,722	.....	.....	.....	.....	.....	.....	.....	.....
1910	.....	75,168	.....	.....	.....	.....	.....	.....	.....	.....
1911	.....	110,165	.....	.....	.....	.....	.....	.....	.....	.....
1912	.....	289,906	.....	.....	.....	.....	.....	148,704	.....	.....
1913	7,174,490	1,079,466	.....	.....	.....	.....	.....	265,165	.....	.....
1914	7,172,157	1,214,670	387	2,200	.....	.....	.....	273,115	.....	.....
1915	4,481,947	1,022,814	(a)	(a)	.....	.....	390,617	47,197	.....	.....
1916	6,904,231	1,113,296	(a)	(a)	.....	.....	467,500	67,142	.....	.....
1917	6,744,130	1,299,976	8,500	63,302	.....	.....	709,745	71,216	.....	.....
1918	6,318,389	1,358,638	13,040	100,004	.....	.....	(b)	(b)	.....	.....
1919	8,230,838	1,365,127	16,437	97,841	.....	.....	(b)	(b)	.....	.....
1920	5,633,442	1,181,345	11,032	75,986	.....	.....	(b)	(b)	.....	.....
1921	4,945,884	1,374,599	7,203	49,313	.....	.....	(b)	(b)	.....	.....
1922	5,868,439	1,622,105	6,559	52,128	.....	.....	1,139,961	229,091	.....	.....
1923	7,191,670	1,692,246	1,943	8,227	.....	.....	888,216	199,256	.....	.....
1924	7,131,086	1,796,618	844	4,135	.....	.....	615,594	115,969	.....	.....
1925	9,119,500	2,752,545	183,491	845,394	.....	.....	534,892	107,436	.....	.....
1926	10,794,697	3,019,221	216,050	902,504	833	8,304	1,754,965	412,430	.....	.....
1927	13,434,621	3,586,533	318,741	1,185,948	2,037	22,696	1,392,752	293,674	4	3
1928	14,288,605	3,754,466	482,047	1,764,172	100	1,300	2,575,708	489,406	7	4
1929	19,112,931	4,684,247	988,675	3,458,177	.....	.....	1,721,930	447,993	.....	.....
1930	20,748,583	4,929,226	1,398,160	4,780,696	.....	.....	1,626,989	433,221	.....	.....
1931	17,798,698	4,067,893	1,413,631	3,976,220	.....	.....	1,050,988	313,616	29	9
1932	15,370,968	3,853,794	906,751	2,751,541	.....	.....	734,067	250,025	9	3
1933	15,352,811	3,886,263	995,832	2,844,157	.....	.....	281,122	85,577	32	12
1934	14,841,491	3,707,276	1,253,966	3,104,823	.....	.....	650,232	166,898	35	17
1935	16,000,349	4,113,436	1,263,510	3,102,227	.....	.....	653,511	146,092	16	10
1936	17,407,820	4,376,720	1,312,368	3,019,930	.....	.....	894,380	339,928	9	4
1937	20,955,506	4,766,437	2,749,085	4,961,002	.....	.....	711,966	312,687	4	2
1938	21,822,108	4,807,346	6,751,312	8,775,094	4,045	46,035	792,760	525,175	23	10
1939	22,513,660	4,915,821	7,576,932	9,362,363	3,319	37,526	817,168	619,105	32	13
1940	27,459,808	4,923,469	8,362,203	10,694,394	6,742	185,430	1,722,465	1,069,667	20	8
1941	30,905,440	5,175,364	9,918,577	13,985,906	16,617	260,995	956,484	433,504	21	8
1942	34,482,585	6,146,146	10,117,073	15,514,665	22,360	335,960	481,644	218,914	2	1
1943	35,569,078	6,241,815	9,601,530	15,724,518	17,490	280,124	626,157	309,389	1	.....
1944	37,161,570	6,339,817	8,727,366	14,468,061	25,335	397,646	833,524	328,151	4	2
1945	40,393,061	7,095,910	7,979,786	13,169,692	29,421	430,048	919,736	433,436	1	.....
1946	40,097,096	7,184,006	7,137,921	14,347,933	31,769	441,835	1,812,468	1,060,703	12	10
Total	.....	**121,311,197**	**89,720,952**	**153,192,553**	**160,077**	**2,447,899**	.....	.....	.....	.....

* Data not available prior to 1927.

(a) Small output but no record.

(b) Included with other products

Historical Summary of the Mineral Production of Alberta—Concluded

—	Sodium Sulphate		Limestone		Sandstone		Other products
	tons	$	tons	$	tons	$	$
1908							(d) 690,410
1909						90,383	(c) 614,222
1910						240,858	(b) 84,893
1911						158,344	
1912						81,391	
1913				20,000		136,984	
1914						60,272	2,200
1915						890	
1916				257			
1917				672		6,810	† 2,695
1918			(a)	(a)	(a)	(a)	152,444
1919			(a)	(a)	(a)	(a)	702,999
1920			(a)	(a)	(a)	(a)	1,575,569
1921					2,962	13,750	1,118,231
1922					554	7,300	
1923							
1924			16,418	16,762	280	2,555	
1925			3,979	6,868			
1926			3,545	5,826	214	8,064	
1927			3,367	7,830			
1928			4,852	15,240	158	9,500	
1929			4,975	12,046	208	12,500	
1930			7,786	17,236	117	4,500	
1931			2,429	5,842	67	3,800	
1932			1,428	2,985			
1933			1,472	4,317	78	4,500	
1934			2,737	8,104			
1935			2,242	6,981			
1936			13,876	26,188	40	3,200	
1937	80	480	13,182	24,935	43	2,254	
1938	89	1,127	1,691	6,148			
1939	30	186	2,888	8,166	155	5,314	(e) 800
1940	10	50	3,981	11,999			
1941	8	32	7,942	24,303			(f) 5,005
1942			12,028	40,436			(f) 1,380
1943			13,961	47,899			(f) 1,425
1944			12,726	43,049			
1945			13,528	54,962			
1946			13,417	55,286			
Total							

† Includes a small value for copper, zinc and silver.

(a) Data by kinds not available; total values of all kinds of stone produced were: 1918-$569; 1919-$3,189; 1920-$4,415.

(b) Includes lime and sand-lime brick.

(c) Includes cement, lime, etc.

(d) Includes cement, lime, stone, etc.

(e) Marble: 1939-5 tons valued at $800.

(f) Peat moss: 1942-58 tons valued at $1,380; 1941-421 tons at $5,055; 1943-55 tons valued at $1,425. In previous years included under manufacture.

Historical Summary of the Mineral Production of British Columbia

—	Antimony		Arsenic		Bismuth		Cadmium		Cement		Chromite		Clay Products
	lb.	$	lb.	$	lb.	$	lb.	$	barrels	$	tons	$	$
1886													41,150
1887													19,480
1888													42,532
1889													62,317
1890													67,201
1891													79,475
1892													129,234
1893													*
1894													*
1895													*
1896													*
1897													*
1898													100,000
1899													109,000
1900													105,000
1901													101,996
1902													76,313
1903													152,748
1904													158,874
1905													98,880
1906													123,277
1907	63,850	5,108											306,737
1908													344,446
1909	61,207	4,285											470,402
1910													562,360
1911									401,000	601,500			675,505
1912									511,539	767,038			996,568
1913									574,258	980,560			684,909
1914									491,151	833,606			413,909
1915									309,436	526,042			229,763
1916		13,003							285,679	436,459			292,698
1917			260,000	11,200					207,587	438,009			334,685
1918			2,156,000	43,114					106,415	283,497	670	31,395	357,921
1919			1,060,000	21,218					†				293,478
1920			1,256,000	22,231					†				596,172
1921									†				415,869
1922			1,036,000	21,097					391,090	1,173,270			447,452
1923			1,217,970	41,780					795,637	1,302,482			426,138
1924			495,250	19,768					472,327	1,240,331			460,594
1925			1,277,696	16,978					485,185	1,151,344			523,931
1926			1,019,200	11,262					544,863	1,239,018			592,495
1927			1,231,790	13,611					523,931	1,182,552			679,788
1928			1,334,997	14,993			491,894	341,374	670,796	1,495,204			706,039
1929			1,487,175	16,433	166,883	283,701	773,976	675,294	680,907	1,487,223	126	900	866,427
1930			1,773,333	19,595			456,582	337,871	721,044	1,489,233			687,516
1931					110,876	154,118	323,139	180,958	578,636	1,172,549			498,505
1932					57	51	65,425	26,824	253,112	536,528			216,355
1933					70,723	77,795	246,041	78,733	115,286	225,342			174,205
1934					246,092	297,771	293,611	95,665	122,345	232,009			194,437
1935					6,718	6,449	580,530	441,203	167,226	314,116			216,636
1936					360,613	357,007	526,034	468,170	281,549	516,931			280,891
1937							436,431	715,747	344,072	623,725			349,640
1938							510,342	410,090	335,488	626,731			365,132
1939	1,224,385	151,321			409,449	466,362	799,253	563,241	272,679	520,420			371,140
1940	2,594,492	396,468			40,740	56,384	778,791	905,734	363,366	704,567			520,883
1941	3,185,077	445,911			12	17	1,081,374	1,269,533	501,945	986,322			558,426
1942	3,041,030	516,975	(a) 7,114,751	71,148	345,223	476,408	972,413	1,147,447	571,945	1,198,014			560,746
1943	1,114,166	189,408	(b)	(b)	407,597	562,484	598,673	688,474	534,769	1,146,865			495,163
1944	1,937,933	281,000	(b)	(b)	123,875	154,844	386,410	425,051	512,594	1,085,918			486,626
1945	1,667,951	290,557	(b)	(b)	189,815	260,047	510,432	505,328	558,575	1,182,297			661,955
1946	642,145	96,322	(b)	(b)	234,020	327,678	636,315	776,304	771,955	1,739,966			859,645
Total					**2,712,693**	**3,481,116**	**10,467,666**	**10,053,041**	**14,458,387**	**29,439,668**	**796**	**32,295**	

(a) Arsenic content of gold ores exported; arsenic content not paid for.

* Data not available by provinces.

† Included with other products.

(b) Arsenic is contained in exported ores, but it is not paid for and data relating to its recovery are unobtainable.

Historical Summary of the Mineral Production of British Columbia—Continued

—	Coal (a)		Copper		Diatomite		Fluorspar		Gold	
	tons	$	lb.	$	tons	$	tons	$	fine oz.	$
1858									34,104	705,000
1859									78,129	1,615,072
1860									107,806	2,228,543
1861									128,973	2,666,118
1862									128,528	2,656,903
1863									189,318	3,913,563
1864									180,722	3,735,859
1865									168,887	3,491,205
1866	(b) 214,410	765,748							128,779	2,662,105
1867	34,988	124,956							120,012	2,480,848
1868	49,286	176,020							114,792	2,372,972
1869	40,098	143,208							85,865	1,774,978
1870	33,424	119,372							64,675	1,336,956
1871									87,048	1,799,440
1872	166,274	593,836							77,931	1,610,972
1873									63,166	1,305,749
1874	90,788	243,183							89,233	1,844,618
1875	109,361	292,932							119,724	2,474,904
1876	157,007	420,555							86,429	1,786,648
1877	156,455	419,076							77,796	1,608,182
1878	213,750	572,544							61,688	1,275,204
1879	260,277	697,170							62,407	1,290,058
1880	305,045	817,086							49,044	1,013,827
1881	257,056	688,542							50,636	1,046,737
1882	323,204	805,716							46,154	954,085
1883	240,075	643,059							38,422	794,252
1884	441,130	1,181,598							35,612	736,165
1885	372,987	999,072							34,527	713,738
1886	375,415	1,005,576							43,714	903,651
1887	486,142	1,302,165							33,558	693,709
1888	539,467	1,445,001							29,834	616,731
1889	636,439	1,704,747							28,489	588,923
1890	767,586	2,056,035							23,918	494,436
1891	1,130,227	3,027,528							20,792	429,811
1892	937,218	2,510,406							19,327	399,525
1893	1,093,980	2,930,304							18,360	379,535
1894	1,112,628	2,980,254	*324,680	31,039					25,664	530,530
1895	1,058,045	2,834,049	*952,840	102,526					61,289	1,266,954
1896	1,003,769	2,688,666	*3,818,556	415,459					86,504	1,788,206
1897	1,019,390	2,730,510	*5,325,180	601,213					131,805	2,724,657
1898	1,263,080	3,384,858	*7,271,678	874,783					142,215	2,939,852
1899	1,431,101	3,833,307	*7,722,591	1,359,948					203,295	4,202,473
1900	1,791,833	4,799,553	*9,977,080	1,615,289					228,916	4,732,105
1901	1,919,488	5,141,487	*27,603,746	4,448,896					257,292	5,318,703
1902	1,808,441	4,844,040	*29,636,057	3,445,488					288,383	5,961,409
1903	1,676,583	4,490,844	*34,359,921	4,547,735					284,108	5,873,036
1904	1,862,625	4,989,174	*35,710,128	4,579,110					275,975	5,704,908
1905	1,945,452	5,211,030	*37,692,251	5,876,222					285,529	5,902,402
1906	2,146,262	5,748,915	*42,990,488	8,287,706					269,886	5,579,039
1907	2,364,898	7,390,306	*40,832,720	8,168,177					236,216	4,883,020
1908	2,333,708	7,292,838	37,041,115	4,892,390					286,858	5,929,880
1909	2,606,127	8,144,347	35,658,952	4,629,245					250,320	5,174,579
1910	3,330,745	10,408,580	35,270,006	4,492,693					261,386	5,403,318
1911	2,542,532	7,945,413	35,279,558	4,366,198					238,496	4,930,145
1912	3,208,997	10,028,116	50,526,656	8,256,561					251,815	5,205,485
1913	2,714,420	8,482,562	45,791,579	6,991,916					207,459	6,149,027
1914	2,239,799	6,999,374	41,219,202	5,606,636					252,730	5,224,393
1915	2,055,613	6,455,041	56,692,988	9,793,714					273,376	5,651,184
1916	2,584,061	8,075,190	63,642,550	17,312,046					219,633	4,540,216
1917	2,433,888	8,235,716	57,730,959	15,691,275					133,742	2,764,693
1918	2,568,580	11,494,681	62,865,681	15,482,560			175	5,250	180,163	3,724,300
1919	2,649,516	13,512,532	44,502,079	8,317,884			1,638	38,556	167,252	3,457,406
1920	3,085,011	18,105,814	45,319,771	7,911,019			7,477	171,971	124,898	2,580,010
1921	2,896,291	15,676,774	34,447,127	4,306,580			5,403	134,523	150,792	3,117,147
1922	2,927,033	14,622,317	31,936,182	4,273,700			4,219	98,233	207,370	4,286,718
1923	2,823,306	13,813,520	55,224,737	7,963,959			75	1,135	200,140	4,137,261
1924	2,193,667	10,601,998	65,451,246	8,524,370					245,719	5,079,402
1925	2,742,252	11,720,373	69,221,600	9,720,097			3,874	19,034	219,227	4,531,824
1926	2,613,719	10,612,915	89,108,017	12,292,450					225,866	4,669,065
1927	2,746,243	10,934,777	91,686,297	11,845,870					183,094	3,784,889
1928	2,804,594	11,094,353	102,283,210	14,902,864	160	4,800			196,617	4,064,434
1929	2,490,378	10,160,789	103,903,738	18,772,778	175	5,250	17,800	267,000	154,204	3,187,680
1930	2,083,818	8,421,572	93,318,885	12,114,657	146	5,147			164,331	3,397,023
1931	1,876,406	7,150,996	65,223,348	5,459,194	66	2,270			160,069	3,451,865
1932	1,681,490	6,392,801	50,580,104	3,227,111	47	440			199,004	4,672,429
1933	1,382,272	5,306,287	43,146,724	3,216,502	14	410			238,995	6,835,257
1934	1,485,969	5,351,108	48,246,924	3,579,583	6	190			296,196	10,218,762
1935	1,331,287	5,043,510	38,478,043	2,999,525	57	1,880			391,633	13,781,565
1936	1,489,171	5,493,425	21,169,343	2,006,219	10	350			451,938	15,831,358
1937	1,598,843	5,893,849	45,797,988	5,989,461	324	1,346			505,857	17,699,996
1938	1,440,287	5,237,077	65,759,265	6,557,514	14	362			605,617	21,302,573
1939	1,537,905	5,464,061	73,253,408	7,392,734	17	447			626,970	22,659,322
1940	1,867,846	6,157,250	77,742,582	7,841,117	7	171			617,011	23,754,928
1941	2,020,844	6,492,672	66,327,166	6,689,758	105	2,625			608,203	23,415,816
1942	2,168,541	7,566,822	50,015,521	5,044,565	147	2,547	1,559	25,498	474,339	18,262,0[illegible]
1943	2,039,402	7,648,720	42,222,205	4,961,109	16	866			241,346	9,291,821
1944	2,134,231	9,009,506	36,302,628	4,356,315	8	262			196,857	7,578,904
1945	1,699,768	7,137,859	25,751,252	3,231,782	22	498			186,854	7,193,879
1946	1,636,792	7,153,330	17,500,538	2,240,068	41	1,027			136,242	5,006,8[illegible]
Total	**119,905,640**	**432,121,093**	**2,399,857,030**	**337,607,410**	**1,182**	**30,888**	**42,220**	**761,200**	**16,328,005**	**425,755,919**

NOTE.—In 1928, 1,730 pounds of cobalt were produced, valued at $420.

* Metal content of ores shipped as published by British Columbia Department of Mines.

(a) The tonnage shown for 1919-1946, inclusive, is, the total output from all mines. For previous years the figures include liery consumption and coal used by operators. (b) 1833-1866, inclusive.

Historical Summary of the Mineral Production of British Columbia—Continued

—	Gypsum		Iron Ore		Iron Oxides		Lead		Lime		Magnesium Sulphate	
	tons	$	tons	$	tons	$	lb.	$	bushels	$	tons	$
1886			3,941						4,000	2,500		
1887			2,796				204,800	9,216	10,080	2,888		
1888			8,372				674,500	29,813	13,000	3,900		
1889			15,487				165,100	6,488	60,000	15,200		
1890									30,000	8,000		
1891			950									
1892			2,300				808,420	33,004				
1893			1,325				2,131,092	79,490				
1894			1,120				5,703,222	187,636				
1895			1,222				16,461,794	531,716				
1896			196				24,199,977	721,159				
1897			2,009				38,841,135	1,390,513				
1898			280				31,693,559	1,198,017				
1899			2,071				21,862,430	977,250				
1900			1,110				63,158,621	2,760,031				
1901			7,000				51,582,906	2,235,603				
1902			10,019				22,536,381	917,005				
1903			2,290				18,089,283	766,443				
1904							36,646,244	1,579,086				
1905							56,580,703	2,663,254				
1906							52,408,217	2,964,733	106,192	26,694		
1907			2,500				47,738,703	2,542,086	159,963	49,847		
1908							43,195,733	1,814,221	176,435	44,027		
1909							45,857,424	1,692,139	231,269	75,076		
1910							32,987,508	1,216,249	196,878	72,657		
1911	780	1,875					23,784,969	827,717	351,014	117,756		
1912							35,763,476	1,597,551	517,329	181,905		
1913	200	1,300					37,626,899	1,753,037	362,571	115,365		
1914							36,289,845	1,625,422	151,689	56,767		
1915							45,377,064	2,541,116	152,237	49,725		
1916							39,157,701	3,333,496	194,042	66,301		
1917	10	20					29,483,725	3,283,602	232,955	58,007	929	4,645
1918			2,200	6,600			47,594,328	4,402,475	401,562	143,697	1,949	14,505
1919			1,200				40,060,113	2,790,587	351,253	187,963	738	9,115
1920			1,212	7,272			32,792,725	2,931,670	561,305	341,632	1,947	39,886
1921	40	100	1,010	3,030	169	845	60,298,603	3,462,346	199,341	252,630	2,029	39,506
1922	100	500	1,255	3,528	3	120	87,093,266	5,430,265	516,830	284,641	1,021	24,017
1923	323	1,615	243	1,215	513	6,450	95,541,818	7,146,107	690,971	388,494	121	6,580
1924	30	150	28		120	2,620	168,407,628	13,652,617	636,348	370,829		
1925	240	865			133	2,740	242,454,592	22,111,850	649,858	364,435		
1926	20,916	156,964			108	920	266,812,461	18,012,509	728,633	416,882		
1927	24,493	201,754			194	1,350	292,770,544	15,388,020	688,890	376,683		
1928	20,982	229,843			136	1,815	317,722,146	14,537,377	1,004,257	473,996		
1929	24,696	243,814			298	2,000	307,999,153	15,555,189	1,131,171	510,592		
1930	32,128	248,458			6	120	321,803,725	12,637,232	1,043,343	335,057		
1931	20,544	170,173			110	1,000	261,902,236	7,097,812	852,171	277,209		
1932	10,728	84,084			223	2,000	252,007,571	5,326,432	490,057	160,001		
1933	5,107	46,094			165	1,485	263,345,776	6,298,178	591,914	162,928	120	3,360
1934	9,661	48,081			161	1,600	344,467,138	8,392,597	562,486	153,856	42	1,100
1935	7,618	52,335			159	1,887	336,784,326	10,552,059	457,257	99,960	340	7,965
1936	14,078	77,258			396	4,000	376,645,367	14,738,133	690,257	131,785	654	13,712
1937	15,764	108,478			580	6,090	403,589,913	20,623,445	792,543	154,037	727	14,456
1938	17,451	100,080			434	4,590	413,706,307	13,834,339	561,571	174,161	470	9,400
1939	18,150	100,643			550	5,917	378,440,666	11,992,781	652,886	197,259	550	9,900
1940	19,987	120,043			376	3,948	466,849,112	15,695,467	811,086	234,534		
1941	23,862	141,320			275	2,884	456,840,454	15,358,976	1,014,343	244,051	265	7,343
1942	23,313	146,154			418	4,604	507,199,704	17,052,054	888,686	236,904	1,140	38,760
1943	24,412	148,348			403	4,836	439,155,635	16,485,902	1,087,056	305,421		
1944	24,222	103,927			482	8,200	292,922,888	13,181,530	1,251,971	389,896		
1945	23,617	70,052			397	1,985	336,976,468	16,818,823	1,451,114	467,588		
1946	47,049	387,404			427	5,867	345,862,680	23,345,731	1,402,143	570,252		
Total	**431,101**	**2,997,620**			**7,256**	**79,553**	**9,023,118,693**	**396,159,662**	**25,108,957**	**9,317,908**	**13,042**	**244,310**

NOTE.—There was a production of 803 tons of magnesite, valued at $7,211 in 1921; and in 1916, 635 tons, valued at $9,525. Also in 1941, 10,905 pounds of magnesium metal in powder form were produced from B.C. magnesite, at Trail, valued at $2,944; the corresponding output in 1942 was 193,727 pounds at $85,240.

Historical Summary of the Mineral Production of British Columbia—Continued

—	Barite		Manganese Bog		Mercury (a)		Mica*		Mineral Waters	Natro-Alunite		Phosphate	
	tons	$	tons	$	lb.	$	lb.	$	$	tons	$	tons	$
1895					71	2,343							
1896					58	1,940							
1897					9	324							
1907					flasks(a)								
1909													
1910													
1911									4,000				
1912									3,500				
1913									4,200				
1914									4,800				
1915									2,330				
1916									1,400				
1917									1,250				
1918			440	6,230					1,382				
1919			616	10,559					1,455				
1920			587	6,889					1,890				
1921													
1922										30	1,500		
1923										50	2,500		
1924										15	750		
1925													
1926										20	1,000		
1927													
1928										7	248	38	494
1929			1	30								550	7,150
1930												1,145	4,580
1931													
1932													
1933													
1934							46,000	853				2,109	4,670
1935							114,000	2,045					
1936													
1937													
1938					760	760	96,250	1,562					
1939					436	1,226	(b)	(b)					
1940	8	80			153,830	369,317	160,000	2,600					
1941	228	1,140			536,304	1,335,697	296,000	3,678					
1942	1,917	16,084			1,035,914	2,943,807	562,000	9,061					
1943	1,924	15,831			1,600,240	4,559,200	710,000	11,821					
1944	12,613	52,922			735,908	1,210,375	942,000	15,382					
1945	31,155	45,780					1,284,000	17,136					
1946	2,728	19,000					1,615,500	23,420					
Total	**50,573**	**150,840**	**1,644**	**23,708**		**10,424,989**			**26,117**	**122**	**5,998**	**3,842**	**16,894**

(a) 1895-1897—recorded as flasks, 1897 to 1906 no production; 1908—no production. (b) Not published.

* 1899—Production valued at $525 included in Dominion total as Ontario and Quebec.

NOTE.—1937—Nickel production valued at $37,753; and in 1936 a relatively small tonnage of nickel ore exported; no data available.

1918—Molybdenite production of 1,600 pounds, valued at $1,840; 1917—3,705 pounds, valued at $3,705 and in 1916 production valued at $13,003, including antimony. In 1942 there were 4,887 pounds of molybdenite concentrates valued at $2,907 shipped to the Quyon plant, Quebec, from an old stock pile in Renfrew county, Ontario.

Historical Summary of the Mineral Production of British Columbia—Continued

—	Platinum		Other Platinum Metals (Palladium, Rhodium, etc.)		Quartz		Sand and Gravel		Silver		Sodium Carbonate		Tungsten Concentrates	
	fine oz.	$	fine oz.	$	tons	$	tons	$	fine oz.	$	tons	$	pounds	$
1887		5,600							17,690	17,301				
1888		6,000							79,780	74,993				
1889		3,500							53,192	49,787				
1890		4,500							70,427	73,666				
1891		10,000							3,306	3,266				
1892		3,500							77,160	67,592				
1893		1,800								195,000				
1894		950							746,379	470,219				
1895		3,800							1,496,522	976,930				
1896		750							3,135,343	2,102,561				
1897		1,600							5,472,971	3,272,289				
1898		1,500							4,292,401	2,500,753				
1899		825							2,939,413	1,751,302				
1900									3,958,175	2,427,548				
1901		457							5,151,333	3,036,711				
1902		190							3,917,917	2,043,586				
1903									2,996,204	1,601,471				
1904		420							3,222,481	1,843,935				
1905		500							3,439,417	2,075,757				
1906									2,990,262	1,997,226				
1907									2,745,448	1,793,519				
1908									2,631,389	1,391,058				
1909									2,649,141	1,364,387				
1910									2,407,887	1,287,883				
1911									1,887,147	1,005,924				
1912								385,946	2,651,002	1,612,737				
1913	18	489						180,863	3,312,343	1,980,483				
1914								391,731	3,159,897	1,731,971				
1915	23	1,063			30,559	61,118	868,240	256,454	3,565,852	1,771,658				
1916	15	600			41,077	82,154	578,424	230,197	3,392,872	2,227,794				
1917	57	3,823			37,755	132,143			2,655,994	2,162,430				
1918	39	2,560			49,886	149,658			3,921,336	3,794,755				
1919	25	2,150			32,715	340,313			3,713,537	4,126,556				
1920	17	719			35,876	141,200			3,327,028	3,356,971				
1921	23	1,726			22,288	62,317			3,350,357	2,099,133	197	14,775		
1922	12	1,154			17,425	37,521	960,251	304,071	7,150,937	4,828,384	202	3,027		
1923	7	816			25,590	47,029	434,194	266,119	6,113,327	3,965,899	265	3,975		
1924	5	569			21,358	43,034	1,105,459	344,937	8,153,003	5,444,657	510	5,173		
1925	6	715			553	2,262	1,415,232	446,896	8,579,458	5,925,403	1,120	8,140		
1926	50	4,258			6,466	77,060	1,485,254	357,985	10,625,816	6,599,376	595	5,370		
1927	11	960			20,859	80,824	1,379,143	342,021	11,040,445	6,223,499	805	9,995		
1928	80	4,549	520	22,270	16,017	43,876	2,334,270	529,669	10,943,267	6,366,413	519	4,922		
1929	45	2,828	177	6,836	9,642	45,947	2,425,996	665,132	10,156,408	5,382,185	600	8,100		
1930	24	1,089	52	1,356	1,095	5,291	2,494,743	819,739	11,825,930	4,512,065	364	4,550		

Historical Summary of the Mineral Production of British Columbia—Continued

—	Platinum		Other Platinum Metals (Palladium, Rhodium, etc.)		Quartz		Sand and Gravel		Silver		Sodium Carbonate		Tungsten Concentrates	
	fine oz.	$	fine oz.	$	tons	$	tons	$	fine oz.	$	tons	$	pounds	$
1931	50	1,783	.....	.....	519	1,297	2,726,704	914,322	8,061,599	2,408,000	712	7,351	.....	.....
1932	59	2,372	.....	.....	15,621	8,435	1,487,513	525,604	7,293,462	2,309,958	495	5,450	.....	.....
1933	40	1,400	.....	.....	22,668	17,681	961,672	332,962	6,737,057	2,548,817	559	5,773	.....	.....
1934	53	2,051	.....	.....	24,847	13,990	958,149	335,142	8,729,721	4,143,204	244	1,920	.....	.....
1935	39	1,275	.....	.....	11,056	4,771	1,381,720	481,620	9,178,400	5,946,677	242	2,430	.....	.....
1936	20	809	.....	.....	146	788	1,753,415	596,796	9,748,715	4,399,303	192	1,677	.....	.....
1937	22	1,006	.....	.....	.....	.....	1,648,963	733,935	11,539,177	5,174,859	286	2,574	.....	.....
1938	16	515	.....	.....	.....	.....	2,211,682	751,491	11,186,563	4,863,582	252	2,268	.....	.....
1939	25	877	.....	.....	.....	.....	2,284,995	870,268	10,648,031	4,311,175	300	2,400	8,825	4,917
1940	24	938	.....	.....	.....	.....	2,087,878	809,075	11,885,556	4,546,106	220	1,760	2,352	1,387
1941	60	2,293	.....	.....	631	1,579	2,960,924	1,151,322	11,233,788	4,298,160	186	1,488	34,495	21,453
1942	40	1,528	.....	.....	815	2,037	2,599,861	1,091,202	10,596,204	4,467,996	256	2,048	250,930	228,500
1943	7	270	.....	.....	38,562	77,124	2,257,784	877,413	8,995,488	4,070,818	468	5,148	976,622	692,260
1944	.....	.....	.....	.....	24,682	73,156	4,357,362	1,194,859	5,631,572	2,421,576	44	484	818,000	236,788
1945	.....	.....	.....	.....	.....	.....	3,721,240	1,066,796	5,620,323	2,641,552	286	3,146	366	331
1946	.....	.....	.....	.....	9,028	26,865	4,505,236	1,798,577	6,078,419	5,084,597	.....	.....	.....	.....
Total	.....	.....	.....	.....	**518,036**	**1,579,470**	.....	**19,053,144**	**317,175,369**	**171,173,413**	**9,919**	**113,944**	**2,091,590**	**1,185,636**

NOTE.—In addition there was produced in 1931- 731 pounds of selenium valued at $1,389.

Historical Summary of the Mineral Production of British Columbia—Continued

STONE

—	Granite		Limestone		Marble		Sandstone		Grindstones, pulpstones		Slate	
	tons	$	tons	$	tons	$	tons	$	tons	$	tons	$
1909	.....	134,310	.....	37,258	.....	25,000	.....	168,513	.....	.....	.....	.....
1910	.....	244,767	.....	43,121	.....	3,679	.....	130,825	.....	.....	.....	.....
1911	.....	460,851	.....	56,748	.....	1,600	.....	179,580	.....	.....	.....	.....
1912	.....	624,178	.....	55,617	.....	.....	.....	99,816	.....	.....	.....	.....
1913	.....	469,666	.....	38,830	.....	600	.....	71,783	.....	.....	.....	.....
1914	.....	918,131	.....	51,435	.....	3,343	.....	51,774	.....	.....	.....	.....
1915	.....	701,593	.....	79,583	.....	1,700	.....	14,000	.....	.....	.....	.....
1916	.....	464,949	.....	92,769	.....	.....	.....	6,500	.....	.....	.....	.....
1917	.....	66,170	.....	89,808	.....	.....	.....	110,000	.....	.....	.....	.....
1918	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....	.....	.....
1919	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....	.....	.....
1920	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.....	.....	.....	.....
1921	108,225	186,629	33,816	42,536	.....	.....	.....	.....	.....	.....	.....	.....
1922	159,904	268,008	36,566	44,583	.....	.....	1,200	12,000	.....	.....	.....	.....
1923	151,389	230,582	13,711	19,284	.....	.....	.....	.....	.....	.....	.....	.....
1924	150,522	248,360	27,053	21,881	.....	.....	650	83,500	240	19,000	.....	.....
1925	192,177	264,910	58,172	54,059	.....	.....	5,877	18,227	481	27,781	.....	.....
1926	163,077	244,197	81,844	106,220	.....	.....	8,140	7,830	700	45,116	.....	.....
1927	174,945	211,412	81,008	107,984	600	18,600	.....	.....	380	27,000	.....	.....
1928	201,030	275,947	68,179	83,193	950	31,400	1,280	1,280	240	20,509	.....	.....
1929	286,883	340,011	119,222	143,319	196	5,282	2,630	23,043	210	2,730	.....	.....
1930	229,000	283,739	122,409	145,443	6,363	31,141	3,319	258,172	329	26,222	150	3,000
1931	302,150	322,014	159,198	152,269	810	8,761	9,559	592,740	322	25,795	250	5,000
1932	266,008	261,144	138,132	109,399	482	4,029	3,020	3,480	60	3,500	250	3,750
1933	94,967	109,512	150,805	130,706	300	2,547	4,200	10,760	200	9,000	250	3,750
1934	48,800	73,081	161,755	142,560	150	1,416	.....	.....	402	17,625	312	3,744
1935	118,782	100,432	215,933	189,381	604	5,471	21,576	63,006	202	10,829	310	3,100
1936	243,427	131,750	122,535	123,607	175	2,110	18,434	135,944	87	4,500	184	2,479
1937	273,692	318,725	176,513	177,939	.....	.....	13,220	52,561	87	4,875	186	2,790
1938	148,896	160,457	125,842	124,322	.....	.....	13,325	41,825	.....	.....	274	3,295
1939	101,214	120,404	205,045	200,842	.....	.....	6,460	29,060	.....	.....	419	5,428
1940	162,126	157,666	282,170	282,095	180	2,600	6,320	20,337	.....	.....	474	6,883
1941	129,941	146,403	201,359	229,702	300	2,800	8,040	15,650	.....	.....	950	12,216
1942	95,604	133,810	199,496	230,139	100	1,820	13,930	13,930	.....	.....	1,211	16,643
1943	63,695	101,210	163,127	213,544	85	1,450	8,160	8,160	.....	.....	1,145	17,542
1944	12,716	76,052	181,141	249,373	125	2,155	4,800	3,000	.....	.....	949	17,903
1945	29,726	44,722	250,106	332,432	160	2,700	3,160	3,160	.....	.....	969	16,272
1946	78,341	110,651	208,242	287,433	260	4,920	8,360	8,360	.....	.....	1,116	19,917
Total	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

(a) Data by kinds not available; total values of all kinds of stone were—1913-$437,542; 1919-$217,000; 1920-$276,000.

Historical Summary of Mineral Production of British Columbia—Concluded

—	Peat moss		Sulphur*		Talc		Tin		Zinc†		Other products
	tons	$	tons	$	tons	$	pounds	$	tons	$	$
1905									9,413	139,200	
1906									654	17,100	
1907									1,356	46,100	
1908											(d) 643,534
1909									(a) 17,476	233,749	(c) 330,201
1910									4,487	114,243	(b) 494,197
1911									2,590	101,072	
1912									6,405	211,399	
1913									7,554	180,127	
1914									9,924	252,546	671
1915									14,595	538,438	15,833
									lb.		
1916			1,060	5,300	53	848			21,701,560	2,778,667	
1917			5,709	28,545	25	400			27,861,441	2,479,947	241,661
1918			18,238	63,454					32,280,247	2,633,745	103,739
1919			6,730	33,650	100	500			30,295,015	2,223,048	373,193
1920			11,275	56,376	110	3,100			38,729,762	2,970,960	1,270,298
1921			3,597	4,557	167	4,175			53,089,356	2,471,310	925,361
1922			6,998	34,540	191	4,780			56,290,600	3,217,536	
1923			3,457	13,304	245	5,390			60,050,000	3,967,504	
1924			8,091	40,459	165	3,630			96,000,069	6,090,244	
1925			2,670	13,350	92	1,589			99,152,966	7,557,439	
1926			3,374	16,870					137,033,929	10,154,214	
1927			37,379	149,516	107	2,620			148,306,479	9,186,103	
1928			32,063	254,872					163,530,890	8,983,079	
1929			28,276	226,208	46	720			172,096,841	9,270,857	
1930			17,800	147,942	177	2,835			250,479,310	9,017,255	
1931			29,013	255,760	30	600			202,071,702	5,160,911	
1932			31,886	302,856	39	702			130,546,958	3,140,438	
1933			30,010	282,978	67	1,022			152,826,264	4,906,487	
1934			32,031	319,124	25	502			249,152,403	7,583,202	
1935			46,784	453,536	93	1,318			255,222,315	7,909,314	
1936			64,896	608,792	47	799			255,668,574	8,475,413	
1937			88,370	820,406					287,192,877	14,078,195	
1938			78,918	777,586					299,363,564	9,199,443	
1939	(e)	(e)	133,676	1,230,814					279,041,497	8,563,784	
1940	(e)	(e)	90,214	899,126					312,020,671	10,643,025	
1941	14,345	390,509	103,140	1,026,794			64,744	33,667	367,869,579	12,548,031	
1942	28,520	658,771	116,248	1,134,586			1,237,863	643,689	387,236,469	13,208,636	(f) 4,710
1943	35,755	925,408	104,601	1,039,126			776,937	450,623	336,150,455	13,446,018	
1944	45,794	1,259,131	113,325	1,123,478			516,626	299,643	278,063,373	11,956,725	
1945	50,597	1,292,297	127,654	1,267,317			849,983	492,990	294,791,635	18,984,581	
1946	49,263	1,546,149	126,622	1,255,008			874,186	507,028	274,269,956	21,420,484	
Total			**1,504,015**	**13,885,339**	**1,779**	**35,530**	**4,320,339**	**2,427,640**		**256,060,569**	

NOTE.—1934—Production of 30 tons of volcanic dust, valued at $600.

* Sulphur content of pyrites shipped and sulphur content salvaged smelter gas 1928-1942; figures for previous years represent tonnages and value of pyrites shipped.

† 1905-1915 tons of ore or concentrates shipped from mines; 1916-1946 refined zinc made in Canada plus concentrated zinc in ores exported.

(a) Includes 7,424 tons shipped late in 1908.

(b) Includes cement sand-lime brick, etc.

(c) Includes cement, sand-lime brick, and a small value in refined antimony.

(d) Includes stone, etc.

(e) Included with manufactures.

(f) 471 pounds of indium valued at $4,710.

Historical Summary of the Mineral Production of Yukon

—	Coal (d)		Copper		Gold (c)		Lead		Silver	
	tons	$	pounds	$	fine oz.	$	pounds	$	fine oz.	$
1885										
1886					4,837	100,000				
1887					3,386	70,000				
1888					1,935	40,000				
1889					8,466	175,000				
1890					8,466	175,000				
1891					1,953	40,000				
1892					4,233	87,500				
1893					8,514	176,000				
1894					6,047	125,000				
1895					12,094	250,000				
1896					14,513	300,000				
1897					120,937	2,500,000				
1898					483,750	10,000,000				
1899					774,000	16,000,000			230,000	137,034
1900					1,077,553	22,275,000			290,000	177,857
1901	(e)5,864	86,230			870,750	18,000,000			195,000	114,953
1902	4,910	37,280			701,437	14,500,000			185,900	96,985
1903	1,849	29,584			592,594	12,250,000			156,000	83,362
1904					507,938	10,500,000			133,170	76,201
1905	7,000	21,000			381,001	7,876,000			89,630	54,093
1906	7,000	28,000	(b)156,000	23,400	270,900	5,600,000			63,665	42,522
1907	15,000	60,000	511,838	102,388	152,381	3,150,000			35,988	23,510
1908	3,847	21,158	112,264	14,828	174,150	3,600,000			63,000	33,304
1909	7,364	49,502			191,565	3,960,000			45,000	23,176
1910	16,185	110,925	286,000	36,431	211,091	4,570,362			87,418	46,756
1911	2,840	12,780			224,197	4,634,574			112,708	60,078
1912	9,245	44,958	1,772,660	289,670	268,447	5,549,296			81,068	49,318
1913	19,722	95,945	1,843,530	281,489	282,838	5,846,780	2,804	131	87,626	52,392
1914	13,443	53,760	1,367,050	185,946	247,940	5,125,374	47,920	2,146	92,973	50,959
1915	9,724	38,896	533,216	92,113	230,173	4,758,098	810,000	45,360	248,049	123,241
1916	3,300	13,200	2,807,096	763,586	212,700	4,396,900	955,222	81,318	360,101	236,446
1917	4,872	(f)29,232	2,460,079	668,650	177,667	3,672,703	127,844	14,238	119,605	97,379
1918	2,900	11,600	619,878	152,663	102,474	2,118,325	9,249	856	71,915	69,594
1919			165,184	30,874	90,705	1,875,039			27,556	30,621
1920			277,712	48,478	72,778	1,504,455			19,190	19,363
1921	233	2,472			65,904	1,364,217	2,472,615	141,978	393,092	246,288
1922	465	4,650			54,456	1,125,705	3,323,508	207,221	663,493	447,997
1923	313	1,485			60,144	1,243,287	6,771,113	486,098	1,914,438	1,241,953
1924	1,121	8,265			34,825	719,897	903,520	73,221	226,755	151,429
1925	730	7,147			47,817	988,465	1,875,442	171,040	904,893	624,964
1926	316	800			25,601	529,220	5,860,373	395,634	2,095,027	1,301,159
1927	414	2,052			30,935	639,483	4,165,331	218,929	1,647,295	928,580
1928	414	2,915	(a)107,377	15,645	34,364	710,367	7,191,449	329,045	2,839,633	1,651,985
1929	458	1,848			35,892	741,954	8,395,603	424,012	3,279,530	1,737,922
1930	653	3,110	42,628	5,534	35,517	734,202	8,896,582	349,369	3,746,326	1,429,373
1931	904	5,039			44,310	955,539	4,454,613	120,724	3,694,728	1,103,615
1932	808	3,491			40,608	953,438	3,853,327	81,444	3,014,755	954,822
1933	862	3,670			39,493	1,129,500	3,099,505	74,128	2,204,237	833,925
1934	638	2,217			38,798	1,338,531	1,783,349	43,450	515,542	244,681
1935	835	3,483			35,707	1,256,529	218,513	6,846	54,715	35,450
1936	510	2,286			50,358	1,764,044	2,568,699	100,513	783,416	353,532
1937	84	812			47,982	1,678,890	6,440,454	329,107	3,956,504	1,775,719
1938	361	3,400			72,368	2,545,544	5,198,990	173,854	2,844,659	1,236,772
1939					87,745	3,171,192	7,544,632	239,089	3,830,864	1,551,040
1940					80,458	3,097,633	4,655,689	156,524	2,259,343	864,176
1941					70,959	2,731,922	1,703,728	57,280	856,772	327,810
1942					83,246	3,204,971	1,322,065	44,448	482,133	203,206
1943					41,160	1,584,660	195,715	7,347	52,348	23,690
1944					23,818	916,993	105,727	4,758	32,066	13,788
1945					31,721	1,221,258	119,516	5,976	25,158	11,824
1946					45,286	1,664,260	52,144	3,520	31,230	26,324
Total	**145,184**	**803,192**	**13,062,512**	**2,711,695**	**9,753,972**	**213,813,101**	**95,125,241**	**4,389,604**	**45,144,514**	**21,021,058**

(a) Includes small quantities produced in 1925, 1926 and 1927.

(b) 1906 and all previous production.

(c) Placer gold but includes a small production from lode mines in 1926 and for the years 1910-1923.

(d) For the years 1949-1938 the tonnage shown is the total output from all mines; for previous years the figures show include only colliery consumption, sales and coal used by operators.

(e) Partly mined in 1900.

(f) Value estimated.

NOTE.—In addition there were produced in 1918 some 3,848 pounds of tungsten concentrates valued at $2,593 and in 1916, 20 tons of antimony ore valued at $160; also in 1941 tungsten concentrates totalled 1,560 pounds valued at $980 and in 1942, 968 pounds valued at $840, in 1943, 12,083 pounds valued at $10,122, and in 1944, 5,593 pounds worth $3,780. Antimony in ore exported in 1942 totalled 78 pounds worth $13.

Historical Summary of the Mineral Production of Northwest Territories

—	Pitch-blende Products	Copper		Gold		Lead		Natural Gas		Petroleum		Silver (a)	
	$	pounds	$	fine oz.	$	pounds	$	M cu. ft.	$	barrels	$	fine oz.	$
1931..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(*)	(*)
1932..	.....	.....	.....	.....	.....	.....	.....	.....	.....	910	9,251	38,433	12,172
1933..	247,900	.....	.....	.....	.....	.....	.....	.....	.....	4,608	23,037	23,239	8,792
1934..	159,400	.....	.....	.....	.....	3,531	86	.....	.....	4,438	22,188	37,778	17,939
1935..	413,700	.....	.....	200	7,038	12,905	404	.....	.....	5,115	25,575	146,506	94,921
1936..	605,500	.....	.....	1	35	.....	.....	1,100	245	5,399	26,995	317,014	143,059
1937..	876,540	.....	.....	.....	.....	.....	.....	1,500	335	11,371	56,855	135,442	60,788
1938..	1,045,458	75,567	7,535	6,800	239,190	.....	.....	1,500	335	22,855	68,565	581,902	252,993
1939..	1,121,553	42,382	4,277	51,914	1,876,224	.....	.....	1,500	335	20,191	50,477	483,874	195,911
1940..	410,176	.....	.....	55,159	2,123,621	.....	.....	1,500	335	18,633	37,265	59,505	22,760
1941..	925,196	32,727	3,301	74,417	2,865,054	.....	.....	1,500	335	23,664	47,328	15,327	5,864
1942..	(b)	74,963	7,561	99,394	3,826,669	.....	.....	1,500	335	75,789	108,477	22,531	9,500
1943..	(b)	.....	.....	59,032	2,272,732	.....	.....	1,500	335	293,750	400,201	13,250	5,996
1944..	(b)	11,902	1,428	20,775	799,838	.....	.....	1,500	335	1,223,675	632,587	13,677	5,881
1945..	(b)	.....	.....	8,655	333,218	.....	.....	1,500	335	345,171	136,303	2,033	956
1946..	(b)	.....	.....	23,420	860,685	.....	.....	1,500	335	177,282	173,392	6,112	5,113
Total	.....	**237,541**	**24,102**	**399,767**	**15,204,304**	**16,436**	**490**	.....	.....	**2,232,851**	**1,818,496**	.....	.....

(a) Includes recoveries from silver-pitchblende ores.

(*) See Yukon.

Production of tungsten concentrates totalled 41,972 pounds valued at $13,220 in 1941; 98,218 pounds worth $23,725 in 1942; and 720 pounds valued at $729 in 1943.

(b) Not available for publication.

CANADA—DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
MINING, METALLURGICAL AND CHEMICAL SECTION

MINERAL PRODUCTION

OF

CANADA

1946

DOMINION BUREAU OF STATISTICS

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ANNUAL REPORT

ON THE

MINERAL PRODUCTION OF CANADA

DURING THE CALENDAR YEAR 1946

Canada's mineral production during the first full post-war year, 1946, was valued at $502,816,251, an increase of only 0·8 per cent from the $498,755,181 valuation of the production in 1945. There was a decrease of 8·5 per cent in the total value of the metallic minerals which had declined to $290,424,689 in 1946 as compared with $317,093,719 in 1945. The fuels group, which includes coal, natural gas, peat and petroleum, exceeded the 100 million dollar mark for the first time. The recorded value of $102,516,888 was 9·6 per cent higher than that of the preceding year.

Asbestos, gypsum, salt, barite and other non-metallic minerals showed an increase of 10·2 per cent to reach a total value of $43,754,453. This, too, is a new high for this classification of minerals. A third record high was made by the structural materials, which include cement, lime, brick, tile, stone, sand and gravel. These industries reported a production valued at $66,120,221 in 1946 as compared with $48,419,673 in 1945.

The anticipated increase in available workmen failed to materialize, and as a result the metal production was on the decline. In July the Canadian dollar was placed on par value with the United States dollar. Gold which had previously been valued at $38.50 per ounce in Canadian funds was reduced to $35.00 per ounce. The labour scarcity, the reduction in price and the rising costs were, to put it mildly, deterrents in the development of the gold mining industry. The volume of copper, nickel and zinc was down and the total value was less than the preceding year despite the increase in price of exported base metals. The ceiling price of base metals for domestic consumption was maintained. The iron ore shipments continued to increase, due chiefly to the ability of Steep Rock Iron Mines Ltd. to mine large tonnages from its open pit deposit.

Activity in the Labrador and New Quebec iron ore area increased, but no production is expected from there for a few years. The tonnage and value of lead increased to 176,984 tons worth $46,632,093. World shortage of this metal indicates an advance in price as the demand increases. The price of silver for 1946 averaged more than 83½ cents per ounce, thus increasing the value of total production by nearly 4½ million dollars. As silver is a by-product metal in Canada, it should not be used as a criterion in determining trends.

The Turner Valley field, which produces most of Canada's petroleum, reached its peak in 1942; since then there has been a continuous decline in volume, but the price per barrel has increased to yield an overall value higher in 1946 than in 1945. Coal produced in 1946 increased to 17,806,450 tons valued at $75,361,481.

For many years Canada has been the world's leading producer of asbestos. In 1946 another record was broken when 558,181 tons of asbestos were shipped at a valuation of $25,240,562. The gypsum industry in 1946 more than doubled its production of the previous year. The export demand for peat moss maintained this industry at a slightly higher level. Labour disputes in some of the chemical industries reduced the consumption of salt, thus the production of this commodity was lower in 1946 than in 1945. Comparative values were $3,626,165 and $4,054,720 respectively. The natural sodium sulphate recovered from the deposits in Saskatchewan were valued at $1,117,683.

The construction program in Canada necessitated an acceleration in the production of structural materials. The shipments of cement exceeded 20 million dollars in value. Brick, tile and other clay products shipped in 1946 were worth $12,207,367 as compared with $8,913,092 in the previous year. Other building materials, which include lime, stone, sand and gravel, showed marked increases in production.

The mineral industry, which was affected by labour shortages, employed 99,196 persons in 1946, slightly more than the 96,250 persons recorded for 1945. Salaries and wages paid amounted to $196,748,691. In addition to these employees just mentioned, there were 2,133 persons doing administrative and office work at head offices or at locations in Canada other than the mines or plants.

Table 1.—Quantities and Values of Mineral Products from Canadian Sources, 1945 and 1946

—		1945		1946	
		Quantity	Value	Quantity	Value
			$		$
METALLICS					
Antimony	lb.	1,667,951	290,557	642,145	96,32[illegible]
Arsenic (As_2O_3)	lb.	2,045,730	130,909	745,885	38,26[illegible]
Bismuth	lb.	189,815	260,047	240,504	336,70[illegible]
Cadmium	lb.	646,064	639,603	802,648	979,23[illegible]
Calcium	lb.	22,720	19,312	53,548	68,72[illegible]
Chromite	ton	5,755	160,752	3,110	61,12[illegible]
Cobalt	lb.	109,123	90,026	73,900	70,21[illegible]
Copper	lb.	474,914,052	59,322,261	367,936,875	46,632,09[illegible]
Gold	fine oz.	2,096,727	103,823,990	2,832,554	104,096,35[illegible]
Iron ore	ton	1,135,444	3,635,095	1,549,523	6,822,94[illegible]
Lead	lb.	346,994,472	17,349,723	353,973,776	23,893,23[illegible]
Magnesium	lb.	7,358,545	1,607,264	320,677	75,53[illegible]
Mercury	lb.	.....	.....	.....	.....
Molybdenite concentrates	lb.	978,117	411,663	736,406	295,64[illegible]
Nickel	lb.	245,130,983	61,982,133	192,124,537	45,385,15[illegible]
Palladium, rhodium, iridium, etc.	fine oz.	458,674	18,671,074	117,566	5,162,80[illegible]
Platinum	fine oz.	208,234	8,017,010	121,771	7,672,79[illegible]
Pitchblende products		Not available			
Selenium	lb.	379,187	728,039	521,867	949,79[illegible]
Silver	fine oz.	12,942,906	6,083,166	12,544,100	10,493,13[illegible]
Tellurium	lb.	484	929	15,848	24,40[illegible]
Tin	lb.	849,983	492,990	874,186	507,02[illegible]
Titanium ore	ton	14,147	67,575	1,406	7,73[illegible]
Tungsten concentrates	lb.	1,153	1,045	.....	.....
Zinc	lb.	517,213,604	33,308,556	470,620,360	36,755,45[illegible]
Total Metallics		.....	**317,093,719**	.....	**290,424,68[illegible]**
NON-METALLICS—FUELS					
Coal	ton	16,506,713	67,588,402	17,806,450	75,361,481
Natural gas	M cu. ft.	48,411,585	12,309,564	47,900,484	12,165,050
Peat	ton	118	1,062	145	1,305
Petroleum	bbl.	8,482,796	13,632,248	7,585,555	14,989,052
Total Fuels		.....	**93,531,276**	.....	**102,516,888**

Table 1.—Quantities and Values of Mineral Products from Canadian Sources, 1945 and 1946—Concluded

—		1945		1946	
		Quantity	Value	Quantity	Value
			$		$
OTHER NON-METALLICS					
Asbestos	ton	466,897	22,805,157	558,181	25,240,562
Barytes	ton	139,589	1,211,403	120,419	1,006,473
Corundum	ton	1,317	139,393	742	102,340
Diatomite	ton	46	1,238	90	2,532
Feldspar	ton	30,246	282,650	35,243	384,677
Fluorspar	ton	7,369	233,708	8,042	237,491
Garnet schist	ton	.....	.....	2	1,200
Graphite	ton	1,910	179,001	1,975	180,405
Grindstones	ton	225	10,870	295	17,450
Gypsum	ton	839,781	1,783,200	1,810,937	3,671,503
Iron oxides	ton	10,314	172,053	12,695	152,268
Magnesitic dolomite and brucite		.....	1,278,596	.....	1,225,593
Mica	lb.	7,044,221	233,270	8,720,779	119,039
Mineral Waters	gal.	244,761	126,499	216,842	122,404
Nepheline syenite	ton	61,344	275,766	61,261	229,198
Peat Moss	ton	83,963	2,011,139	96,839	2,395,649
Phosphate rock	ton	299	4,356	57	869
Quartz	ton	1,513,628	1,535,458	1,413,378	1,554,798
Salt	ton	673,676	4,054,720	537,985	3,626,165
Silica brick	M	4,208	317,263	2,902	197,804
Soapstone (including some talc)	ton	14,225	153,894	14,914	150,004
Sodium carbonate	ton	286	3,146	.....	.....
Sodium sulphate	ton	93,068	884,322	105,919	1,117,683
Sulphur	ton	250,114	1,881,321	234,771	1,784,666
Talc	ton	12,863	141,194	14,439	153,680
Total Other Non-Metallics		.....	**39,710,513**	.....	**43,754,453**
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS					
Clay products (brick, tile, etc.)		.....	8,913,092	.....	12,207,367
Cement	bbl.	8,471,679	14,246,480	11,560,483	20,122,503
Lime	ton	832,253	6,525,038	840,799	7,074,940
Sand and gravel	ton	29,750,703	10,568,363	39,949,994	15,529,700
Stone	ton	6,205,555	8,166,700	8,056,260	11,185,711
Total Clay Products and Other Structural Materials		.....	**48,419,673**	.....	**66,120,221**
Grand Total		.....	**498,755,181**	.....	**502,816,251**

Table 2.—Finally Revised Statistics on the Mineral Production of Canada, by Provinces, 1946

—		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Northwest Territories	Yukon	Canada
METALS												
Antimony	lb								642,145			642,145
	$								96,322			96,322
Arsenic	lb			420,654	325,231							745,885
	$			21,580	16,684							38,264
Bismuth	lb			6,484					234,020			240,504
	$			9,078					327,628			336,706
Cadmium	lb					63,410	102,923		636,315			802,648
	$					77,360	125,566		776,304			979,230
Calcium	lb				53,548							53,548
	$				68,720							68,720
Chromite	ton			3,110								3,110
	$			61,123								61,123
Cobalt	lb				73,900							73,900
	$				70,215							70,215
Copper	lb			69,797,697	179,424,639	38,501,047	62,712,954		17,500,538			367,936,875
	$			8,934,105	22,592,528	4,928,134	8,027,258		2,240,068			46,632,093
Gold	oz	4,321		618,339	1,813,333	79,402	112,101	110	136,242	23,420	45,286	2,832,554
	$	158,797		22,723,958	66,639,988	2,918,024	4,119,712	4,042	5,006,893	860,685	1,664,260	104,096,359
Iron ore	ton				1,549,523							1,549,523
	$				6,822,947							6,822,947
Lead	lb			7,359,708	699,244				345,862,680		52,144	353,973,776
	$			496,780	47,199				23,345,731		3,520	23,893,230
Magnesium	lb				320,677							320,677
	$				75,538							75,538
Molybdenite	lb			736,400								736,400
	$			295,640								295,640
Nickel	lb				192,124,537							192,124,537
	$				45,385,155							45,385,155
Palladium, rhodium, etc.	oz				117,566							117,566
	$				5,162,801							5,162,801
Platinum	oz				121,771							121,771
	$				7,672,791							7,672,791
Pitchblende					Not available							
Selenium	lb			110,768	270,606	46,118	94,375					521,867
	$			201,598	492,503	83,935	171,762					949,798
Silver	oz	146		1,916,453	2,485,215	528,017	1,498,496	12	6,078,419	6,112	31,230	12,544,100
	$	122		1,603,113	2,078,882	441,686	1,253,492	10	5,084,597	5,113	26,124	10,493,139
Tellurium	lb				14,200	349	1,299					15,848
	$				21,868	537	2,000					24,405
Tin	lb								874,186			874,186
	$								507,028			507,028

		N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
Titanium ore	ton			1,406								1,406
	$			7,735								7,735
Tungsten (concentrates)	lb.											
	$											
Zinc	lb.			89,650,129	42,628	35,580,537	71,077,110		274,269,956			470,620,360
	$			7,001,675	3,329	2,778,840	5,551,122		21,420,484			36,755,450
Total Metals	$	**158,919**		**41,356,385**	**157,061,148**	**11,228,516**	**19,250,912**	**4,052**	**58,805,055**	**865,798**	**1,693,904**	**290,421,689**
NON-METALLICS—FUELS												
Coal	ton	5,452,898	366,735				1,523,786	8,826,239	1,636,792			17,806,450
	$	30,253,654	2,069,992				2,544,926	33,339,579	7,153,330			75,361,481
Natural gas	M cu. ft.		541,010		7,051,309		209,569	40,097,096		1,500		47,900,484
	$		262,441		4,656,528		61,740	7,184,006		335		12,165,050
Peat	ton				145							145
	$				1,305							1,305
Petroleum, crude	bbl.		28,584		123,082		118,686	7,137,921		177,282		7,585,555
	$		40,018		291,719		135,990	14,347,933		173,392		14,989,052
Total Fuels	$	**30,253,654**	**2,372,451**		**4,949,552**		**2,742,656**	**54,871,518**	**7,153,330**	**173,727**		**102,516,888**
OTHER NON-METALLICS												
Asbestos	ton			558,181								558,181
	$			25,240,283	279							25,240,562
Barite	ton	117,691							2,728			120,419
	$	987,473							19,000			1,006,473
Corundum	ton				742							742
	$				102,340							102,340
Diatomite	ton	49							41			90
	$	1,505							1,027			2,532
Feldspar	ton			29,758	5,485							35,243
	$			330,981	53,696							384,677
Fluorspar	ton				8,042							8,042
	$				237,491							237,491
Garnet rock	ton				2							2
	$				1,200							1,200
Graphite	ton				1,975							1,975
	$				180,405							180,405
Grindstone	ton		295									295
	$		17,450									17,450
Gypsum	ton	1,538,738	38,830		122,524	63,187			47,649			1,810,937
	$	1,812,815	550,972		492,179	428,133			387,404			3,671,503
Iron oxides	ton			12,268					427			12,695
	$			146,401					5,867			152,268
Magnesitic dolomite and brucite	ton											
	$			1,225,593								1,225,593
Mica	lb.			2,397,788	4,707,381				1,615,500			8,720,669
	$			108,667	66,952				23,420			199,039
Mineral water	gal.			211,842	6,000							217,842
	$			121,526	878							122,404
Nepheline syenite	ton				61,261							61,261
	$				229,198							229,198
Peat moss	lb.		4,493,800	52,764,995	34,351,000	3,543,420			98,525,546			193,678,761
	$		54,892	501,073	228,496	65,039			1,546,149			2,395,649
Phosphate	ton			57								57
	$			869								869

Table 2.—Finally Revised Statistics on the Mineral Production of Canada, by Provinces, 1946—Concluded

—	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Northwest Territories	Yukon	Canada
OTHER NON-METALLICS—Concluded											
Quartz ... ton	7,525	...	214,076	1,052,644	...	130,105	...	9,028	...	...	1,413,378
... $	15,550	...	612,128	852,713	...	47,542	...	26,865	...	...	1,554,798
Salt ... ton	38,371	...	...	441,679	26,166	...	31,769	...	...	...	537,985
... $	329,579	...	...	2,408,270	446,472	...	441,835	...	...	...	3,626,165
Silica brick ... M	2,055	...	...	847	...	...	...	...	...	...	2,902
... $	119,272	...	...	78,532	...	...	...	...	...	...	197,804
Soapstone (including some talc) ... ton	...	...	14,914	...	...	...	...	...	...	...	14,914
... $	...	...	150,004	...	...	...	...	...	...	...	150,004
Sodium sulphate ... ton	...	...	...	...	...	105,919	...	...	...	...	105,919
... $	...	...	...	...	...	1,117,683	...	...	...	...	1,117,683
Sulphur ... ton	...	...	92,716	15,433	...	...	...	126,622	...	...	234,771
... $	...	...	375,328	154,330	...	...	...	1,255,008	...	...	1,784,666
Talc ... ton	...	...	...	14,439	...	...	...	...	...	...	14,439
... $	...	...	...	153,680	...	...	...	...	...	...	153,680
Total Other Non-metallics ... $	**3,266,194**	**623,314**	**28,812,853**	**5,240,648**	**939,644**	**1,165,225**	**441,835**	**3,264,740**	...	...	**43,754,453**
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS											
Clay products (brick, tile etc.) ... $	671,466	336,971	3,457,168	4,288,780	372,920	411,446	1,808,971	859,645	...	...	12,207,367
Cement ... bbl.	...	...	5,046,166	3,677,695	1,254,946	...	809,721	771,955	...	...	11,560,483
... $	...	...	7,919,548	6,025,503	2,811,264	...	1,635,222	1,739,966	...	...	20,122,503
Lime ... ton	...	21,915	296,493	412,171	37,360	...	23,785	49,075	...	...	810,799
... $	...	286,401	2,304,826	3,316,231	392,304	...	204,926	570,252	...	...	7,074,940
Sand and gravel ... ton	1,105,980	2,203,646	12,374,125	14,881,918	1,333,890	1,732,731	1,812,468	4,505,236	...	...	39,949,994
... $	484,585	807,045	3,313,103	6,738,595	416,431	910,661	1,060,703	1,798,577	...	...	15,529,700
Stone ... ton	183,733	121,123	3,486,259	3,890,277	65,132	...	13,417	296,319	...	...	8,056,260
... $	515,453	386,984	5,630,265	3,923,972	242,470	...	55,286	431,281	...	...	11,185,711
Total Clay Products and Other Structural Materials ... $	**1,671,504**	**1,817,401**	**22,615,910**	**24,293,081**	**4,235,389**	**1,322,107**	**4,765,108**	**5,399,721**	...	...	**66,120,221**
Grand Total—1946 ... $	**35,350,271**	**4,813,166**	**92,785,148**	**191,544,429**	**16,403,549**	**24,480,900**	**60,082,513**	**74,622,846**	**1,039,525**	**1,693,904**	**502,816,251**
Grand Total—1945 ... $	**32,220,659**	**4,182,100**	**91,518,120**	**216,541,856**	**14,429,423**	**22,336,074**	**51,753,237**	**64,063,842**	**470,812**	**1,239,058**	**498,755,181**
SUMMARY											
Metallics ... $	158,919	...	41,356,385	157,061,148	11,228,516	19,250,912	4,052	58,805,055	865,798	1,693,904	290,424,689
Fuels ... $	30,253,654	2,372,451	...	4,949,552	...	2,742,656	54,871,518	7,153,330	173,727	...	102,516,888
Other non-metallics ... $	3,266,194	623,314	28,812,853	5,240,648	939,644	1,165,225	441,835	3,264,740	...	...	43,754,453
Clay products ... $	671,466	336,971	3,457,168	4,288,780	372,920	411,446	1,808,971	859,645	...	...	12,207,367
Other structural materials ... $	1,000,038	1,480,430	19,158,742	20,004,301	3,862,469	910,661	2,956,137	4,540,076	...	...	53,912,854
Grand Total—1946 ... $	**35,350,271**	**4,813,166**	**92,785,148**	**191,544,429**	**16,103,549**	**24,480,900**	**60,082,513**	**74,622,846**	**1,039,525**	**1,693,904**	**502,816,251**
Per cent of total ...	7·0	1·0	18·5	38·1	3·3	4·9	11·9	14·8	0·2	0·3	**100·0**

Table 3.—Production of Leading Mineral Products, by Months, 1945 and 1946

1945	Asbestos	Cement	Clay Products	Coal	Copper
	tons	barrels	$	tons	pounds
January	31,653	171,662	438,003	1,691,066	44,098,887
February	37,760	194,002	427,903	1,504,759	39,649,050
March	50,443	380,911	587,761	1,469,398	45,638,927
April	43,310	614,482	614,626	1,321,063	42,680,862
May	41,757	761,627	731,543	1,201,274	40,903,706
June	39,465	1,039,113	792,324	1,277,840	44,097,021
July	37,553	1,157,852	831,472	1,692,203	42,119,787
August	41,054	1,046,418	874,109	1,199,078	39,228,972
September	38,910	1,005,830	890,015	1,187,429	34,797,140
October	35,665	1,101,474	1,022,786	1,217,034	34,953,070
November	36,593	692,661	971,977	1,790,504	32,035,764
December	32,733	305,447	730,573	1,555,065	34,711,066
Total	**466,897**	**8,471,679**	**8,913,092**	**16,506,713**	**474,914,052**

1945	Feldspar	Gold	Gypsum	Lead	Lime
	tons	fine oz.	tons	pounds	tons
January	1,205	237,210	12,936	25,426,948	62,713
February	1,921	215,993	12,901	24,389,248	60,420
March	2,321	232,610	16,508	34,899,827	70,031
April	2,011	227,575	24,776	27,955,975	70,759
May	2,161	221,288	43,759	25,359,183	70,218
June	3,628	215,802	103,749	24,982,494	69,928
July	2,198	213,815	82,479	25,309,517	68,305
August	3,090	215,386	99,012	27,911,967	66,407
September	2,654	215,157	132,380	28,951,516	65,982
October	2,342	233,487	150,756	32,572,398	72,597
November	3,045	224,542	110,025	34,873,826	86,524
December	3,070	243,862	50,500	34,361,573	68,369
Total	**30,246**	**2,696,727**	**839,781**	**316,994,472**	**822,253**

1945	Natural Gas	Nickel	Petroleum	Salt	Silver	Zinc
	M cu. ft.	pounds	barrels	tons	fine oz.	pounds
January	5,282,719	23,667,393	872,930	48,676	1,032,679	49,348,491
February	4,644,185	20,635,189	770,975	47,469	964,449	44,378,782
March	4,185,445	23,462,858	771,674	52,973	1,214,945	47,545,212
April	3,987,482	21,567,624	685,903	57,422	1,067,862	43,247,386
May	3,619,680	23,382,373	708,633	62,533	1,213,710	45,282,856
June	3,154,361	22,546,414	666,103	63,475	1,113,656	43,330,713
July	3,050,953	23,790,534	689,698	60,526	963,561	45,053,498
August	3,059,726	21,896,415	678,123	59,654	1,069,038	44,388,606
September	3,378,445	16,434,819	650,612	56,966	975,250	38,336,609
October	3,963,196	17,170,277	675,918	54,475	1,049,562	38,736,083
November	4,841,314	15,416,996	652,081	56,079	1,110,380	40,480,003
December	5,244,079	15,210,091	660,146	52,828	1,167,814	40,085,365
Total	**48,411,585**	**245,130,983**	**8,482,796**	**673,076**	**12,942,906**	**517,213,604**

1946	Asbestos	Cement	Clay Products	Coal	Copper
	tons	barrels	$	tons	pounds
January	36,576	310,353	790,326	1,808,184	31,468,143
February	29,666	273,207	692,637	1,640,678	27,119,084
March	36,369	603,432	806,743	1,588,634	31,899,808
April	47,685	1,001,744	865,765	1,360,237	31,449,422
May	52,927	1,535,097	1,041,655	1,396,188	30,567,959
June	47,437	1,458,684	1,054,141	1,259,394	29,983,685
July	45,814	1,351,522	1,260,760	1,154,772	30,583,060
August	53,783	1,230,373	1,218,617	1,391,464	29,536,366
September	51,182	1,143,166	1,147,656	1,428,263	28,450,698
October	55,769	1,191,055	1,270,454	1,625,346	30,092,716
November	52,400	930,264	1,163,406	1,579,710	34,942,710
December	48,573	531,676	895,207	1,573,580	31,843,223
Total	**558,181**	**11,560,483**	**12,207,367**	**17,806,450**	**367,936,875**

Table 3.—Production of Leading Mineral Products, by Months, 1945 and 1946 —Concluded

1946	Feldspar	Gold	Gypsum	Lead	Lime
	tons	fine oz.	tons	pounds	tons
January	1,932	147,585	18,898	33,737,548	72,0[illegible]4
February	2,234	138,828	21,942	30,180,511	64,8[illegible]4
March	2,098	150,438	54,446	30,983,044	72,8[illegible]8
April	2,572	144,664	110,311	30,563,605	72,2[illegible]8
May	2,780	151,797	142,589	29,757,570	75,793
June	3,534	152,018	150,195	30,626,614	74,400
July	2,535	155,362	201,414	31,351,404	63,5[illegible]9
August	3,176	152,709	243,279	29,801,469	61,0[illegible]7
September	3,230	150,383	248,143	28,759,323	58,0[illegible]9
October	2,841	156,282	270,937	29,455,735	74,2[illegible]5
November	3,633	156,057	242,123	22,458,713	70,7[illegible]7
December	4,678	157,210	106,660	26,298,240	75,0[illegible]5
Total	**35,243**	**1,813,333**	**1,810,937**	**353,973,776**	**840,789**

1946	Natural Gas	Nickel	Petroleum	Salt	Silver	Zinc
	M cu. ft.	pounds	barrels	tons	fine oz.	pounds
January	5,164,209	14,002,307	678,418	53,890	1,172,602	41,398,931
February	4,790,054	12,611,580	608,580	50,313	1,013,668	39,464,881
March	4,236,895	15,880,314	661,675	56,576	1,028,797	42,612,319
April	3,700,580	18,719,206	642,626	59,766	1,135,744	41,260,879
May	3,494,275	14,924,792	648,065	62,651	1,011,263	40,576,485
June	3,151,566	15,385,761	620,188	59,458	1,142,305	38,946,545
July	2,915,218	16,451,200	632,914	30,477	1,233,310	39,233,386
August	2,994,858	15,637,241	621,538	17,068	1,155,447	38,848,356
September	3,258,015	16,167,710	623,200	20,229	929,005	38,254,560
October	3,996,106	17,441,984	637,428	27,403	906,467	36,535,523
November	4,846,530	17,694,162	618,093	43,964	820,218	36,714,909
December	5,352,178	17,208,289	592,830	56,190	995,274	36,773,585
Total	**47,900,484**	**192,124,537**	**7,585,555**	**537,985**	**12,544,100**	**470,620,360**

Table 4.—Values of the entire Mineral Production of Canada, by Provinces, since 1932

Year	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	$	$	$	$	$
1932	10,201,279	2,223,505	25,638,466	85,910,030	9,058,365
1933	16,966,183	2,107,682	28,141,482	110,205,021	9,026,951
1934	23,310,729	2,156,151	31,269,945	145,565,871	9,776,934
1935	23,183,128	2,821,027	39,124,696	158,934,269	12,052,417
1936	26,672,278	2,587,791	49,736,919	184,532,892	11,315,527
1937	30,314,188	2,763,643	65,160,215	230,042,517	15,751,645
1938	26,253,645	3,802,565	68,965,594	219,801,994	17,173,002
1939	30,746,200	3,949,433	77,335,998	232,519,948	17,137,930
1940	33,318,587	3,435,916	86,313,491	261,483,349	17,828,522
1941	32,569,867	3,690,375	99,651,044	267,435,727	16,089,867
1942	32,783,165	3,690,158	104,300,010	259,114,946	14,345,046
1943	29,979,837	3,676,834	101,610,678	232,948,959	13,412,266
1944	33,981,977	4,133,902	90,182,553	210,706,307	13,830,406
1945	32,220,659	4,182,100	91,518,120	216,541,856	14,429,423
1946	35,350,271	4,813,166	92,785,148	191,544,429	16,403,549

Table 4.—Values of the entire Mineral Production of Canada, by Provinces, since 1932 —Concluded

Year	Saskatchewan	Alberta	British Columbia	Yukon	Northwest Territories*
	$	$	$	$	$
1932	1,681,728	21,174,061	27,326,173	1,993,195	21,423
1933	2,477,425	19,702,953	30,794,504	2,041,223	279,729
1934	2,977,061	20,228,851	41,206,965	1,628,879	199,604
1935	3,816,943	22,289,681	48,692,050	1,302,308	541,638
1936	6,970,397	23,305,726	54,407,036	2,220,372	775,834
1937	10,271,463	25,597,117	73,555,798	3,784,528	994,518
1938	7,782,847	28,966,272	64,549,130	3,959,570	1,614,076
1939	8,794,090	30,691,617	65,216,745	4,961,321	3,248,777
1940	11,505,858	35,092,337	74,134,485	4,118,333	2,594,157
1941	15,020,555	41,364,385	76,841,180	3,117,992	3,860,298
1942	20,578,749	47,359,831	77,247,932	3,453,568	3,976,267
1943	26,735,984	48,941,210	68,442,386	1,625,819	2,679,993
1944	22,291,848	51,066,662	57,246,071	939,319	1,440,069
1945	22,336,074	51,753,237	64,063,842	1,239,058	470,812
1946	24,480,900	60,082,513	74,622,846	1,693,904	1,039,525

* Values of pitchblende products not included since 1941.

Table 5.—Mineral Production of Nova Scotia, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Gold ... fine oz.	5,840	224,840	3,201	126,704	4,321	158,797
Lead ... pound	...	...	...	...	...	...
Silver ... fine oz.	188	81	112	53	146	122
NON-METALLICS—						
Barite ... tons	106,106	970,774	108,434	1,165,623	117,691	987,473
Coal ... tons	5,745,671	30,728,535	5,112,615	28,350,278	5,452,898	30,253,654
Diatomite ... tons	5	175	24	740	49	1,505
Fluorspar ... tons	...	...	...	...	...	...
Grindstones ... tons	...	...	10	600	...	...
Gypsum ... tons	401,284	489,932	634,960	790,273	1,538,738	1,812,815
Quartz ... tons	10,100	27,350	10,734	36,171	7,525	15,550
Salt ... tons	38,809	281,482	37,825	254,138	38,371	329,579
Silica brick ... M	2,931	177,003	3,040	185,865	2,055	119,272
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Clay products	...	402,694	...	433,455	...	671,466
Lime—						
Quicklime ... tons	3,362	42,957	469	5,771	...	...
Hydrated lime ... tons	...	...	...	...	...	...
Sand and gravel ... tons	911,970	411,041	1,308,848	555,809	1,105,980	484,585
Stone ... tons	98,433	225,113	123,434	315,179	183,733	515,453
Total		**33,981,977**		**32,220,659**		**35,350,271**

Table 6.—Mineral Production of New Brunswick, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Iron ore ... tons	...	...	...	...	...	...
Manganese ore ... tons	...	...	...	...	...	...
NON-METALLICS—						
Coal ... tons	345,123	1,845,277	361,184	2,021,806	366,735	2,069,992
Grindstones ... tons	225	12,000	215	10,270	295	17,450
Gypsum ... tons	42,040	200,748	46,755	236,833	38,839	550,972
Natural gas ... M cu. ft.	702,464	341,636	653,230	317,568	541,010	262,441
Petroleum ... bbl.	23,296	32,832	30,140	42,413	28,584	40,018
Peat Moss ... tons	2,000	64,000	2,000	64,000	2,247	54,892
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Clay products	...	207,051	...	232,783	...	336,971
Lime—						
Quicklime ... tons	17,218	195,545	17,517	209,654	18,569	242,943
Hydrated lime ... tons	2,580	32,102	2,424	31,997	3,346	43,458
Sand and gravel ... tons	1,960,382	958,524	1,627,371	686,267	2,203,646	807,045
Stone ... tons	69,988	244,187	99,328	328,509	121,123	386,984
Total		**4,133,902**		**4,182,100**		**4,813,166**

Table 7.—Mineral Production of Quebec*, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Arsenic (As_2O_3) ... lb.	2,268,067	153,944	1,821,263	118,557	420,654	21,580
Bismuth ... lb.	...	...	...	...	6,484	9,078
Chromite ... tons	27,054	748,494	5,755	160,752	3,110	61,123
Copper ... lb.	108,055,172	12,966,620	102,685,069	12,886,976	69,797,697	8,934,105
Gold ... fine oz.	746,784	28,751,184	661,608	25,471,908	618,339	22,723,958
Lead ... lb.	10,487,842	471,953	9,229,726	461,486	7,359,708	496,780
Magnesium ... lb.	...	...	...	...	...	...
Molybdenite concentrates ... lb.	2,124,693	1,078,616	978,117	411,663	736,400	295,640
Selenium ... lb.	146,352	263,434	160,720	308,583	110,768	201,598
Silver ... fine oz.	2,500,681	1,075,293	2,149,570	1,010,298	1,916,453	1,603,113
Tellerium ... lb.	...	...	...	...	...	...
Titanium ore ... tons	33,973	165,195	14,147	67,575	1,406	7,735
Tungsten concentrates ... lb.	...	...	...	...	...	...
Zinc ... lb.	137,378,439	5,907,273	111,909,565	7,206,976	89,650,129	7,001,675
NON-METALLICS—						
Asbestos ... tons	419,265	20,619,516	466,894	22,802,511	558,181	25,240,283
Feldspar ... tons	17,842	177,271	26,389	247,242	29,758	330,981
Fluorspar ... tons	18	670	...	...	...	...
Iron oxides (ochre) ... tons	8,117	142,050	9,917	170,068	12,268	146,401
Magnesitic dolomite and brucite ...	...	1,139,281	...	1,278,596	...	1,225,593
Mica ... tons	1,137	178,899	1,428	121,011	1,199	108,667
Natural mineral waters ... Imp. gal.	148,965	78,226	236,476	125,523	211,842	121,526
Peat fuel ... tons	444	3,597	...	...	...	...
Peat moss ... tons	19,033	359,724	18,517	387,499	26,382	501,073
Phosphate ... tons	482	6,716	291	4,236	57	869
Quartz ... tons	236,091	639,429	195,857	626,079	214,076	612,128
Soapstone and talc ... tons	19,013	204,127	14,225	153,694	14,914	150,004
Sulphur ... tons	116,887	453,501	105,613	445,534	92,716	375,328
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Cement ... bbl.	3,249,302	4,736,004	3,872,373	5,985,077	5,046,166	7,910,548
Clay products ...	...	1,881,791	...	2,534,630	...	3,457,168
Lime—						
Quicklime ... tons	250,616	2,167,913	244,490	1,911,566	209,573	1,874,251
Hydrated lime ... tons	88,466	336,165	66,567	284,271	86,920	430,575
Sand and gravel ... tons	8,541,400	2,140,856	8,971,960	2,279,537	12,374,125	3,313,103
Stone ... tons	2,593,842	3,334,811	2,670,161	4,056,272	3,486,259	5,630,265
Total ...	...	**90,182,553**	...	**91,518,120**	...	**92,785,148**

* There is also in this province an important production of aluminum from imported ores.

Table 8.—Mineral Production of Ontario, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Arsenic (As_2O_3)....lb.	358,955	26,922	224,467	12,352	325,231	16,684
Calcium....lb.	.....	.....	22,720	19,312	53,548	68,720
Cobalt (a)....lb.	36,283	34,106	109,123	90,026	73,900	70,215
Copper....lb.	285,307,278	33,845,632	239,450,875	29,771,633	179,424,639	22,502,528
Gold....fine oz.	1,731,836	66,675,686	1,625,368	62,576,068	1,813,333	66,639,988
Iron ore....short tons	553,252	1,909,608	1,135,444	3,635,095	1,549,523	6,822,947
Lead....lb.	1,065,741	47,958	668,762	33,438	699,244	47,199
Magnesium....lb.	10,579,878	2,575,605	7,358,545	1,607,264	320,677	75,538
Molybdenite (concentrates)....lb.	2,815	1,082	.....	.....	.....	.....
Nickel....lb.	274,598,629	69,204,152	245,130,983	61,982,133	192,124,537	45,385,155
Palladium, rhodium, etc..fine oz.	42,929	1,060,085	458,674	18,671,074	117,566	5,162,801
Platinum....fine oz.	157,523	6,064,635	208,234	8,017,010	121,771	7,672,791
Selenium....lb.	65,000	117,000	168,000	322,560	270,606	492,503
Silver....fine oz.	3,143,275	1,351,608	3,185,369	1,497,123	2,485,215	2,078,882
Tellurium....lb.	9,900	17,325	.....	.....	14,200	21,868
Tungsten concentrates....lb.	63,152	5,212	787	714	.....	.....
Zinc....lb.	2,429,176	104,455	237,799	15,314	42,628	3,329
NON-METALLICS—						
Asbestos....tons	.....	.....	3	2,646	.....	279
Barite....tons	.....	.....	.....	.....	.....	.....
Corundum....tons	173	17,111	1,317	130,393	742	102,340
Feldspar....tons	5,667	50,361	3,857	35,414	5,485	53,696
Fluorspar....tons	6,906	217,031	7,369	233,708	8,042	237,491
Garnet (schist)....tons	3	90	.....	.....	2	1,200
Graphite....tons	1,582	171,166	1,910	179,001	1,975	180,405
Gypsum....tons	90,288	348,873	92,174	385,516	122,524	492,179
Mica....tons	1,743	646,745	1,452	95,123	2,353	66,952
Natural mineral waters Imp. gal.	7,185	805	8,285	976	6,000	878
Natural gas....M cu. ft.	7,082,508	4,694,097	7,199,970	4,837,586	7,051,309	4,656,528
Nepheline syenite....tons	47,625	217,989	61,345	275,766	61,261	229,198
Peat (fuel)....tons	200	1,800	118	1,062	145	1,305
Peat (moss)....tons	12,490	144,820	11,667	224,100	17,176	228,496
Petroleum....bbl.	125,067	296,420	113,325	268,478	123,082	291,719
Phosphate....tons	.....	.....	8	120	.....	.....
Quartz (b)....tons	1,326,288	868,389	1,165,238	820,664	1,052,644	852,713
Salt....tons	603,896	2,906,117	578,697	2,920,973	441,679	2,408,279
Silica brick....M	1,060	135,089	1,168	131,398	847	78,532
Sulphur†....tons	17,876	178,760	16,847	168,470	15,433	154,330
Talc....tons	13,584	153,122	12,863	141,194	14,439	153,680
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Cement....bbl.	1,863,210	2,730,381	2,460,996	3,805,131	3,677,695	6,025,503
Clay Products....	.....	2,347,396	.....	3,107,189	.....	4,288,780
Lime—						
Quicklime....tons	391,678	2,886,778	360,597	2,682,658	362,898	2,712,150
Hydrated lime....tons	37,607	424,399	38,050	449,018	49,273	604,081
Sand and gravel....tons	9,529,803	4,417,427	10,466,891	4,466,862	14,881,918	6,738,595
Stone....tons	2,988,283	2,909,980	2,952,357	2,926,694	3,890,277	3,923,972
Total....	.....	**210,706,307**	.....	**216,541,856**	.....	**191,544,429**

† Sulphur content of pyrites shipped and estimated sulphur salvaged from smelter gases.

(a) Exclusive of metal in ore placed on Government stock pile at Deloro, Ontario, but includes any metal reshipped from stock pile.

(b) Includes low grade silica sand for fluxing purposes.

Table 9.—Mineral Production of Manitoba, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Cadmium ... lb.	20,921	23,013	27,891	27,612	63,410	77,360
Copper ... lb.	43,878,639	5,265,437	41,126,155	5,131,332	38,501,047	4,928,134
Gold ... fine oz.	74,168	2,855,468	70,655	2,720,218	79,402	2,918,024
Selenium ... lb.	12,957	23,323	9,258	17,775	46,118	83,935
Silver ... fine oz.	569,873	245,045	533,883	250,925	528,017	441,086
Tellurium ... lb.	113	198	89	171	349	637
Thallium ... lb.	128	1,690	...	...	...	...
Zinc ... lb.	45,822,278	1,970,358	34,860,754	2,245,033	35,580,537	2,778,840
NON-METALLICS—						
Coal ... tons	...	...	...	...	...	...
Gypsum ... tons	38,330	368,498	42,275	300,636	63,187	428,133
Lithium minerals ... $	...	...	...	...	...	...
Peat moss ... tons	1,128	41,878	1,181	43,243	1,772	65,039
Salt ... tons	27,267	488,776	27,133	449,561	26,166	446,472
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Cement ... bbl.	865,756	1,698,567	959,398	2,027,629	1,254,946	2,811,234
Clay products	...	197,383	...	269,917	...	372,920
Lime—						
Quicklime ... tons	20,428	178,876	23,080	200,808	27,178	242,536
Hydrated lime ... tons	9,466	122,256	8,415	112,385	10,182	149,798
Sand and gravel ... tons	1,102,448	296,086	1,497,062	516,380	1,333,890	416,431
Stone ... tons	31,929	53,554	62,626	85,798	65,132	242,470
Total	...	**13,830,406**	...	**14,429,423**	...	**16,403,519**

Table 10.—Mineral Production of Saskatchewan, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Cadmium ... lb.	119,639	131,603	107,741	106,663	102,925	125,565
Copper ... lb.	73,514,499	8,821,740	65,000,701	8,270,538	62,712,954	8,027,258
Gold ... fine oz.	122,782	4,727,107	108,568	4,379,868	112,101	4,119,712
Selenium ... lb.	74,283	133,709	41,209	79,121	94,375	171,762
Silver ... fine oz.	1,735,773	746,382	1,426,457	670,435	1,498,496	1,253,492
Tellurium ... lb.	648	1,134	395	758	1,299	2,000
Zinc ... lb.	87,130,087	3,746,594	75,413,851	4,856,652	71,077,110	5,551,122
NON-METALLICS—						
Coal ... tons	1,372,766	2,034,914	1,532,995	2,327,082	1,523,786	2,544,925
Quartz (a) ... tons	143,101	50,085	141,799	52,544	130,105	47,542
Salt ... tons	...	...	...	...	...	...
Sodium sulphate ... tons	102,421	987,842	93,068	884,322	105,919	1,117,683
Natural gas ... M cu. ft.	119,116	46,656	163,824	58,165	209,569	61,740
Petroleum crude ... bbl.	...	...	14,374	15,302	118,686	135,990
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Clay products	...	330,007	...	271,288	...	411,440
Sand and gravel ... tons	1,163,097	533,175	1,237,595	563,276	1,732,731	910,665
Total	...	**22,291,848**	...	**22,336,074**	...	**24,480,900**

(a) Low grade silica sand for fluxing purposes.

Table 11.—Mineral Production of Alberta, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Gold ... fine oz.	51	1,963	7	269	110	4,042
Silver ... fine oz.	4	2	1	.....	12	10
NON-METALLICS—						
Bituminous sands ... tons	(a)	(a)	(a)	(a)	(a)	(a)
Coal ... tons	7,428,708	26,814,937	7,800,151	27,751,377	8,826,239	33,339,579
Natural gas ... M cu. ft.	37,161,570	6,339,817	40,393,061	7,095,910	40,097,096	7,184,008
Peat moss ... tons	.....	.....	.....	.....	.....	.....
Petroleum ... bbl.	8,727,366	14,468,061	7,979,786	13,169,692	7,137,921	14,347,933
Salt ... tons	25,335	397,646	29,421	430,048	31,769	441,835
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Cement ... bbl.	699,989	1,370,502	620,337	1,246,346	809,721	1,635,222
Clay products	.....	1,143,577	.....	1,401,875	.....	1,808,971
Lime—						
Quicklime ... tons	18,102	151,457	19,240	163,172	21,962	186,696
Hydrated lime ... tons	750	7,500	615	6,150	1,823	18,230
Sand and gravel ... tons	833,524	328,151	919,736	433,436	1,812,468	1,060,703
Stone ... tons	12,726	43,049	13,528	54,962	13,417	55,286
Total	.....	**51,066,662**	.....	**51,753,237**	.....	**60,082,513**

(a) Included with petroleum refining; no crude sands sold.

Table 12.—Mineral Production of British Columbia, 1944-1946

Product	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
METALLICS—						
Antimony ... lb.	1,937,933	281,000	1,667,951	290,557	642,145	96,322
Arsenic (As_2O_3) ... lb.	(a)	(a)	(a)	(a)	(a)	(a)
Bismuth ... lb.	123,875	154,844	189,815	260,047	234,020	327,628
Cadmium ... lb.	386,410	425,051	510,432	505,328	636,315	776,304
Copper ... lb.	36,302,628	4,356,315	25,751,252	3,231,782	17,500,538	2,240,068
Gold ... fine oz.	196,857	7,578,994	186,854	7,193,879	136,242	5,096,893
Lead ... lb.	292,922,888	13,181,530	336,976,468	16,848,823	345,862,680	23,345,731
Mercury ... lb.	735,908	1,210,375	.....	.....	.....	.....
Platinum ... fine oz.	.....	.....	.....	.....	.....	.....
Silver ... fine oz.	5,631,572	2,421,576	5,620,323	2,641,552	6,078,419	5,084,597
Tin ... lb.	516,626	299,643	849,983	492,990	874,186	507,028
Tungsten concentrates ... lb.	818,000	236,788	366	331	.....	.....
Zinc ... lb.	278,063,373	11,956,725	294,791,635	18,984,581	274,269,956	21,420,484
NON-METALLICS—						
Barite ... tons	12,613	52,922	31,155	45,780	2,728	19,000
Coal ... tons	2,134,231	9,009,506	1,699,768	7,137,859	1,636,792	7,153,330
Diatomite ... tons	8	262	22	498	41	1,927
Gypsum ... tons	24,222	103,927	23,617	70,032	47,649	387,404
Iron oxides (ochre) ... tons	482	8,200	397	1,985	427	5,867
Mica (schist) ... tons	462	15,382	642	17,130	803	23,420
Peat moss ... tons	45,794	3,259,131	50,597	1,202,207	49,263	1,546,149
Quartz ... tons	24,682	73,156	.....	.....	9,028	26,865
Sodium carbonate ... tons	44	484	286	3,146	.....	.....
Sulphur* ... tons	113,325	1,123,478	127,654	1,267,317	126,622	1,255,008
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS—						
Cement ... bbl.	512,504	1,085,918	558,575	1,182,297	771,955	1,739,066
Clay Products	.....	486,626	.....	601,955	.....	859,645
Lime—						
Quicklime ... tons	36,798	324,553	42,780	406,239	44,494	519,697
Hydrated lime ... tons	8,071	56,343	8,009	61,349	4,581	50,555
Sand and gravel ... tons	4,357,362	1,194,859	3,721,240	1,066,796	4,505,236	1,798,577
Stone ... tons	199,791	348,483	284,121	399,286	296,319	431,281
Total	.....	**57,246,071**	.....	**64,063,842**	.....	**74,622,846**

* Includes sulphur content of pyrites shipped and estimated sulphur contained in sulphuric acid and other products made from waste smelter gases.

(a) Considerable arsenic is contained in auriferous quartz ores exported. However this is not paid for and data relating to its possible recovery are unobtainable.

Table 13.—Mineral Production of Yukon and the North West Territories, 1944-1946

Produc	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
		$		$		$
YUKON						
METALLICS—						
Antimony ... lb.	...	...	...	...	...	...
Gold ... fine oz.	23,818	916,993	31,721	1,221,258	45,286	1,664,230
Lead ... lb.	105,727	4,758	119,516	5,976	52,144	3,520
Silver ... fine oz.	32,066	13,788	25,158	11,824	31,230	26,124
Tungsten concentrates ... lb.	5,593	3,780	...	...	...	...
NON-METALLIC—						
Coal ... tons	...	...	...	...	...	...
Total	...	**939,319**	...	**1,239,058**	...	**1,693,904**
NORTH WEST TERRITORIES						
Copper ... lb.	11,902	1,428	...	...	...	...
Gold ... fine oz.	20,775	799,838	8,655	333,218	23,420	860,685
Pitchblende products	(a)	(a)	(a)	(a)	(a)	(a)
Natural gas ... M cu. ft.	1,500	335	1,500	335	1,500	335
Silver ... fine oz.	13,677	5,881	2,033	956	6,112	5,113
Petroleum, crude ... bbl.	1,223,675	632,587	345,171	136,303	177,282	173,392
Tungsten concentrates ... lb.	...	...	...	...	...	...
Total	...	**1,440,069**	...	**470,812**	...	**1,039,525**

(a) Data not available for publication.

Table 14.—Tonnage of Ore Mined and Rock Quarried in the Canadian Mining Industry, 1922-1946

—	1946	1945	1944	1943	1942
Gold quartz ores	10,712,615	9,780,555	10,790,495	12,853,610	17,722,860
Copper-gold-silver ores	5,009,490	5,914,580	7,395,608	8,251,579	8,575,620
Nickel-copper ores	8,224,751	10,854,735	12,954,201	12,925,590	12,081,545
Silver-cobalt ores	32,841	30,519	27,184	39,184	25,556
Silver-lead-zinc ores	2,805,658	3,086,683	2,911,824	3,252,657	2,951,480
Miscellaneous metals (iron ore etc.)	2,131,691	1,605,514	1,250,800	1,359,008	1,120,478
Asbestos	9,127,859	8,765,370	7,778,805	7,929,471	8,233,516
Feldspar and nepheline syenite	71,214	91,535	84,089	90,416	77,049
Quartz, exclusive of sand (shipments)	879,310	807,002	988,758	947,195	487,664
Gypsum and anhydrite	2,027,045	830,723	536,356	430,822	794,888
Talc and soapstone	28,624	26,599	30,553	22,128	30,376
Iron oxides	8,823	8,189	15,519	12,648	15,629
Other non-metals	589,036	614,286	536,957	529,326	457,251
Stone, all kinds, quarries (exclusive of stone used for cement and lime)	8,056,260	6,205,555	5,994,992	7,222,950	7,978,066
Stone used for the manufacture of cement	2,525,653	1,919,858	1,939,900	1,994,202	2,155,750
Estimate rock for the manufacture of lime	1,445,891	1,482,077	1,571,451	1,614,481	1,574,508
Total (other than coal)	**53,676,761**	**52,023,780**	**54,807,492**	**59,475,267**	**64,282,240**

	1941	1940	1939	1938	1937
Gold quartz ores	20,031,736	18,986,306	17,105,744	14,749,649	12,388,489
Copper-gold-silver ores	9,263,071	8,931,291	8,474,855	7,929,434	6,749,809
Nickel-copper ores	9,974,272	8,361,532	7,859,496	6,282,799	6,392,062
Silver-cobalt ores	11,507	43,245	60,431	59,408	56,878
Silver-lead-zinc ores	2,816,974	2,640,973	2,195,138	2,387,167	2,524,548
Miscellaneous metals	883,851	306,056	191,654	1,307	17,509
Asbestos	7,707,367	7,612,150	6,650,416	5,816,368	6,477,805
Feldspar and nepheline syenite	57,861	101,645	79,346	50,768	53,001
Quartz	335,085	228,065	273,839	450,246	459,740
Gypsum	1,532,228	1,468,820	1,532,423	1,084,057	1,151,004
Talc and soapstone	38,067	20,514	14,111	10,366	7,271
Iron oxides	15,917	15,623	10,049	8,919	7,665
Other non-metals	412,159	306,765	216,253	179,932	243,670
Stone, all kinds, quarries (exclusive of stone used for cement and lime)	7,940,801	7,447,665	5,443,522	5,116,022	6,935,612
Stone used for the manufacture of cement (estimated from 1922-1929)	2,086,781	1,765,944	1,379,858	1,344,868	1,465,168
Estimate rock for the manufacture of lime	1,530,200	1,280,949	900,000	867,583	976,900
Total	**64,637,877**	**59,515,543**	**52,387,135**	**46,338,893**	**45,829,091**

Table 14.—Tonnage of Ore Mined and Rock Quarried in the Canadian Mining Industry, 1922-1946—Concluded

—	1936	1935	1934	1933	1932
Gold-quartz ores	10,694,208	8,832,901	7,846,854	6,528,854	6,072,665
Copper-gold-silver ores	5,052,222	5,650,665	6,065,692	5,448,690	5,453,173
Nickel-copper ores	4,066,554	3,699,845	2,989,988	1,533,887	826,041
Silver-cobalt ores	59,592	57,287	54,498	60,317	70,442
Silver-lead-zinc ores	2,196,482	2,134,749	1,856,256	1,457,452	1,532,628
Miscellaneous metals	9,440	4,970	3,618	3,000	77
Asbestos	4,692,004	2,852,118	2,320,750	1,566,919	1,145,340
Feldspar and nepheline syenite	20,703	15,706	18,302	10,658	4,903
Quartz	249,960	226,857	272,563	185,783	267,031
Gypsum	841,116	562,471	488,066	370,591	437,153
Talc and soapstone	25,052	13,909	15,050	16,626	13,275
Iron oxides	7,223	6,152	6,182	4,379	14,262
Other non-metals	231,849	128,415	173,669	129,514	52,154
Stone, all kinds, quarries (exclusive of stone used for cement and lime)	4,982,912	4,317,947	4,077,754	2,939,824	4,691,172
Stone used for the manufacture of cement (estimated from 1922-1929)	1,180,358	818,443	806,546	616,364	1,141,376
Estimate rock for the manufacture of lime	800,000	700,000	600,000	573,726	569,500
Total	**35,789,675**	**30,022,435**	**27,595,788**	**21,446,584**	**22,231,192**

	1931	1930	1929	1928	1927
Gold quartz ores	5,565,426	4,472,803	4,354,744	4,601,628	4,605,190
Copper-gold-silver ores	6,002,865	5,768,664	5,134,824	4,262,822	3,636,759
Nickel-copper ores	1,714,075	2,127,043	1,991,910	1,457,910	1,305,917
Silver-cobalt ores	200,729	223,432	242,591	260,644	303,134
Silver-lead-zinc ores	1,710,732	2,244,970	2,208,270	2,097,179	1,763,660
Miscellaneous metals	1,608	.....	.....	.....	.....
Asbestos	2,274,048	4,901,206	6,208,970	5,171,060	4,834,761
Feldspar and nepheline syenite	13,897	26,796	37,527	31,897	31,484
Quartz	180,110	226,200	265,949	290,721	245,318
Gypsum	882,880	1,070,968	1,211,689	1,311,642	1,105,704
Talc and soapstone	21,916	11,841	.....	17,076	16,521
Iron oxides	12,465	6,596	.....	10,841	7,767
Other non-metals	120,205	.....	.....	.....	.....
Stone, all kinds, quarries (exclusive of stone used for cement and lime)	8,398,110	9,994,656	9,622,424	8,253,804	7,306,436
Stone used for the manufacture of cement (estimated from 1922-1929)	2,489,147	2,925,399	3,000,000	2,800,000	2,400,000
Estimate rock for the manufacture of lime	610,000	874,000	1,203,000	905,000	790,000
Total	**30,198,213**	**34,874,574**	**35,481,898**	**31,472,224**	**28,352,651**

	1926	1925	1924	1923	1922
Gold quartz ores	4,031,035	3,646,460	3,096,290	2,478,912	2,431,340
Copper-gold-silver ores	3,210,321	2,518,849	2,232,085	1,690,073	1,004,097
Nickel copper ores	1,322,050	1,264,748	1,411,978	1,187,355	259,569
Silver-cobalt ores	336,066	357,029	433,176	437,222	426,445
Silver-lead-zinc ores	1,565,158	1,474,764	1,200,039	636,498	505,774
Miscellaneous metals	.....	.....	.....	.....	.....
Asbestos	4,002,626	4,120,214	3,323,505	3,768,542	2,562,933
Feldspar and nepheline syenite	35,951	.....	44,804	.....	.....
Quartz	238,343	197,224	150,896	272,070	125,245
Gypsum	931,193	705,852	703,733	558,853	484,629
Talc and soapstone	16,650	15,390	11,240	10,235	.....
Iron oxides	6,626	13,225	.....	.....	.....
Other non-metals	.....	.....	.....	.....	.....
Stone, all kinds, quarries (exclusive of stone used for cement and lime)	6,397,590	5,706,119	4,768,014	4,111,334	3,639,081
Stone used for the manufacture of cement (estimated from 1922-1929)	2,200,000	1,900,000	1,900,000	1,900,000	1,600,000
Estimate rock for the manufacture of lime	715,700	637,000	570,000	625,000	561,000
Total	**25,009,309**	**22,556,874**	**19,845,760**	**17,676,094**	**13,600,113**

YEARLY AVERAGE PRICES OF COPPER, LEAD, ZINC AND SILVER

Table 15.—(Copper, lead and zinc in U.S. cents per pound; silver, U.S. cents per ounce) (From the American Bureau of Metal Statistics)

Year	Copper New York (b)	Lead New York	Zinc (a)	Silver New York	Year	Copper New York (b)	Lead New York	Zinc (a)	Silver New York
	Yearly average	Yearly average	Yearly average	Yearly average		Yearly average	Yearly average	Yearly average	Yearly average (c)
1889	13·750	3·930	5·023	93·600	1918	24·628	7·413	7·890	96·775
1890	15·750	4·480	5·550	104·600	1919	18·691	5·759	6·988	111·127
1891	12·625	4·350	5·020	98·800	1920	17·456	7·957	7·671	100·902
1892	11·550	4·090	4·630	87·600	1921	12·502	4·545	4·655	62·652
1893	10·750	3·730	4·080	78·200	1922	13·382	5·734	5·716	67·520
1894	9·560	3·290	3·520	63·000	1923	14·421	7·267	6·607	64·874
1895	10·760	3·230	3·630	65·280	1924	13·024	8·097	6·344	66·788
1896	10·880	2·980	3·940	67·060	1925	14·042	9·020	7·622	69·063
1897	11·290	3·580	4·120	59·790	1926	13·795	8·417	7·337	62·107
1898	12·030	3·780	4·570	58·260	1927	12·920	6·755	6·242	56·370
1899	16·670	4·470	5·750	59·580	1928	14·570	6·305	6·027	58·176
1900	16·190	4·370	4·390	61·330	1929	18·107	6·833	6·512	52·993
1901	16·110	4·330	4·070	58·950	1930	12·982	5·517	4·556	38·154
1902	11·626	4·069	4·840	52·160	1931	8·116	4·243	3·640	28·700
1903	13·235	4·237	5·191	53·570	1932	5·555	3·180	2·876	27·892
1904	12·823	4·309	4·931	57·221	1933	7·025	3·869	4·029	34·727
1905	15·590	4·707	5·730	60·352	1934	8·428	3·860	4·158	47·973
1906	19·278	5·657	6·048	66·791	1935	8·649	4·065	4·328	64·273
1907	20·004	5·325	5·812	65·327	1936	9·474	4·710	4·901	45·087
1908	13·208	4·200	4·578	52·864	1937	13·167	6·009	6·519	44·883
1909	12·982	4·273	5·352	51·502	1938	10·000	4·739	4·610	43·225
1910	12·738	4·446	5·370	53·486	1939	10·965	5·053	5·110	39·082
1911	12·376	4·420	5·608	53·304	1940	11·296	5·179	6·335	34·773
1912	16·341	4·471	6·799	60·835	1941	11·797	5·793	7·474	34·783
1913	15·269	4·370	5·504	59·791	1942	11·775	6·481	8·250	38·333
1914	13·602	3·862	5·061	54·811	1943	11·775	6·500	8·250	44·750
1915	17·275	4·673	13·054	49·684	1944	11·775	6·500	8·250	44·750
1916	27·202	6·858	12·634	65·661	1945	11·775	6·500	8·250	51·928
1917	27·180	8·787	8·730	81·411	1946	13·820	8·109	8·726	80·151

(a) To 1902, price of zinc at New York; for later years, price of zinc at East St. Louis.
(b) To 1898, price of Lake Copper.
(c) 1932–1946—for other than newly mined domestic.

Table 16.—Average Annual Metal Prices, in Canadian Dollars, 1930-1946

Year	Gold	Silver	Copper	Lead	Zinc
	Troy oz.	Troy oz.	Pound	Pound†	Pound†
	$	$	$	$	$
1930	20·67	0·381	0·130*	0·039	0·036
1931	21·55	0·298	0·0837*	0·027	0·025
1932	23·47	0·317	0·0638	0·021	0·024
1933	28·60	0·378	0·0745	0·024	0·032
1934	34·50	0·475	0·0742	0·024	0·030
1935	35·19	0·648	0·0780	0·031	0·031
1936	35·03	0·451	0·0948	0·039	0·033
1937	34·99	0·449	0·131	0·051	0·0490
1938	35·17	0·435	0·0997	0·034	0·031
1939	36·14	0·405	0·101†	0·032	0·031
1940	38·50	0·382	0·101	0·034	0·034
1941	38·50	0·3826	0·101	0·034	0·034
1942	38·50	0·4216	0·101	0·034	0·034
1943	38·50	0·4525	0·1175	0·0375	0·040
1944	38·50	0·430	0·120	0·045	0·043
1945	38·50	0·470	0·1255	0·050	0·0644
1946	36·75	0·8365	0·128	0·0675	0·0781

* Based on New York; 1932–1942 based on London.
† Based on London; prices controlled by Government since 1939 and subject to revision since 1939.

Table 17.—Principal Statistics of the Mineral Industry in Canada, by Industries, 1942-1946

1 Year	2 Number of active firms	3 Number of operating mines, oil and gas wells, quarries, gravel pits, etc.	4 Capital employed (excluding ore reserves or other unmined material) (a) $	5 Number of employees	6 Salaries and wages $	7 Cost of process supplies, purchased electricity and fuel also freight and smelter charges (c) $	8 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries $
Metal Mining Industries							
Alluvial Gold Mines							
1942	80	80	10,071,917	471	1,283,274	206,635	4,114,995
1943	43	43	11,372,849	237	646,283	157,758	1,892,214
1944	47	47	.....	211	598,556	84,104	1,197,021
1945	38	38	.....	234	692,683	80,748	1,546,005
1946	39	39	.....	340	1,112,984	155,943	1,693,568
Auriferous Quartz Mines							
1942	223	227	215,240,997	26,030	54,388,872	28,625,881	131,938,902
1943	151	156	212,675,979	19,038	40,605,283	21,236,137	95,597,710
1944	257	262	.....	17,226	37,023,595	19,029,032	75,234,384
1945	712	716	.....	18,388	37,690,177	18,242,253	67,577,062
1946	684	686	.....	21,973	47,211,062	22,080,531	66,342,152
Copper-Gold-Silver Mines							
1942	26	28	84,776,243	5,646	11,097,412	35,459,148	33,688,642
1943	20	22	94,750,186	5,748	11,896,827	29,695,643	43,840,679
1944	23	26	.....	5,175	10,710,071	24,191,776	38,198,039
1945	38	41	.....	4,658	9,663,612	21,134,603	38,165,269
1946	41	43	.....	4,958	10,243,487	16,870,567	37,433,982
Silver-Cobalt Mines							
1942	13	14	358,691	192	283,980	150,043	600,207
1943	20	21	587,039	221	290,654	142,312	578,861
1944	10	11	.....	165	260,575	99,600	323,260
1945	7	8	.....	166	247,203	69,967	82,508
1946	11	11	.....	247	404,012	118,363	207,483
Silver-Lead-Zinc Mines							
1942	44	44	19,484,442	2,185	4,730,370	4,268,352	23,504,642
1943	31	32	20,603,191	3,097	6,423,724	5,140,238	21,932,644
1944	20	20	.....	2,769	5,810,290	4,489,198	16,802,759
1945	20	20	.....	2,485	5,473,582	4,234,261	22,867,203
1946	33	31	.....	2,451	5,987,111	9,079,895	39,262,606
Nickel-Copper Mines							
1942	4	8	48,303,780	7,147	15,365,207	8,186,777	50,801,633
1943	6	10	52,250,437	7,270	15,863,646	8,896,063	54,324,097
1944	5	9	.....	7,628	14,678,695	9,048,726	54,621,989
1945	4	8	.....	5,997	13,008,156	7,790,226	45,605,169
1946	5	9	.....	4,439	10,166,680	5,332,956	34,960,264
Miscellaneous Metal Mines							
1942	68	67	3,956,427	1,352	2,396,731	1,519,686	3,996,555
1943	54	59	15,603,307	1,964	4,295,153	2,540,873	6,521,495
1944	27	27	.....	1,385	2,809,013	2,057,850	3,303,143
1945	24	23	.....	985	2,041,349	2,519,571	1,756,559
1946	21	21	.....	1,037	2,338,442	3,479,336	3,708,109
Non-Ferrous Metal Smelting and Refining							
1942	10	15	356,052,965	21,192	37,340,556	(b)321,736,352	†125,881,047
1943	9	16	392,217,159	26,749	48,491,732	(b)399,356,356	†111,857,020
1944	9	16	.....	23,927	44,536,991	(b)350,903,763	†123,303,038
1945	9	17	.....	16,771	33,853,120	(b)265,777,648	† 89,898,878
1946	9	15	.....	14,546	30,648,361	(b)235,152,602	† 69,565,922
Total Metal Mining Industries							
1942	**468**	**483**	**768,245,462**	**64,485**	**126,886,402**	**400,152,674**	**374,526,623**
1943	(d)**334**	**359**	**800,060,147**	**64,321**	**128,483,302**	**467,465,380**	**336,544,720**
1944	(e)**398**	**418**	.....	**58,486**	**116,427,696**	**409,904,019**	**312,982,733**
1945	(f)**852**	**871**	.....	**49,684**	**102,669,882**	**319,819,277**	**267,198,653**
1946	(g)**843**	**855**	.....	**49,991**	**108,112,139**	**292,270,193**	**253,174,086**

* Contains data relating to silver pitchblende ores in the Northwest Territories. † Value added by smelting.

(a) Not reported in 1944-1946.

(b) Includes fuel and electricity used for metallurgical purposes and cost of ores, etc., treated.

(c) See end of table.

(d) 285 producing. (e) 213 producing. (f) 183 producing. (g) 178 producing.

Table 17.—Principal Statistics of the Mineral Industry in Canada, by Industries, 1942-1946—Continued

1 Year	2 Number of active firms	3 Number of operating mines, oil and gas wells, quarries, gravel pits, etc.	4 Capital employed (excluding ore reserves or other unmined material) (a) $	5 Number of employees	6 Salaries and wages $	7 Cost of process supplies, purchased electricity and fuel also freight and smelter charges (c) $	8 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries $
Total Non-Metal Mining Industries, including Fuels							
*FUELS							
Coal							
1942	380	419	108,766,697	26,205	42,091,137	10,965,528	49,473,22
1943	356	413	111,867,036	26,473	47,291,919	11,551,496	48,329,450
1944	341	394	.....	25,596	55,020,537	12,712,820	54,344,700
1945	324	373	.....	25,301	49,431,965	11,604,450	52,642,796
1946	315	365	.....	25,487	51,343,975	12,637,105	59,007,029
Natural Gas							
1942	212	3,566	82,768,602	1,940	2,826,811	104,802	11,251,548
1943	191	3,558	83,963,163	1,882	2,846,514	189,740	11,362,956
1944	211	3,621	.....	1,810	2,885,654	201,152	9,571,205
1945	218	3,748	.....	1,890	2,993,091	245,812	10,614,782
1946	219	3,825	.....	1,655	2,491,361	248,437	10,339,738
Petroleum							
1942	242	2,253	54,707,282	1,972	3,648,965	1,207,463	15,668,660
1943	233	2,197	59,058,622	2,399	5,212,895	912,358	15,994,422
1944	224	2,264	.....	2,547	5,814,676	1,242,795	14,575,563
1945	229	2,222	.....	1,968	3,898,662	866,059	13,255,862
1946	240	2,314	.....	1,503	3,260,571	1,024,016	13,701,033
TOTAL FUELS							
1942	*834*	*6,238*	*246,242,581*	*30,117*	*48,566,913*	*12,277,793*	*76,393,437*
1943	*780*	*6,168*	*254,888,881*	*30,754*	*55,351,328*	*12,653,594*	*75,686,828*
1944	*776*	*6,279*	.....	*29,953*	*63,720,867*	*14,156,767*	*78,491,468*
1945	*771*	*6,343*	.....	*29,159*	*56,323,718*	*12,716,321*	*76,513,440*
1946	*774*	*6,504*	.....	*28,705*	*57,095,907*	*13,909,648*	*83,647,800*
OTHER NON-METAL MINING INDUSTRIES							
Asbestos							
1942	8	10	18,741,364	3,749	5,299,454	4,393,973	18,277,235
1943	9	10	20,831,427	3,844	5,576,734	4,509,876	19,899,540
1944	9	10	.....	4,050	6,401,185	4,016,059	17,820,317
1945	11	12	.....	4,237	6,679,885	4,235,725	19,857,074
1946	11	12	.....	4,547	7,771,921	4,975,892	20,269,687
Feldspar, Quartz and Nepheline Syenite							
1942	36	38	2,563,248	533	782,903	412,028	1,586,968
1943	35	37	2,895,131	535	768,199	456,852	1,681,377
1944	41	42	.....	529	772,385	467,937	1,636,093
1945	31	31	.....	483	707,517	467,290	1,626,590
1946	34	36	.....	517	876,034	440,701	1,727,972

* Production of peat since 1929 included with the other non-metallics.

(c) Se footnote at end of table. (a) not reported in 1944-1946.

Table 17.—Principal Statistics of the Mineral Industry in Canada, by Industries, 1942-1946—Continued

1 Year	2 Number of active firms	3 Number of operating mines, oil and gas wells, quarries, gravel pits, etc.	4 Capital employed (excluding ore reserves or other unmined material) (a) $	5 Number of employees	6 Salaries and wages $	7 Cost of process supplies, purchased electricity and fuel, also freight and smelter charges (c) $	8 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries $
OTHER NON-METAL MINING INDUSTRIES—Continued							
GYPSUM							
1942	7	13	4,386,531	510	657,620	244,139	1,010,043
1943	6	12	5,147,424	438	617,780	248,043	1,133,425
1944	8	14	.....	328	490,872	387,941	1,124,037
1945	7	13	.....	434	647,287	575,645	1,207,645
1946	8	14	.....	753	1,246,673	806,571	2,890,156
IRON OXIDES (OCHRE)							
1942	5	5	194,541	47	44,288	26,615	125,038
1943	5	5	254,891	47	46,554	27,028	108,865
1944	6	6	.....	55	49,876	37,485	112,765
1945	5	5	.....	51	58,011	35,401	136,652
1946	5	5	.....	60	77,727	36,017	116,251
MICA							
1942	106	106	1,460,769	361	258,605	37,313	346,254
1943	78	78	458,402	430	357,992	54,395	499,461
1944	70	70	.....	400	359,797	56,624	784,402
1945	40	40	.....	174	190,138	50,492	182,778
1946	27	27	.....	129	153,616	38,086	160,953
PEAT (b)							
1942	35	35	3,212,921	1,316	1,380,142	277,086	1,031,211
1943	44	44	2,477,287	1,012	1,000,348	307,674	1,384,770
1944	39	39	.....	1,183	1,154,009	383,376	1,780,000
1945	37	37	.....	1,233	1,304,249	516,104	1,874,202
1946	41	41	.....	1,391	1,562,689	671,161	2,249,651
SALT							
1942	9	9	5,687,511	675	1,114,574	1,419,248	3,173,755
1943	9	9	5,490,594	682	1,223,009	1,539,774	3,648,854
1944	8	9	.....	710	1,302,143	1,498,424	3,287,660
1945	9	9	.....	724	1,329,384	1,623,241	3,241,456
1946	9	9	.....	713	918,566	1,590,416	2,890,423
TALC AND SOAPSTONE							
1942	10	10	567,665	115	113,601	59,113	251,711
1943	8	8	576,691	90	101,719	58,031	208,654
1944	6	6	.....	113	133,883	68,165	289,084
1945	5	5	.....	103	134,782	79,582	215,306
1946	5	5	.....	87	117,551	63,568	240,116
MISCELLANEOUS NON-METAL MINES							
1942	61	64	4,919,871	811	1,142,072	952,860	2,053,307
1943	52	54	3,522,842	911	1,363,526	1,208,470	2,268,237
1944	50	52	.....	865	1,500,250	1,188,860	2,797,719
1945	50	51	.....	879	1,601,068	1,378,366	3,037,352
1946	42	43	.....	911	1,582,846	1,389,098	2,859,009

(a) Not reported in 1944-1946.
(b) Includes data on peat fuel, peat moss and peat humus.
(c) See footnote at end of this table.

Table 17.—Principal Statistics of the Mineral Industry in Canada, by Industries, 1942-1946—Continued

1 Year	2 Number of active firms	3 Number of operating mines, oil and gas wells, quarries, gravel pits, etc.	4 Capital employed (excluding ore reserves or other unmined material) (a) $	5 Number of employees	6 Salaries and wages $	7 Cost of process supplies, purchased electricity and fuel, also freight and smelter charges (c) $	8 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries $
TOTAL OTHER NON-METAL MINING INDUSTRIES							
1942	*277*	*290*	*41,734,421*	*8,117*	*10,793,259*	*7,822,375*	*27,855,522*
1943	*246*	*257*	*41,654,689*	*7,989*	*11,055,861*	*8,410,143*	*30,833,183*
1944	*237*	*248*	.....	*8,233*	*12,164,400*	*8,104,871*	*29,632,077*
1945	*195*	*203*	.....	*8,318*	*12,712,321*	*8,961,846*	*31,379,055*
1946	*182*	*192*	.....	*9,108*	*14,307,623*	*10,011,510*	*33,404,213*
Total Non-Metal Mining Industries, including Fuels							
1942	**1,111**	**6,528**	**287,977,002**	**38,234**	**59,360,172**	**20,100,168**	**104,218,959**
1943	**1,026**	**6,425**	**296,543,510**	**38,743**	**66,107,189**	**21,063,737**	**106,520,01[illegible]**
1944	**1,013**	**6,527**	.....	**38,186**	**75,885,267**	**22,261,638**	**108,123,54[illegible]**
1945	**966**	**6,546**	.....	**37,177**	**69,036,039**	**21,678,167**	**107,892,49[illegible]**
1946	**956**	**6,696**	.....	**37,814**	**71,103,530**	**23,921,158**	**117,052,01[illegible]**
Clay Products and Other Structural Materials							
CLAY PRODUCTS							
Brick, Tile and Sewer Pipe							
1942	111	115	17,181,503	2,152	2,777,171	1,420,355	5,016,090
1943	93	97	16,423,684	1,781	2,565,580	1,233,412	4,074,240
1944	98	102	.....	1,880	2,819,912	1,451,686	4,711,128
1945	92	98	.....	2,254	3,348,351	1,892,051	6,093,719
1946	102	111	.....	2,879	4,496,283	2,553,369	8,461,331
STONEWARE AND POTTERY							
1942	8	8	612,428	171	295,840	30,884	614,394
1943	8	8	739,063	392	344,261	28,395	672,140
1944	8	8	.....	358	356,892	66,810	767,798
1945	8	8	.....	434	479,855	82,632	844,690
1946	8	8	.....	558	619,679	90,308	1,102,359
*TOTAL CLAY PRODUCTS**							
1942	*119*	*123*	*17,793,931*	*2,523*	*3,073,011*	*1,451,239*	*5,630,484*
1943	*101*	*105*	*17,162,747*	*2,173*	*2,909,841*	*1,261,807*	*5,346,386*
1944	*106*	*110*	.....	*2,247*	*3,176,804*	*1,518,502*	*5,478,923*
1945	*100*	*106*	.....	*2,688*	*3,828,206*	*1,974,683*	*6,938,409*
1946	*110*	*119*	.....	*3,437*	*5,115,962*	*2,643,677*	*9,563,690*
OTHER STRUCTURAL MATERIALS†							
CEMENT							
1942	3	8	51,121,894	1,241	2,059,337	5,414,487	10,213,916
1943	3	8	50,438,932	1,209	2,151,218	5,557,089	7,152,763
1944	3	8	.....	1,207	2,254,775	5,764,387	6,882,354
1945	3	8	.....	1,317	2,398,117	6,095,605	9,416,426
1946	3	8	.....	1,524	2,929,020	8,793,963	12,930,058

* Includes kaolin and other clays. (a) not reported in 1944-1946.

† A considerable proportion of the values shown for lime and stone sales represents shipments for chemical purposes —See chapter 9.

(c) See footnote at end of this table.

Table 17.—Principal Statistics of the Mineral Industry in Canada, by Industries, 1942-1946—Concluded

1 Year	2 Number of active firms	3 Number of operating mines, oil and gas wells, quarries, gravel pits, etc.	4 Capital employed (excluding ore reserves or other unmined material) (a) $	5 Number of employees	6 Salaries and wages $	7 Cost of process supplies, purchased electricity and fuel also freight and smelter charges (c) $	8 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries $
OTHER STRUCTURAL MATERIALS—Concluded							
LIME							
1942	44	48	4,742,066	1,022	1,312,320	2,508,560	3,932,279
1943	41	45	4,607,651	898	1,408,393	1,924,482	4,908,510
1944	38	42	.....	815	1,414,426	2,046,550	5,005,235
1945	39	44	.....	856	1,473,829	2,068,489	4,603,859
1946	37	41	.....	918	1,616,839	2,412,041	4,910,127
SAND AND GRAVEL							
1942	1,419	5,217	4,477,547	2,141	2,404,755	677,149	8,328,265
1943	1,387	5,054	3,674,501	2,320	2,683,257	379,435	8,626,422
1944	1,541	5,381	.....	1,773	2,494,657	391,738	9,888,381
1945	1,524	5,011	.....	2,074	2,759,206	416,390	10,151,973
1946	1,589	5,252	.....	2,793	3,600,797	579,489	14,950,211
STONE							
1942	412	490	10,988,011	2,697	3,454,263	1,517,169	7,229,425
1943	407	453	10,954,939	2,473	3,520,755	1,533,627	6,430,552
1944	405	466	.....	2,164	3,154,689	1,497,880	5,661,297
1945	361	429	.....	2,154	3,114,647	1,451,715	6,714,985
1946	411	486	.....	2,720	3,970,404	1,691,598	9,494,113
TOTAL OTHER STRUCTURAL MATERIALS							
1942	*1,878*	*5,763*	*71,329,518*	*7,101*	*9,230,675*	*10,207,365*	*29,705,885*
1943	*1,838*	*5,560*	*69,676,023*	*6,900*	*9,775,623*	*9,394,633*	*27,118,247*
1944	*1,987*	*5,897*	.....	*5,959*	*9,318,547*	*9,700,555*	*27,437,267*
1945	*1,927*	*5,492*	.....	*6,401*	*9,746,799*	*9,942,199*	*30,947,243*
1946	*2,040*	*5,787*	.....	*7,955*	*12,117,060*	*15,477,091*	*42,984,509*
Total Clay Products and Other Structural Materials							
1942	**1,997**	**5,886**	**89,123,449**	**9,621**	**12,303,686**	**11,658,604**	**35,334,369**
1943	**1,939**	**5,665**	**86,838,770**	**9,073**	**12,685,464**	**10,656,440**	**32,461,633**
1944	**2,093**	**6,007**	.....	**8,206**	**12,495,351**	**11,219,057**	**32,916,190**
1945	**2,027**	**5,598**	.....	**9,089**	**13,574,005**	**11,916,882**	**37,885,652**
1946	**2,150**	**5,906**	.....	**11,392**	**17,233,022**	**16,120,768**	**51,848,199**
GRAND TOTAL OF ALL INDUSTRIES							
1942	**3,576**	**12,897**	**1,445,345,913**	**112,043**	**198,550,260**	**431,911,446**	**514,109,951**
1943	**3,299**	**12,449**	**1,183,442,427**	**112,140**	**207,575,955**	**498,885,557**	**475,529,364**
1944	**3,504**	**12,952**	.....	**104,878**	**204,808,314**	**443,384,744**	**454,022,468**
1945	**3,845**	**13,015**	.....	**96,250**	**185,279,926**	**353,444,326**	**413,276,890**
1946	**3,949**	**13,457**	.....	**99,196**	**196,748,691**	**332,312,119**	**422,074,303**

NOTE.—The net value as given in column 8 represents the **gross value** as given by the operator less the cost of items indicated in column 7. (a) Not reported in 1944-1946.
(c) See note above.

Table 18.—Principal Statistics of the Mineral Industry in Canada, by Provinces, 1942-1946

1 Year	2 Number of operating mines, oil and gas wells, quarries gravel pits, etc.	3 Capital employed (excluding ore reserves or other unmined material) (a) $	4 Number of employees	5 Salaries and wages $	6 Cost of process supplies, purchased electricity and fuel also freight and smelter charges (b) (c) $	7 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries (*) $
Nova Scotia						
1942	694	49,486,020	14,394	22,169,053	6,594,557	25,174,960
1943	712	51,261,925	13,852	25,348,097	6,737,166	21,979,202
1944	509	.....	13,538	30,815,335	7,664,988	25,208,621
1945	656	.....	14,091	26,707,708	7,265,785	23,684,321
1946	660	.....	14,560	27,572,966	7,912,532	26,425,106
New Brunswick						
1942	433	4,401,029	1,718	1,855,798	404,750	3,176,007
1943	433	4,320,846	1,570	1,828,019	396,622	3,249,933
1944	429	.....	1,631	2,240,478	463,353	3,631,871
1945	427	.....	1,525	2,200,188	480,155	3,636,205
1946	433	.....	1,600	2,363,247	602,186	4,236,861
Quebec						
1942	3,442	329,023,834	27,235	42,901,445	169,770,830	138,100,940
1943	3,332	368,560,300	31,491	52,859,348	234,019,383	134,500,359
1944	3,747	.....	27,973	49,498,836	191,719,356	145,964,861
1945	3,441	.....	22,374	39,674,306	119,179,856	106,701,600
1946	3,492	.....	22,799	41,793,277	103,398,023	97,020,447
Ontario						
1942	6,324	438,130,467	36,866	72,868,161	168,749,548	212,351,819
1943	6,128	426,410,248	33,516	67,732,244	177,688,655	183,488,086
1944	6,242	.....	33,194	64,766,975	175,635,812	161,819,719
1945	6,379	.....	30,634	61,411,603	153,297,060	155,367,764
1946	6,488	.....	31,244	63,895,634	120,018,172	147,605,421
Manitoba						
1942	173	33,172,231	2,512	4,600,171	12,476,881	9,508,569
1943	150	29,033,717	1,777	3,497,951	9,429,404	8,973,959
1944	145	.....	1,732	3,369,320	9,097,444	10,288,654
1945	156	.....	1,763	3,460,480	11,294,429	10,794,127
1946	178	.....	2,242	4,446,790	11,719,343	12,489,188
Saskatchewan						
1942	219	34,755,279	2,450	4,401,181	22,710,389	14,487,408
1943	206	47,167,799	3,067	5,737,896	21,468,836	23,507,079
1944	195	.....	2,652	5,328,535	21,184,997	18,362,133
1945	198	.....	2,457	5,020,119	20,969,841	19,382,109
1946	241	.....	2,957	5,672,652	23,062,280	22,743,522

Plants in the provinces do not add to Canada total, owing to the fact that a plant located on the Manitoba-Saskatchewan boundary is counted but once.

* See footnote, preceding table.

(a) Not reported in 1944-1946.

(b) Includes fuel and electricity used for metallurgical purposes.

(c) See footnote, preceding table

Table 18.—Principal Statistics of the Mineral Industry in Canada, by Provinces, 1942-1946—Concluded

1 Year	2 Number of operating mines, oil and gas wells, quarries gravel pits, etc.	3 Capital employed (excluding ore reserves or other unmined material) $	4 Number of employees	5 Salaries and wages $	6 Cost of process supplies, purchased electricity and fuel also freight and smelter charges (b) (c) $	7 Net value of bullion, ore, concentrates, residues and other minerals shipped from the mines, smelters, brick and cement plants and quarries (*) $
Alberta						
1942	723	126,642,796	11,446	19,628,105	4,736,312	40,604,704
1943	795	128,657,659	12,316	21,825,643	4,982,748	41,767,222
1944	882	.....	11,582	23,389,050	5,674,431	42,672,706
1945	935	.....	11,438	22,867,506	4,991,551	44,421,660
1946	1,022	.....	11,476	23,641,050	5,880,366	50,981,943
British Columbia						
1942	845	110,267,057	14,323	27,166,996	45,101,414	64,378,171
1943	654	107,674,852	13,399	25,703,433	40,092,618	54,106,996
1944	724	.....	11,871	23,118,465	30,058,974	43,986,511
1945	697	.....	11,450	22,520,369	35,678,748	47,859,524
1946	836	.....	11,562	25,109,066	59,107,865	58,629,880
Northwest Territories						
						(a)
1942	29	8,888,280	701	1,737,398	951,183	3,017,569
1943	31	8,391,343	800	1,999,661	364,802	2,305,032
1944	71	.....	566	1,798,896	213,041	1,219,472
1945	120	.....	345	825,572	218,150	252,227
1946	104	.....	510	1,346,718	415,456	582,600
Yukon						
1942	15	10,578,920	398	1,221,952	415,582	3,309,804
1943	8	11,963,738	352	1,043,663	705,323	1,652,496
1944	8	.....	139	482,424	72,348	867,920
1945	7	.....	173	589,075	68,751	1,177,267
1946	3	.....	246	906,691	105,896	1,368,335
Canada						
1942	12,897	1,145,346,913	112,043	198,550,260	431,911,446	514,109,951
1943	12,449	1,183,442,427	112,140	207,575,955	498,885,557	475,529,364
1944	12,952	.....	104,878	204,808,314	443,384,744	454,022,468
1945	13,016	.....	96,250	185,279,926	353,444,326	413,276,800
1946	13,457	.....	99,196	196,748,691	332,312,119	422,074,303

Plants in the provinces do not add to Canada total, owing to the fact that a plant located on the Manitoba-Saskatchewan boundary is counted but once.

* See footnote, preceding table.

(a) The value of Pitchblende refinery products is credited to the non-ferrous smelting and refining industry in Ontario and data relating to Pitchblende mining operations are included with Yukon. The value of Pitchblende refinery products are not included in 1943-1946.

(b) Includes fuel and electricity used for metallurgical purposes.

(c) See footnote, preceding table.

TREND IN EMPLOYMENT, 1946

(Employment Statistics Branch—D.B.S.)

Mining

The volume of employment generally indicated in mining was greater by 5·7 per cent in 1946 than in 1945; fractionally higher than in 1944. The latest index was, nevertheless, lower than in 1943 and earlier years of the war. The 1946 annual index in mining stood at 155·2 as compared with 146·9 in the preceding 12 months. Industrial disputes again seriously affected the situation during 1946, there being large losses due to this factor among workers in the metallic ores division during a lengthy period.

Statistics were tabulated from 535 mine operators whose working forces averaged 73,164. In 1945, data were supplied by 502 mines with a staff of 69,173 persons. The weekly salaries and wages disbursed by the co-operating mining companies and branches during 1946 averaged $2,869,465; this was greater by 7·4 per cent than the payrolls reported in the preceding year. The average earnings were $39.21 as compared with $38.60 in 1945, $38.05 in 1944, $36.09 in 1943 and $34.81 in 1942. The latest per capita figure was higher by $6.73, or 20·7 per cent, than the general average earnings in the nine leading industries, being exceeded only by the mean of $40.07 in transportation, in which the employees are also predominately male.

Coal Mining.—There was a rather small increase in employment in coal mining during 1946, according to returns from 142 employers with a staff of 26,138 persons, as compared with 25,551 reported in 1945. The latest annual index number, at 94·8, was 2·3 per cent higher than in the preceding 12 months. The accompanying increase in the index weekly payrolls amounted to 7·1 per cent; the reported salaries and wages averaged $1,020,346 in the year under review, when the per capita weekly earnings stood at $39.03. This was the highest in the record. The means in earlier years of the record were as follows: 1945, $38.19; 1944, $36.95; 1943, $33.18 and 1942, $31.09.

During 1946, the time lost in coal mining as a result of industrial disputes amounted to 43,854 man-days, as compared with 183,102 in 1945.

Metallic Ores.—In spite of prolonged strikes in the metal mining industries in British Columbia and Quebec, and continued shortages of labour in certain areas, employment in the extraction of metallic ores reached a higher level during 1946 than in 1945. A combined working force of 34,655 persons was employed during the year under review by the 255 reporting operators; in 1945, the 231 firms furnishing data had an average of 32,302 employees. The latest index was 269·9, being higher by 7·2 per cent than that of 251·7 a year earlier. The accompanying increase in the index of payrolls was 8·7 per cent. The indicated disbursements in weekly salaries and wages averaged $1,443,125. The per capita figure was $41.63, rising from $41.02 per week in 1945. The previous annual averages were: 1944, $40.68; 1943, $39.70, and 1942, $38.60.

During the 12 months under review, the hours worked per week in the 141 establishments furnishing information on man-hours averaged 45·1, as compared with 45·8 in 1945, when the hourly rate was 85 cents, as compared with 87·4 cents in 1946. The employees working these hours averaged 29,636; the difference as compared with the staff of 34,655 workers mentioned in the preceding paragraph was made up of salaried personnel and wage-earners paid other than by the hour.

Non-Metallic Minerals Other Than Coal.—The trend continued upward during 1946 in the extraction of miscellaneous non-metallic minerals. An average of 12,371 men and women was employed by the 138 co-operating employers; in the year before, 130 operators had reporting 11,320 employees. The latest annual index of employment stood at 183·8, exceeding the 1945 figure by 8·6 per cent. In the same comparison, the index of payrolls advanced by 7·9 per cent. The weekly salaries and wages disbursed averaged $405,994, or $32.77 per person in recorded employment. In 1945, 1944, 1943 and 1942, the per capita figures were $32.64, $32.34, $30.84 and $28.51, respectively. Greater activity in construction work resulted in a higher level of employment in most branches of this industry in the year under review.

Table 19.—Employees, Salaries and Wages in the Mineral Industry in Canada, by Provinces, 1946

Province	*Average number of employees					Salaries and wages		
	Administrative		Workmen		Total †	Salaries	Wages	Total
	Male	Female	Male	Female				
						$	$	$
Nova Scotia	381	64	14,111	4	14,560	998,178	26,574,788	27,572,966
New Brunswick	55	16	1,510	19	1,600	172,018	2,191,229	2,363,247
Quebec	2,162	350	20,118	169	22,799	5,991,989	35,801,288	41,793,277
Ontario	2,840	419	27,764	221	31,244	9,512,853	54,382,781	63,895,634
Manitoba	173	31	1,990	48	2,242	607,879	3,838,911	4,446,790
Saskatchewan	278	58	2,603	18	2,957	869,943	4,802,709	5,672,652
Alberta	1,100	130	9,988	258	11,476	2,807,167	20,834,483	23,641,650
British Columbia	1,441	268	9,649	204	11,562	4,657,481	20,451,585	25,109,066
Yukon	24	3	219	.....	246	126,604	780,087	906,691
Northwest Territories	81	11	410	8	510	254,632	1,092,086	1,346,718
Canada	**8,535**	**1,350**	**88,362**	**949**	**99,196**	**25,998,744**	**170,749,947**	**196,748,691**

* The average number of wage-earners was obtained by adding the monthly figures for individual companies and dividing by the number of months worked, the average number of wage-earners in the industry, as in the previous years, is the sum of these individual averages.

† The data are not inclusive of all individuals or syndicates engaged exclusively in prospecting or general exploration.

Table 20.—Employees, Salaries, and Wages in the Mineral Industry in Canada, by Industries, 1946

Industry	Average number of employees					Salaries and wages		
	Administrative		Workmen		Total	Salaries	Wages	Total
	Male	Female	Male	Female				
						$	$	$
Metal Mining								
Alluvial Gold	38	6	291	5	340	176,274	936,710	1,112,984
Auriferous Quartz	2,285	187	19,346	155	21,973	7,243,424	39,967,638	47,211,062
Copper-Gold-Silver	470	105	4,296	87	4,958	1,777,136	8,466,351	10,243,487
Silver Cobalt	20	3	223	1	247	59,085	344,927	404,012
Silver-Lead-Zinc	336	63	2,030	22	2,451	1,047,121	4,939,990	5,987,111
Nickel-Copper	380	21	4,035	3	4,439	1,322,680	8,844,000	10,166,680
Miscellaneous Metal Mines	81	21	925	10	1,037	291,452	2,046,990	2,338,442
Non-Ferrous Smelting and Refining	1,800	438	12,239	69	14,546	6,277,577	24,370,784	30,648,361
Fuels								
Coal	1,231	101	24,137	18	25,487	2,912,813	48,431,162	51,343,975
Natural Gas	351	69	1,217	18	1,655	715,225	1,776,136	2,491,361
Petroleum	324	81	1,141	17	1,563	990,683	2,269,888	3,260,571
Non-Metallic								
Asbestos	394	71	4,055	27	4,547	998,539	6,773,382	7,771,921
Feldspar and Quartz	38	7	468	4	517	106,905	769,129	876,034
Gypsum	41	9	698	5	753	110,745	1,135,928	1,246,673
Iron Oxides	6	3	45	6	60	15,748	61,979	77,727
Mica	12	4	105	8	129	30,984	122,632	153,616
Peat	49	15	1,217	110	1,391	156,693	1,405,996	1,562,689
Salt	43	26	577	67	713	207,532	711,034	918,566
Talc and Soapstone	9	2	76	.....	87	27,455	90,096	117,551
Miscellaneous	87	15	807	2	911	230,609	1,352,237	1,582,846
Structural Materials and Clay Products								
Cement	97	8	1,400	19	1,524	246,992	2,682,028	2,929,020
Clay Products	138	41	2,987	271	3,437	385,133	4,730,829	5,115,962
Lime	49	11	850	8	918	132,431	1,484,408	1,616,839
Sand and Gravel	107	16	2,658	12	2,793	218,786	3,382,011	3,600,797
Stone	149	27	2,539	5	2,720	316,722	3,653,682	3,970,404
Total	**8,535**	**1,350**	**88,362**	**949**	**99,196**	**25,998,744**	**170,749,947**	**196,748,691**

Table 21.—Employees and Salaries and Wages Paid in Canadian Mining Industry, 1932-1946

Year	Nova Scotia		New Brunswick		Quebec		Ontario		Manitoba		Saskatchewan	
	No.	$	No.	$	No.	$	No.	$	No.	$	No.	$
1932	13,706	11,302,801	1,480	1,123,080	7,694	8,198,379	16,376	24,412,126	1,730	2,106,017	924	748,782
1933	13,915	9,852,765	1,629	1,402,114	8,629	8,621,984	17,306	25,600,168	1,379	1,847,251	1,265	1,111,001
1934	13,500	13,594,114	1,722	1,276,770	10,362	10,492,169	22,033	32,619,846	1,948	2,796,454	1,461	1,257,282
1935	14,550	14,301,510	2,390	1,865,407	11,811	12,794,600	25,264	38,152,140	2,346	3,403,649	1,457	1,343,041
1936	15,368	15,980,687	1,744	1,248,431	14,225	15,774,362	31,105	46,899,805	2,932	3,752,367	1,828	1,937,825
1937	15,629	18,373,958	3,012	1,509,063	19,121	22,708,131	36,238	58,891,339	3,159	4,301,366	2,307	2,372,443
1938	15,591	15,959,095	3,042	2,074,273	20,829	24,485,254	35,791	58,926,900	2,840	4,393,270	2,287	2,470,530
1939	15,202	17,371,518	3,263	2,311,835	20,872	25,689,382	37,233	63,220,042	3,027	4,541,992	2,026	2,347,264
1940	14,934	19,285,662	2,240	1,939,160	21,726	29,025,418	38,774	66,395,845	3,145	5,107,054	1,961	2,573,878
1941	15,246	21,388,809	2,262	2,097,842	23,149	34,008,021	40,496	74,902,555	3,101	5,312,075	1,977	3,105,529
1942	14,394	22,169,053	1,718	1,855,798	27,235	42,901,445	36,866	72,868,161	2,512	4,600,171	2,450	4,401,181
1943	13,852	25,348,097	1,570	1,828,019	31,491	52,859,348	33,516	67,732,244	1,777	3,497,951	3,067	5,737,896
1944	13,538	30,815,335	1,631	2,240,478	27,973	49,498,836	33,194	64,766,975	1,732	3,369,320	2,652	5,328,535
1945	14,091	26,707,708	1,525	2,200,188	22,374	39,674,306	30,634	61,414,603	1,763	3,460,480	2,457	5,020,119
1946	14,560	27,572,966	1,600	2,363,247	22,799	41,793,277	31,244	63,895,634	2,242	4,446,790	2,957	5,672,652

Year	Alberta		British Columbia		Yukon		Northwest Territories (a)		Canada	
	No.	$	No.	$	No.	$	No.	$	No.	$
1932	9,692	10,476,449	9,565	12,612,151	286	761,585	17	30,679	**61,470**	**71,772,049**
1933	9,057	9,463,382	9,845	11,455,946	233	545,692	76	131,502	**63,334**	**70,031,805**
1934	9,843	9,792,297	12,270	15,482,102	286	660,814	80	154,338	**73,505**	**88,126,186**
1935	9,706	10,862,198	12,352	16,479,606	333	809,067	47	69,341	**80,256**	**100,080,559**
1936	10,376	11,850,463	12,827	17,908,553	566	1,372,917	28	40,812	**90,999**	**116,766,222**
1937	10,843	12,924,934	14,282	21,487,277	691	1,502,692	132	221,181	**105,414**	**144,292,384**
1938	10,612	12,811,975	15,179	21,975,143	794	1,962,941	310	584,619	**107,275**	**145,644,000**
1939	10,548	13,097,818	14,587	21,698,690	728	1,605,671	273	468,996	**107,759**	**152,353,208**
1940	10,628	14,535,789	14,420	23,227,719	617	1,518,747	441	880,414	**108,886**	**164,489,686**
1941	11,141	17,065,351	14,801	25,797,418	501	1,570,683	553	1,174,903	**113,227**	**186,423,186**
1942	11,435	19,628,105	14,323	27,166,996	398	1,221,952	701	1,737,398	**112,032**	**198,550,260**
1943	12,316	21,825,643	13,399	25,703,433	352	1,043,663	800	1,999,661	**112,140**	**207,575,955**
1944	11,582	23,389,050	11,871	23,118,465	139	482,424	566	1,798,896	**104,878**	**204,808,314**
1945	11,438	22,867,506	11,450	22,520,369	173	589,075	345	825,572	**96,250**	**185,279,926**
1946	11,476	23,641,650	11,562	25,109,066	246	906,691	510	1,340,718	**99,196**	**196,748,691**

(a) Data relating to mining of Pitchblende ores included with Yukon until 1942, these data not available since.

Table 22.—Wage-earners on Surface, Underground and in Mill, 1946

Province	Metal Mines			Fuels			Other†		
	Surface (a)	Underground	Mill	Surface	Underground	Mill	Surface	Underground	Mill
Nova Scotia	17	45	6	1,882	10,980	.....	713	36	436
New Brunswick	.....	.....	.....	325	517	.....	491	5	191
Quebec	2,685	3,603	4,519	.....	.....	.....	4,830	488	4,162
Ontario	5,607	10,841	6,603	912	.....	.....	1,977	224	1,821
Manitoba	592	483	169	.....	.....	.....	483	25	286
Saskatchewan	743	502	559	299	146	.....	158	.....	214
Alberta	.....	.....	.....	3,644	5,626	.....	138	.....	838
British Columbia	1,085	1,795	3,266	539	1,658	.....	1,065	.....	445
Yukon	.....	.....	219	.....	.....	.....	.....	.....	.....
Northwest Territories (b)	284	99	15	20	.....	.....	.....	.....	.....
Total, 1946	**11,013**	**17,368**	**15,356**	**7,621**	**18,927**	.....	**9,855**	**778**	**8,393**
Total, 1945	**9,873**	**15,750**	**17,073**	**7,115**	**18,509**	.....	**8,210**	**694**	**6,745**
Total, 1944	**9,129**	**18,380**	**23,861**	**7,746**	**18,629**	.....	**7,715**	**782**	**6,305**
Total, 1943	**9,641**	**20,497**	**26,974**	**8,560**	**18,953**	.....	**8,332**	**783**	**6,297**
Total, 1942	**28,724**	**24,780**	**3,969**	**7,932**	**19,227**	.....	**11,743**	**938**	**3,427**
Total, 1941	**25,940**	**28,388**	**4,198**	**7,902**	**19,608**	.....	**12,915**	**923**	**3,208**

† Includes asbestos, salt, gypsum, stone quarries, brick plants, etc., etc.
(a) Including concentrating smelters and refineries until 1942; since then employees in these plants shown under mill.
(b) Exclusive of data on mining at placer-lands area.

Table 23.—Administration and Office Employees at Places in Canada, Except at Mine or Plant, 1946

Plant Location	Average number of employees			Salaries and Wages
	Male	Female	Total	
				$
Nova Scotia	358	88	446	1,245,760
New Brunswick	14	12	26	58,147
Quebec	247	93	340	846,161
Ontario	415	194	609	1,483,691
Manitoba	25	9	34	79,326
Saskatchewan	5	4	9	13,416
Alberta	397	111	508	1,298,539
British Columbia	81	37	118	459,314
Yukon	.....	.....	.....	.....
Northwest Territories	39	4	43	92,198
Canada	**1,581**	**552**	**2,133**	**5,576,552**

Data in taken 23 and 24 not included elsewhere in this report.

Table 24.—Administration and Office Employees at Places in Canada, Except at Mine or Plant, 1946

Industry	Average number of employees			Salaries and Wages
	Male	Female	Total	
				$
Metal Mining; Non-Ferrous Smelting and Refining	341	114	455	1,321,292
Fuels	1,000	348	1,348	3,365,156
Non Metallic Mining	44	18	62	219,140
Structural Materials and Clay Products	196	72	268	670,964
Total	**1,581**	**552**	**2,133**	**5,576,552**

Table 25.—Fuel and Electricity Used for all Purposes in the

Industry		Bituminous		Anthracite coal		Lignite and Sub-bituminous coal	Coke	Gasoline	Kerosene	Charcoal
		Canadian	Imported	From United States	From other countries					
		Tons	Tons	Tons	Tons	Tons	Tons	imp. gal.	imp gal.	lb.
Metal Mining										
Alluvial Gold	Quantity	11	1	.....	.....	.....	2	40,545	16,977	.....
	$	1,056	35	.....	.....	.....	200	21,879	4,667	.....
Auriferous Quartz	Quantity	7,566	51,147	2,576	298	926	178	541,737	90,903	9,706
	$	100,425	623,716	39,106	4,159	8,193	3,226	203,595	15,926	692
Copper-Gold Silver	Quantity	7,224	1,941	82	.....	45,313	91	98,876	7,196	3,000
	$	68,454	27,887	1,577	.....	176,485	1,537	33,974	1,971	82
Silver-Cobalt	Quantity	12	1,453	58	.....	.....	.....	8,741	270	.....
	$	194	21,819	1,116	.....	.....	.....	3,060	59	.....
Silver-Lead-Zinc	Quantity	41,198	2,234	80	.....	5,531	211	28,066	2,293	.....
	$	229,515	27,321	1,200	.....	21,302	1,479	10,626	556	.....
Nickel-Copper	Quantity	185	23,066	59	.....	.....	21	77,324	2,135	.....
	$	1,819	182,851	884	.....	.....	285	21,181	449	.....
Miscellaneous Metals	Quantity	1,000	2,184	.....	.....	.....	134	132,098	998	.....
	$	11,286	24,345	.....	.....	.....	866	36,364	280	.....
Non-Ferrous Smelting and Refining	Quantity	208,693	431,280	.....	.....	.....	207,846	312,531	22,736	1,260,0[illegible]
	$	1,672,802	3,585,164	.....	.....	.....	2,617,872	101,579	4,776	25,[illegible]
Total	*Quantity*	*265,889*	*513,306*	*2,855*	*298*	*51,770*	*208,483*	*1,239,918*	*143,5[illegible]*	*1,[illegible]*
	$	*2,085,551*	*4,493,138*	*43,883*	*4,159*	*205,980*	*2,625,465*	*432,358*	*28,[illegible]*	*26,[illegible]*
Non-Metal Mining Fuels										
Coal	Quantity	485,409	.....	.....	.....	40,106	.....	431,563	23,706	.....
	$	1,737,958	.....	.....	.....	61,430	.....	133,525	4,357	.....
Natural Gas	Quantity	11	38	4	3	.....	.....	68,780	.....	.....
	$	150	577	60	36	.....	.....	20,992	.....	.....
Petroleum	Quantity	870	6	2	.....	282	.....	198,353	742	.....
	$	7,807	66	36	.....	1,905	.....	48,495	208	.....
Total	*Quantity*	*486,290*	*44*	*6*	*3*	*40,388*	.....	*698,696*	*24,447*	.....
	$	*1,745,915*	*643*	*96*	*36*	*63,335*	.....	*203,012*	*4,565*	.....
Other Non-Metal Mining										
Asbestos	Quantity	585	30,779	19,898	.....	.....	.....	200,053	5,929	.....
	$	5,286	314,687	180,281	.....	.....	.....	60,250	995	.....
Feldspar, Nepheline Syenite and Quartz	Quantity	1,347	2,988	28	.....	.....	3	108,044	294	.....
	$	13,779	23,840	570	.....	.....	42	32,241	63	.....
Gypsum	Quantity	10,165	4,074	.....	.....	.....	942	174,770	1,145	.....
	$	86,379	34,548	.....	.....	.....	13,103	41,740	238	.....
Iron Oxides	Quantity	.....	800	25	.....	.....	.....	3,420	100	.....
	$	.....	9,400	375	.....	.....	.....	1,043	20	.....
Mica	Quantity	8	85	25	.....	.....	.....	17,455	.....	.....
	$	124	1,020	425	.....	.....	.....	5,570	.....	.....
Peat	Quantity	1,718	.....	5	.....	1,717	.....	109,459	.....	.....
	$	18,636	.....	77	.....	13,255	.....	31,718	.....	.....
Salt	Quantity	13,217	50,789	.....	.....	23,650	1,449	7,290	42	.....
	$	98,785	363,806	.....	.....	93,932	7,608	1,872	12	.....
Talc and Soapstone	Quantity	.....	.....	.....	.....	.....	.....	10,875	30	.....
	$	.....	.....	.....	.....	.....	.....	3,097	6	.....
Miscellaneous	Quantity	4,218	19,545	45	.....	18,065	14	194,344	2,399	.....
	$	26,091	186,100	806	.....	59,329	195	55,560	463	.....
Total	*Quantity*	*31,358*	*109,060*	*20,026*	.....	*43,432*	*2,408*	*825,710*	*9,9[illegible]*	.....
	$	*249,080*	*933,401*	*182,534*	.....	*166,516*	*20,948*	*233,091*	*1,7[illegible]*	.....
Structural Materials and Clay Products										
Cement	Quantity	172,081	289,046	.....	.....	.....	.....	172,742	8,391	.....
	$	1,237,718	2,233,402	.....	.....	.....	.....	45,603	1,587	.....
Clay Products	Quantity	49,575	113,942	4,296	.....	8,395	1,863	256,670	8,427	.....
	$	482,952	1,082,196	35,268	.....	26,907	21,593	75,848	1,633	.....
Lime	Quantity	34,104	113,075	.....	1,758	.....	15,979	129,392	.....	.....
	$	325,278	870,257	.....	16,581	.....	198,319	37,271	.....	.....
Sand and Gravel	Quantity	4,855	13,628	327	.....	58	.....	776,134	18,829	.....
	$	46,890	112,838	3,446	.....	368	.....	219,540	4,085	.....
Stone	Quantity	4,486	8,957	975	4	.....	115	791,048	2,524	.....
	$	47,385	83,304	7,868	60	.....	1,508	234,702	521	.....
Total	*Quantity*	*265,101*	*538,648*	*5,598*	*1,762*	*8,453*	*17,957*	*2,125,986*	*38,171*	.....
	$	*2,140,223*	*4,381,997*	*46,582*	*16,841*	*27,275*	*221,420*	*612,964*	*7,826*	.....
Grand Total	**Quantity**	**1,048,538**	**1,161,058**	**28,485**	**2,063**	**141,043**	**228,848**	**4,890,310**	**216,059**	**1,273,340**
	$	**6,220,769**	**9,809,179**	**273,095**	**20,836**	**463,106**	**2,867,833**	**1,481,325**	**42,872**	**26,092**

(a) Exclusive cost of ores treated.

Mineral Industry in Canada, by Kinds and Industries, 1946

Fuel oil and diesel oil	Wood	Gas		Other fuel	Electricity purchased	Total	Electricity generated for own use	Electricity generated for sale	Process supplies
		Manufactured	Natural						
Imp. gal.	Cords	M cu.ft.	M cu. ft.	$	K.W.H.	$	K.W.H.	K.W.H.	$
28,437	1,925						22,401,700	6,366,700	
31,267	25,112					84,206		27,726	46,870
3,090,658	42,601	9,000			765,985,551		48,374,767	4,603,759	
504,119	333,023	245		719	4,422,732	6,259,876		47,170	14,401,904
820,897	3,777				264,970,106		57,484,069	785,157	
115,428	15,671				709,859	1,152,925		12,219	4,022,508
25,198	33				3,525,072				
3,716	296				28,452	58,712			48,932
347,222	102				72,279,192		2,986,665		
43,995	866				443,276	780,136			2,636,735
741,602	97				123,253,197				
78,548	592				389,326	675,935			4,657,021
1,057,708	1,293				106,103,602				
137,539	11,577				517,274	739,531			670,648
29,690,722	1,642	8,979	422		6,098,232,967		11,190,000	4,528,000	
1,965,875	21,972	8,171	321		12,283,722	22,287,572		14,630	(a)16,000,964
35,854,514	*51,470*	*17,979*	*422*		*7,434,349,687*		*142,437,201*	*16,283,616*	
2,880,477	*409,109*	*8,416*	*321*	*719*	*18,704,641*	*32,038,893*		*101,745*	*42,485,582*
191,381	16				182,692,887		57,150,855	11,812,829	
32,484	75				2,130,364	4,100,193		157,185	8,536,912
77,296			591,921		32,513		835,820		
7,567			196,206		1,392	226,980			21,457
264,999	1,518		4,446,911		1,706,407		8,400		
15,955	6,470		802,967	1,850	28,792	914,551			109,555
533,676	*1,534*		*5,038,832*		*184,431,807*		*57,995,075*	*11,812,829*	
56,006	*6,545*		*999,173*	*1,850*	*2,160,548*	*5,241,724*		*157,185*	*8,667,924*
147,871					154,652,815				
27,062					1,170,901	1,759,462			1,670,496
538,289	267				3,851,809		2,588,033		
59,169	2,244				29,260	161,208			180,207
253,185	563		11,095		4,912,506		2,471,642		
26,522	4,084		4,438		49,427	260,479			520,868
1,500	225				226,064				
180	2,475				3,163	16,656			4,200
12,684	167				1,357,230		9,300		
1,462	1,103				10,604	20,308			17,778
12,566	94	42			2,584,741		780		
2,519	755	31			35,013	102,601			45,299
37,180			87		3,791,722		6,318,388		
3,727			63		27,307	597,112			138,630
19,610	25				1,599,300		122,380		
2,767	125				19,406	25,401			9,606
5,293,061	1,164	267,800			12,356,251		4,933,590		
339,162	8,404	31,920			114,516	822,546			493,642
6,315,926	*2,505*	*267,842*	*11,182*		*185,332,429*		*16,444,113*		
462,570	*19,190*	*31,951*	*4,501*		*1,459,597*	*3,765,176*			*3,080,738*
168,392	52				193,679,422		347,383		
19,392	351				949,443	4,487,496			2,704,949
1,757,142	29,344		1,565,067		21,490,172		302,793		
127,284	206,621		37,604	2,456	265,190	2,365,552			278,125
1,659,781	43,074				14,120,798		2,825,670	43,200	
97,500	309,761			3,700	96,761	1,955,128		437	209,385
135,657	45		158		6,550,328				
18,144	175		95		95,886	501,467			78,022
385,464	1,112		4,458		31,208,371		582,325		
54,104	6,815		3,210	584	394,763	831,824			856,774
4,106,436	*73,627*		*1,569,683*		*267,049,091*		*4,058,171*	*43,800*	
316,424	*523,725*		*40,069*	*6,740*	*1,802,623*	*10,144,767*		*437*	*4,127,255*
46,810,552	129,136	285,821	6,620,119		8,071,163,011		220,934,560	28,139,845	
3,715,177	958,567	40,367	1,011,901	9,309	21,216,829	51,190,560		259,367	58,361,487

Table 26.—Fuel and Electricity Used for all Purposes in the

Province		Bituminous		Anthracite coal		Lignite and Sub-bituminous coal	Coke	Gasoline	Kerosene	Charcoal
		Canadian	Imported	From United States	From other countries					
		Tons	Tons	Tons	Tons	Tons	Tons	imp. gal.	imp. gal.	lb.
Nova Scotia	Quantity	315,973	...	...	...	...	16	284,243	1,687	...
	$	1,382,674	...	...	...	...	68	73,538	291	...
New Brunswick	Quantity	23,889	3	...	...	...	...	84,080	2,385	...
	$	174,644	63	...	...	...	...	21,134	473	...
Quebec	Quantity	142,103	279,989	22,198	1,004	...	2,757	1,483,436	119,437	51,400
	$	1,343,427	2,572,820	211,144	10,608	...	34,866	464,543	20,744	1,253
Ontario	Quantity	15,853	876,426	6,275	1,059	300	166,485	1,615,782	34,678	1,212,486
	$	152,334	7,192,804	61,293	10,228	3,130	2,175,689	476,638	7,712	24,982
Manitoba	Quantity	62,978	4,541	...	...	23,989	1,123	123,927	2,155	842
	$	563,594	41,279	...	...	96,064	16,301	43,733	587	14
Saskatchewan	Quantity	63,526	85	...	...	41,687	113	235,551	4,736	2,988
	$	551,816	1,836	...	...	94,103	1,764	80,260	1,268	68
Alberta	Quantity	205,596	...	...	...	24,630	...	454,615	25,748	...
	$	696,258	...	...	...	51,329	...	126,200	4,965	...
British Columbia	Quantity	218,603	14	12	...	53,437	58,352	550,499	24,417	5,124
	$	1,354,459	377	658	...	218,480	638,945	164,411	6,220	298
Yukon	Quantity	11	...	...	...	...	2	29,318	669	...
	$	1,056	...	...	...	...	200	16,597	537	...
Northwest Territories	Quantity	6	...	...	...	...	...	28,859	147	730
	$	507	...	...	...	...	...	14,271	75	374
Canada	**Quantity**	**1,048,538**	**1,161,058**	**28,485**	**2,063**	**144,043**	**228,848**	**4,890,310**	**216,059**	**1,273,340**
	$	**6,220,769**	**9,809,179**	**273,095**	**20,836**	**463,106**	**2,867,833**	**1,481,325**	**42,872**	**26,092**

Table 26A.—Fuel and Electricity used only for Metallurgical

Province		Bituminous coal		Anthracite coal		Lignite and Sub-bituminous coal	Coke	Charcoal
		Canadian	Imported	From United States	From other Countries			
		Tons	Tons	Tons	Tons	Tons	Tons	Lb.
Quebec	Quantity	44,988	5,503	...	...	...	1,315	48,900
	$	447,717	55,374	...	...	...	16,744	1,191
Ontario	Quantity	...	394,012	...	...	...	147,807	1,206,010
	$	...	3,267,627	...	...	...	1,954,886	23,829
Manitoba	Quantity	10,946	...	...	...	...	11	...
	$	98,686	...	...	...	...	183	...
Saskatchewan	Quantity	53,447	...	...	...	...	55	...
	$	481,822	...	...	...	...	893	...
British Columbia	Quantity	93,140	...	...	...	...	57,820	5,124
	$	583,154	...	...	...	...	633,988	298
Canada	**Quantity**	**202,521**	**399,515**	...	...	...	**207,008**	**1,260,034**
	$	**1,611,379**	**3,323,001**	...	...	...	**2,606,694**	**25,318**

All used in the non-ferrous smelting and refining industry and included in table 26A.

Mineral Industry in Canada, by Provinces, 1946

Fuel oil and diesel oil	Wood	Gas		Other fuel	Electricity purchased	Total	Electricity generated for own use	Electricity generated for sale	Process supplies
		Manufactured	Natural						
Imp. gal.	Cords	M cu.ft.	M cu. ft.	$	K.W.H.	$	K.W.H.	K.W.H.	$
275,769	648	171,500	...	...	116,460,729	...	22,527,673	7,116,220	...
29,622	2,730	24,697	...	584	1,343,914	2,858,118	...	71,162	5,004,329
63,466	13,803	...	41,916	...	3,302,303	...	1,090,392	...	...
5,967	104,698	...	16,968	...	62,290	386,237	...	...	161,548
22,657,088	44,157	17,979	...	...	5,174,984,127	...	24,022,378	4,528,000	...
1,674,104	326,160	8,410	...	383	12,561,514	19,229,985	...	14,630	16,718,190
15,218,907	34,258	96,342	241,949	...	1,468,123,764	...	22,523,636	88,500	...
1,185,011	248,892	7,254	139,043	...	6,099,470	17,783,580	...	812	22,898,528
540,995	12,546	...	...	...	134,250,197	...	1,794,723	43,200	...
68,237	96,563	...	...	...	443,161	1,369,533	...	437	1,636,413
3,028,297	472	...	...	...	344,944,725	...	2,618,499	...	...
174,965	3,382	...	...	...	444,655	1,354,117	...	...	1,966,308
452,233	2,194	...	6,336,254	...	65,505,633	...	19,818,639	363,029	...
39,118	9,003	...	888,893	1,850	723,552	2,541,168	...	33,325	3,153,161
4,109,266	15,913	...	...	...	760,233,252	...	89,825,342	5,437,857	...
426,201	98,722	...	...	6,492	2,490,222	5,405,485	...	76,952	6,598,671
58,931	1,454	...	...	...	...	...	22,401,700	6,366,700	...
27,398	20,007	...	...	...	...	65,795	...	27,726	19,991
405,600	3,691	...	...	...	3,358,284	...	14,511,578	4,196,139	...
84,854	48,410	...	...	...	48,051	196,542	...	34,323	204,348
46,810,552	**129,136**	**285,821**	**6,620,119**	...	**8,071,163,011**	...	**220,934,560**	**28,139,645**	...
3,715,477	**958,567**	**40,367**	**1,011,901**	**9,309**	**24,216,829**	**51,190,560**	...	**259,367**	**58,361,487**

Purposes in the Mineral Industry of Canada, by Provinces, 1946

Gasoline	Kerosene	Fuel oil and diesel oil	Wood	Gas		Other	Electricity	Total	Electricity generated own use
				Manufactured	Natural				
Imp. gal.	Imp. gal.	Imp. gal.	Cords	M cu. ft.	M cu. ft.	$	K.W.H.	$	K.W.H.
7,765	922	16,551,298	670	8,979	...	...	4,440,092,261	...	...
2,711	267	1,070,593	13,412	8,171	...	...	8,228,119	9,844,299	...
34,561	5,967	12,070,023	131	...	422	...	175,556,777	...	...
12,158	1,257	772,663	1,369	...	321	...	590,842	6,624,952	...
...	...	5,119	55	...	...	...	31,165,420	...	...
...	...	604	356	...	...	...	33,303	133,132	...
...	...	24,994	266	...	...	...	152,160,580	...	...
...	...	2,949	1,737	...	...	...	162,595	649,996	...
112,829	2,014	836,027	508	...	...	...	491,517,798	...	...
38,128	604	101,417	4,953	...	...	...	1,241,055	2,603,597	...
155,155	**8,903**	**29,487,461**	**1,630**	**8,979**	**422**	...	**5,290,492,836**	...	...
52,997	**2,128**	**1,948,226**	**21,837**	**8,171**	**321**	...	**10,255,914**	**19,855,976**	...

Table 27.—Electricity Purchased by Canadian Mining Industry, 1936-1946

Year	Auriferous Quartz Mining (gold mines)		Total All Metal Mines (including non-ferrous smelters and refineries)		Total entire mining industry	
	K.W.H.	$*	K.W.H.	$*	K.W.H.	$*
1936	449,026,003	4,345,066	2,841,045,187	10,783,296	3,151,192,519	14,055,915
1937	629,083,378	5,031,691	3,368,047,901	12,442,423	3,744,919,549	16,135,702
1938	741,866,953	5,333,427	4,125,037,129	13,917,518	4,441,098,287	17,485,652
1939	777,832,223	5,803,160	4,449,477,330	13,060,673	4,817,050,497	18,749,417
1940	868,846,323	5,893,562	5,105,497,931	17,005,546	5,569,961,386	21,060,734
1941	947,563,696	6,277,626	7,105,275,873	22,373,156	7,639,138,911	26,710,350
1942	846,900,417	5,856,971	9,626,254,575	29,004,724	10,186,657,256	33,614,088
1943	738,795,434	4,947,060	12,288,710,388	32,308,193	12,834,163,470	36,971,372
1944	709,437,980	4,668,292	12,392,717,185	27,100,576	12,917,130,002	31,940,718
1945	705,020,297	4,023,880	7,978,065,180	20,474,922	8,533,291,546	25,379,603
1946	765,985,551	4,422,732	7,434,349,687	18,794,641	8,071,163,014	24,216,829

* Includes service charges, for previous years see annual mineral production report for 1942.

Table 28.—Power Equipment in Use and Power Equipment in Reserve

ORDINARILY IN USE

Industry		Steam engines	Steam turbines	Diesel engines	Gasoline, gas and oil engines other than Diesel engines	Hydraulic turbines or water wheels	*Total primary power*	Electric motors run by purchased power	**Total power employed**	Electric motors run by primary power in same plant	Boilers
Metal Mining											
Alluvial Gold Mines	No.	.....	.....	7	12	6	*25*	.....	**25**	[illegible]	.....
	H.P.	.....	.....	773	215	15,685	*16,673*	.....	**16,673**	3,[illegible]	.....
Auriferous Quartz Mines	No.	13	3	82	92	17	*207*	9,154	**9,361**	870	192
	H.P.	667	132	15,645	4,815	14,177	*35,436*	256,759	**292,195**	15,952	16,025
Copper-Gold Silver Mines	No.	.....	1	18	11	6	*36*	2,698	**2,734**	597	33
	H.P.	.....	1,341	5,070	398	8,900	*15,709*	105,167	**120,876**	18,659	4,273
Silver-Cobalt Mines	No.	1	.....	6	2	.....	*9*	61	**70**	.....	3
	H.P.	100	.....	735	170	.....	*1,005*	1,640	**2,645**	.....	169
Silver-Lead-Zinc Mines (a)	No.	1	3	22	8	6	*40*	1,239	**1,279**	350	18
	H.P.	60	6,000	3,445	488	1,215	*11,208*	24,745	**35,953**	6,885	2,957
Nickel-Copper Mines	No.	.....	.....	2	.....	.....	*2*	916	**918**	.....	6
	H.P.	.....	.....	180	.....	.....	*180*	42,658	**42,838**	.....	430
Miscellaneous Metal Mines	No.	.....	.....	27	31	.....	*58*	348	**406**	.....	7
	H.P.	.....	.....	3,270	679	.....	*3,949*	15,566	**19,515**	.....	415
Non-Ferrous Smelting and Refining	No.	20	10	11	13	.....	*54*	8,260	**8,314**	348	34
	H.P.	920	9,420	3,089	953	.....	*14,382*	216,677	**231,059**	4,808	27,555
Total	**No.**	**35**	**17**	**175**	**169**	**35**	*431*	**22,676**	**23,107**	**2,259**	**293**
	H.P.	**1,747**	**16,893**	**32,207**	**7,718**	**39,977**	*98,542*	**663,212**	**761,754**	**50,210**	**51,824**
Non-Metal Mining, Including Fuels											
Coal	No.	122	11	29	234	2	*398*	3,441	**3,839**	472	199
	H.P.	32,625	18,799	1,899	4,928	12,000	*70,251*	126,291	**196,542**	21,592	46,817
Natural Gas	No.	4	.....	2	269	.....	*275*	96	**371**	32	12
	H.P.	140	.....	600	9,466	.....	*10,206*	1,069	**11,275**	495	660
Petroleum	No.	20	6	7	125	.....	*158*	186	**344**	6	67
	H.P.	3,641	252	1,320	3,128	.....	*8,341*	1,312	**9,653**	9	5,060
Total	**No.**	**146**	**17**	**38**	**628**	**2**	*831*	**3,723**	**4,554**	**510**	**278**
	H.P.	**36,406**	**19,051**	**3,819**	**17,522**	**12,000**	*88,798*	**128,672**	**217,470**	**22,096**	**52,537**
Other Non-Metal Mining											
Asbestos	No.	6	1	6	20	.....	*33*	1,332	**1,365**	8	14
	H.P.	210	120	584	1,488	.....	*2,402*	59,759	**62,161**	390	3,257
Feldspar, Nepheline Syenite and Quartz	No.	8	.....	20	46	.....	*74*	110	**184**	140	9
	H.P.	508	.....	2,232	2,202	.....	*4,942*	2,335	**7,277**	1,308	825
Gypsum	No.	5	.....	36	36	.....	*77*	114	**191**	37	3
	H.P.	1,140	.....	5,028	2,762	.....	*8,930*	3,818	**12,748**	1,205	450
Iron Oxides	No.	.....	.....	1	.....	.....	*1*	20	**21**	.....	.....
	H.P.	.....	.....	100	.....	.....	*100*	125	**225**	.....	.....
Mica	No.	2	.....	1	10	.....	*13*	49	**62**	.....	3
	H.P.	75	.....	315	317	.....	*707*	636	**1,343**	.....	670
Peat	No.	1	.....	6	112	2	*121*	117	**238**	.....	.....
	H.P.	30	.....	291	3,698	50	*4,069*	1,705	**5,774**	.....	.....
Salt	No.	14	15	.....	.....	.....	*29*	172	**201**	282	8
	H.P.	1,375	1,945	.....	.....	.....	*3,320*	1,042	**4,362**	2,659	3,920
Talc and Soapstone	No.	.....	.....	3	15	.....	*18*	53	**71**	12	.....
	H.P.	.....	.....	274	344	.....	*618*	879	**1,497**	126	.....
Miscellaneous	No.	2	.....	18	20	3	*43*	383	**426**	124	18
	H.P.	20	.....	2,013	1,064	658	*3,755*	6,559	**10,314**	1,660	765
Total	**No.**	**38**	**16**	**91**	**259**	**5**	*409*	**2,350**	**2,759**	**603**	**55**
	H.P.	**3,358**	**2,065**	**10,837**	**11,875**	**708**	*28,843*	**76,858**	**105,701**	**7,348**	**9,887**

or Idle, in the Mineral Industry in Canada, by Industries, 1946

IN RESERVE OR IDLE

Steam engines	Steam turbines	Diesel engines	Gasoline, gas and oil engines other than Diesel engines	Hydraulic turbines or water wheels	*Total primary power*	Electric motors run by purchased power	**Total power employed**	Electric motors run by primary power in same plant	Boilers	Motor-generator sets in use and in reserve Total
1	.....	5	6	2	*14*	.....	14	264	1	10
15	.....	163	67	50	*295*	.....	295	1,670	15	257
12	2	46	100	1	*167*	1,348	1,515	190	43	507
992	90	7,832	6,976	780	*16,670*	29,499	46,169	3,898	2,276	20,079
.....	3	4	2	.....	*9*	196	205	37	6	108
.....	1,000	1,085	245	.....	*2,330*	3,927	6,257	2,034	882	10,194
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	545
.....	.....	4	2	1	*7*	66	73	31	1	39
.....	.....	620	305	50	*975*	2,241	3,216	787	30	5,300
.....	.....	.....	1	.....	*1*	89	90	.....	2	84
.....	.....	.....	60	.....	*60*	4,172	4,232	.....	190	32,417
.....	.....	.....	3	.....	*3*	15	18	.....	.....	2
.....	.....	.....	111	.....	*111*	1,159	1,270	.....	.....	13
2	8	5	9	11	*35*	3,017	3,052	50	16	215
2,574	11,929	1,075	1,055	42,082	*58,715*	73,585	132,300	3,200	15,065	118,714
15	**13**	**64**	**129**	**15**	*236*	**4,731**	**4,967**	**572**	**69**	**971**
3,581	**13,019**	**10,775**	**8,819**	**42,962**	*79,156*	**114,583**	**193,739**	**11,598**	**18,158**	**187,519**
										..
										..
										..
										..
25	2	2	12	.....	*41*	332	373	32	13	92
6,319	2,005	65	406	.....	*8,795*	7,308	16,103	2,778	1,509	6,737
.....	.....	1	2	.....	*3*	.....	3	.....	.....	4
.....	.....	430	52	.....	*482*	.....	482	.....	.....	10
24	3	.....	19	.....	*46*	21	67	.....	9	15
7,330	214	.....	299	.....	*7,843*	366	8,209	.....	757	82
49	**5**	**3**	**33**	.....	*90*	**353**	**443**	**32**	**22**	**111**
13,619	**2,219**	**495**	**757**	.....	*17,120*	**7,674**	**24,794**	**2,778**	**2,266**	**6,829**
.....	.....	.....	7	.....	*7*	85	92	.....	1	2
.....	.....	.....	77	.....	*77*	4,659	4,736	.....	50	310
.....	.....	.....	10	.....	*10*	7	17	16	1	10
.....	.....	.....	882	.....	*882*	137	1,019	99	5	333
2	.....	3	6	.....	*11*	14	25	6	.....	5
215	.....	105	211	.....	*531*	341	872	305	.....	268
.....	.....	.....	.....	.....	.....	12	12	.....	.....	.....
.....	.....	.....	.....	.....	.....	11	11	.....	.....	.....
1	.....	.....	1	.....	*2*	3	5	.....	1	1
30	.....	.....	3	.....	*33*	45	78	.....	40	20
.....	.....	2	15	.....	*17*	3	20	1	.....	2
.....	.....	140	454	.....	*594*	24	618	110	.....	10
.....	.....	.....	.....	.....	.....	6	6	18	5	3
.....	.....	.....	.....	.....	.....	58	58	236	785	1,343
.....	.....	.....	.....	.....	.....	4	4	.....	.....	.....
.....	.....	.....	.....	.....	.....	320	320	.....	.....	.....
3	.....	4	4	.....	*11*	31	42	24	6	6
95	.....	860	430	.....	*1,385*	505	1,890	440	243	266
6	.....	**9**	**43**	.....	*58*	**165**	**223**	**65**	**14**	**35**
340	.....	**1,105**	**2,057**	.....	*3,502*	**6,100**	**9,602**	**1,190**	**1,123**	**2,550**

Table 28.—Power Equipment in Use and Power Equipment in Reserve or

ORDINARILY IN USE

Industry		Steam engines	Steam turbines	Diesel engines	Gasoline, gas and oil engines other than Diesel engines	Hydraulic turbines or water wheels	*Total primary power*	Electric motors run by purchased power	**Total power employed**	Electric motors run by primary power in same plant	Boilers
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS											
Cement	No.	.....	.....	6	35	.....	*41*	1,509	**1,550**	26	**2**
	H.P.	.....	.....	1,276	1,037	.....	*2,313*	77,687	**80,000**	983	**250**
Clay Products	No.	40	1	11	67	17	*136*	623	**759**	31	**50**
	H.P.	3,432	129	653	2,547	712	*7,473*	14,162	**21,635**	232	**4,576**
Lime	No.	5	.....	4	8	5	*22*	444	**466**	69	**10**
	H.P.	215	.....	570	237	85	*1,107*	7,242	**8,349**	786	**1,373**
Sand and Gravel	No.	17	.....	25	83	7	*132*	290	**422**	.....	**6**
	H.P.	819	.....	2,294	4,053	240	*7,406*	8,366	**15,772**	.....	**435**
Stone	No.	39	1	70	174	6	*290*	1,038	**1,328**	39	**42**
	H.P.	1,676	2	6,030	6,561	280	*14,549*	27,116	**41,665**	1,116	**2,005**
Total	**No.**	**101**	**2**	**116**	**367**	**35**	*621*	**3,904**	**4,525**	**165**	**110**
	H.P.	**6,142**	**131**	**10,823**	**14,435**	**1,317**	*32,848*	**134,573**	**167,421**	**3,117**	**8,639**
Grand Total, 1946	**No.**	**320**	**52**	**420**	**1,423**	**77**	*2,292*	**32,653**	**34,945**	**3,537**	**736**
	H.P.	**47,653**	**38,140**	**57,686**	**51,550**	**54,002**	*249,031*	**1,003,315**	**1,252,346**	**82,771**	**122,887**
Grand Total, 1945	**No.**	**304**	**61**	**320**	**1,340**	**76**	*2,101*	**33,304**	**35,405**	**3,536**	**665**
	H.P.	**65,694**	**46,523**	**44,004**	**46,841**	**81,129**	*284,191*	**1,007,288**	**1,291,479**	**88,881**	**122,217**

Table 29.—Power Equipment in Use and Power Equipment in Reserve or

ORDINARILY IN USE

Province		Steam engines	Steam turbines	Diesel engines	Gasoline, gas and oil engines other than Diesel engines	Hydraulic turbines or water wheels	*Total primary power*	Electric motors run by purchased power	**Total power employed**	Electric motors run by primary power in same plant	Boilers
Nova Scotia	No.	44	9	40	49	.....	*142*	1,089	**1,231**	215	**85**
	H.P.	19,061	16,410	5,127	3,125	.....	*43,723*	70,961	**114,684**	9,783	**28,691**
New Brunswick	No.	12	.....	8	50	.....	*70*	319	**389**	5	**19**
	H.P.	1,425	.....	734	1,341	.....	*3,500*	2,678	**6,178**	120	**1,255**
Quebec	No.	35	9	119	288	8	*459*	10,042	**10,501**	491	**167**
	H.P.	1,625	4,940	18,992	11,636	2,995	*40,188*	281,383	**321,571**	8,569	**31,105**
Ontario	No.	86	17	111	528	5	*747*	13,465	**14,212**	638	**197**
	H.P.	4,161	4,181	12,245	21,721	2,858	*45,166*	413,640	**458,806**	9,118	**24,942**
Manitoba	No.	8	1	14	44	.....	*67*	1,077	**1,144**	104	**13**
	H.P.	340	500	1,476	746	.....	*3,062*	35,062	**38,124**	1,426	**2,495**
Saskatchewan	No.	14	1	23	48	.....	*86*	1,877	**1,963**	153	**23**
	H.P.	1,109	1,250	2,433	985	.....	*5,777*	74,251	**80,028**	1,722	**3,282**
Alberta	No.	99	10	25	245	.....	*379*	2,038	**2,417**	373	**174**
	H.P.	16,137	3,293	2,725	5,372	.....	*27,527*	52,896	**80,423**	7,480	**20,250**
British Columbia	No.	22	5	77	164	60	*328*	2,672	**3,000**	1,320	**51**
	H.P.	3,795	7,566	13,367	6,589	28,449	*59,766*	70,871	**130,637**	38,012	**10,182**
Yukon	No.	.....	.....	1	.....	3	*4*	.....	**4**	85	.....
	H.P.	.....	.....	275	.....	15,000	*15,275*	.....	**15,275**	3,836	.....
N.W.T.	No.	.....	.....	2	7	1	*10*	74	**84**	153	**7**
	H.P.	.....	.....	312	35	4,700	*5,047*	1,573	**6,620**	2,711	**685**
Canada	**No.**	**320**	**52**	**420**	**1,423**	**77**	*2,292*	**32,653**	**34,945**	**3,537**	**736**
	H.P.	**47,653**	**38,140**	**57,686**	**51,550**	**54,002**	*249,031*	**1,003,315**	**1,252,346**	**82,771**	**122,887**

Idle, in the Mineral Industry in Canada, by Industries 1946—Concluded

IN RESERVE OR IDLE

Steam engines	Steam turbines	Diesel engines	Gasoline, gas and oil engines other than Diesel engines	Hydraulic turbines or water wheels	*Total primary power*	Electric motors run by purchased power	**Total power employed**	Electric motors run by primary power in same plant	Boilers	Motor-generator sets in use and in reserve Total
1	.....	.....	7	.....	*8*	297	305	8	1	27
50	.....	.....	447	.....	*497*	13,543	14,040	233	40	2,073
2	.....	.....	2	.....	*4*	36	40	.....	1	9
175	.....	.....	50	.....	*225*	1,204	1,429	.....	50	792
.....	.....	.....	.....	.....	.....	29	29	.....	5	.....
.....	.....	.....	.....	.....	.....	553	553	.....	347	.....
3	.....	1	6	.....	*10*	24	34	.....	2	.....
215	.....	70	188	.....	*473*	678	1,151	.....	150	.....
5	1	3	19	4	*32*	139	171	2	4	4
265	2	165	790	150	*1,372*	4,772	6,144	3	140	83
11	**1**	**4**	**34**	**4**	*54*	**525**	**579**	**10**	**13**	**40**
705	**2**	**235**	**1,475**	**150**	*2,567*	**20,750**	**23,317**	**236**	**727**	**2,948**
81	**19**	**80**	**239**	**19**	*438*	**5,774**	**6,212**	**679**	**118**	**1,157**
18,275	**15,240**	**12,610**	**13,108**	**43,112**	*102,345*	**149,107**	**251,452**	**15,802**	**22,574**	**199,846**
93	**14**	**70**	**206**	**11**	*394*	**5,321**	**5,715**	**789**	**142**	**1,093**
22,872	**16,241**	**10,111**	**11,931**	**14,812**	*75,997*	**160,806**	**236,803**	**14,951**	**27,109**	**204,360**

Idle, in the Mineral Industry in Canada, by Provinces, 1946

IN RESERVE OR IDLE

Steam engines	Steam turbines	Diesel engines	Gasoline, gas and oil engines other than Diesel engines	Hydraulic turbines or water wheels	*Total primary power*	Electric motors run by purchased power	**Total power employed**	Electric motors run by primary power in same plant	Boilers	Motor-generator sets in use and in reserve Total
5	.....	1	8	.....	*14*	58	72	10	3	22
708	.....	125	301	.....	*1,134*	2,053	3,187	2,409	15	3,170
2	.....	.....	.....	.....	*2*	92	94	1	.....	1
220	.....	.....	.....	.....	*220*	1,105	1,325	10	.....	10
9	3	18	88	11	*129*	3,527	3,656	51	43	293
217	4,050	2,615	5,557	42,082	*54,521*	77,188	131,709	1,882	14,681	26,699
13	2	19	83	.....	*117*	1,504	1,621	99	35	532
3,369	7	2,839	5,250	.....	*11,465*	49,953	61,418	4,634	2,713	103,213
1	1	3	4	.....	*9*	59	68	21	2	31
15	838	595	489	.....	*1,937*	2,078	4,015	418	200	6,821
3	2	4	2	.....	*11*	144	155	22	3	48
250	1,677	1,025	145	.....	*3,107*	4,692	7,799	510	875	37,968
49	5	3	16	.....	*64*	149	213	27	19	83
12,347	2,219	495	274	.....	*15,335*	3,380	18,721	664	2,277	3,983
8	6	25	34	8	*81*	226	307	150	11	123
1,139	6,449	3,153	987	1,030	*12,758*	8,585	21,343	3,248	1,698	17,652
.....	.....	.....	.....	.....	.....	.....	.....	264	.....	8
.....	.....	.....	.....	.....	.....	.....	.....	1,670	.....	234
.....	.....	7	4	.....	*11*	15	26	34	2	16
.....	.....	1,763	105	.....	*1,868*	64	1,932	357	115	96
81	**19**	**80**	**239**	**19**	*438*	**5,774**	**6,212**	**679**	**118**	**1,157**
18,275	**15,240**	**12,610**	**13,108**	**43,112**	*102,345*	**149,107**	**251,452**	**15,802**	**22,574**	**199,846**

CHAPTER TWO

THE GOLD MINING INDUSTRY IN CANADA

Definition of the Industry.—Gold mining in Canada is classified into three principal industries—(a) the recovery of gold from the gravels and sands of stream channels or beaches or what is defined as "The Alluvial Gold Mining Industry"; (b) the recovery of lode gold, which is designated "The Auriferous Quartz Mining Industry" and in which industry gold is usually the most important economic constituent of the ores mined and quartz the predominant gangue mineral; (c) gold is often found in various other mineral deposits, more particularly in those of copper, and for this reason the review of Canada's "Copper-Gold-Silver Mining Industry" is included here to complete a more comprehensive survey of Canadian gold production.

Production of fine gold in Canada during 1946 amounted to 2,832,554 troy ounces valued at $104,096,359, showing an increase from the production of 2,692,727 troy ounces worth $103,-823,990 in 1945. The employment situation showed only slight improvement which might account for the increase in quantity of gold, but in July, 1946 the Canadian dollar was brought to parity with the United States dollar, thus lowering the price of gold from $38.50 to $35.00 per ounce. This price change had an adverse effect on the gold mining industry. Increased costs and limited supply of mining equipment retarded the development of many mines.

Ontario was the largest contributor to the gold production with 64 per cent, Quebec and British Columbia had 21·8 per cent and 4·8 per cent, respectively. The balance of the year's output was made by Saskatchewan, Manitoba, Yukon, Northwest Territories, Nova Scotia and Alberta, in that order.

Gold yield according to the type of deposit or nature of recovery included: in crude gold bullion produced at "gold mines", 80·91 per cent; in blister and anode copper, 13·48 per cent; in ores, matte, slags, etc. exported, 3·30 per cent; in alluvial gold, 2·15 per cent; and in base bullion at lead smelters, 0·16 per cent.

The cumulative total production of gold in Canada from 1858 to 1946 is 97,827,035 fine ounces valued at $2,892,308,330 in Canadian funds.

The lifting of restrictions allowed development of ground previously explored by diamond drilling. The footage drilled on auriferous quartz deposits was 4,984,752, which was more than in the preceding year. During the latter part of the year diamond drilling activity declined very rapidly.

Table 30.—Production of New Gold in Canada, by Provinces and Sources, 1945 and 1946
(Gold at $20.671834 per fine ounce)

—	1945		1946	
	Fine troy ounces	$	Fine troy ounces	$
NOVA SCOTIA—				
In gold bullion	3,291	68,031	4,321	89,323
Estimated exchange equalization on gold produced	.....	58,673	.....	69,474
Total Value—Canadian Funds	.....	126,704	.....	158,797
QUEBEC—				
In gold bullion	419,673	8,675,411	410,642	8,488,723
In anode copper (b)	225,443	4,660,320	197,471	4,082,088
In ores, etc., exported	16,492	340,920	10,226	211,390
Total	661,608	13,676,651	618,339	12,782,201
Estimated exchange equalization on gold produced	.....	11,795,257	.....	9,941,757
Total Value—Canadian Funds	.....	25,471,908	.....	22,723,958

Table 30.—Production of New Gold in Canada, by Provinces and Sources, 1945 and 1946 (Gold at $20.671834 per fine ounce)
—Concluded

—	1945		1946	
	Fine troy ounces	$	Fine troy ounces	$
ONTARIO—				
(c) Porcupine area—In gold bullion	830,909	17,176,413	904,975	18,707,493
(c) Kirkland Lake—In gold bullion (a)	479,346	9,908,961	549,068	11,350,243
(c) Other gold mines—In gold bullion	223,744	4,625,199	291,371	6,023,173
In converter copper from nickel-copper ores	44,544	920,806	34,413	711,380
In ores, matte, etc., exported	46,825	967,958	33,506	692,630
Total	1,625,368	33,599,337	1,813,333	37,484,919
Estimated exchange equalization on gold produced	.....	28,977,331	.....	29,155,069
Total Value—Canadian Funds	.....	62,576,668	.....	66,639,988
MANITOBA—				
In gold bullion	38,326	792,268	43,819	905,819
In blister copper	32,329	668,300	35,583	735,566
In ores, etc., exported	.....	.....	.....	.....
Total	70,655	1,460,568	79,402	1,641,385
Estimated exchange equalization on gold produced	.....	1,259,650	.....	1,276,639
Total Value—Canadian Funds	.....	2,720,218	.....	2,918,024
SASKATCHEWAN—				
In alluvial gold	.....	.....	2	41
In gold bullion	.....	.....	.....	.....
In blister copper	108,568	2,244,300	112,099	2,317,292
Total	108,568	2,244,300	112,101	2,317,333
Estimated exchange equalization on gold produced	.....	1,935,568	.....	1,802,379
Total Value—Canadian Funds	.....	4,179,868	.....	4,119,712
ALBERTA—				
In alluvial gold	7	145	110	2,274
Estimated exchange equalization on gold produced	.....	124	.....	1,768
Total Value—Canadian Funds	.....	269	.....	4,042
BRITISH COLUMBIA—				
In alluvial gold	10,071	208,186	15,530	321,033
In gold bullion	88,261	1,824,517	66,509	1,374,863
In base bullion	2,323	48,021	4,474	92,486
In ores, etc., exported	86,199	1,781,891	49,729	1,027,990
Total	186,854	3,862,615	136,242	2,816,372
Estimated exchange equalization on gold produced	.....	3,331,264	.....	2,190,521
Total Value—Canadian Funds	.....	7,193,879	.....	5,006,893
YUKON—				
In alluvial gold	31,721	655,731	45,283	936,083
In ores exported	.....	.....	3	62
Total	31,721	655,731	45,286	936,145
Estimated exchange equalization on gold produced	.....	565,527	.....	728,115
Total Value—Canadian Funds	.....	1,221,258	.....	1,664,260
NORTHWEST TERRITORIES—				
In ores, etc., shipped	.....	.....	.....	.....
In gold bullion produced	8,655	178,915	23,420	484,134
Total	8,655	178,915	23,420	484,134
Estimated exchange equalization on gold produced	.....	154,303	.....	376,551
Total Value—Canadian Funds	.....	333,218	.....	860,685
Total for Canada	**2,696,727**	**55,746,293**	**2,832,554**	**58,554,086**
Total Estimated Exchange Equalization on Gold Produced	.....	48,077,697	.....	45,542,273
Grand Total Value, Including Exchange	.....	**103,823,990**	.....	**104,096,359**

NOTE.—The estimated average price of a troy ounce of fine gold in Canadian funds was $38.50 in 1945 and $36.75 in 1946.
(a) Includes production of Larder Lake area.
(b) Includes a considerable quantity of gold recovered from gold ores.
(c) Includes certain quantites of gold contained in slags, ores, etc., shipped to Canadian and foreign smelters.

Table 31.—Production (*) of Gold from Auriferous Quartz and Base Metal Mines, by Months, 1946 and 1947

Month	Gold production from base metal mines		Gold production from auriferous quartz mines and placer deposits	
	1946	1947	1946	1947
	(fine ounces)			
January	39,241	17,306	199,261	216,831
February	38,168	15,586	191,320	207,431
March	43,099	28,281	205,209	235,588
April	40,880	25,119	197,724	229,770
May	36,321	29,863	204,381	239,047
June	27,347	31,080	207,156	238,018
July	36,110	27,713	203,473	233,684
August	33,358	29,590	197,793	231,301
September	31,708	27,869	198,258	219,774
October	31,814	28,782	209,189	229,983
November	28,120	24,676	203,185	227,498
December	15,523	.....	213,916	.....
Total	**401,689**	.....	**2,430,865**	.....

* 1947 data are not adjusted to final totals for year.

Table 32.—Total (Cumulative) Recorded Production in Canada of Specified Metals to December 31, 1946

—	Since	Unit of measure	Quantity	Value
				$
Gold	1858	fine ounces	97,827,035	2,892,308,330
Silver	1887	fine ounces	906,406,934	511,142,131
Copper	1886	pounds	10,565,231,970	1,243,135,303
Nickel	1889	pounds	4,619,278,412	1,244,159,172
Lead	1887	pounds	9,267,891,835	409,676,278
Zinc	1898	.....	.....	350,597,787
Cobalt	1904	pounds	24,600,409	33,887,158

Table 33.—Production of Gold and Silver in Canada by Principal Mines, 1946

Property and Province	Ore hoisted	Material sorted (discarded)	Ore treated	Gold produced	Silver produced	Mill capacity 24 hours	See footnotes
	tons	tons	tons	fine oz.	fine oz.	tons	
NOVA SCOTIA—							
Consolidated Mining & Smelting Co. of Canada Ltd.	9,601	.....	9,601	3,289	115	40	(a)
Queens Mines Limited	5,399	.....	5,399	840	22	120	(a)
Total Nova Scotia	.....	.....	.....	4,321	.....	.....	(g)
QUEBEC—							
Belleterre Quebec Mines Ltd.	140,589	17,722	122,867	40,102	4,665	350	(c)
Canadian Malartic Gold Mines Limited	317,026	.....	317,026	34,664	30,558	1,000	(c)
Consolidated Beattie Mines Limited	74,045	.....	107,421	8,929	812	1,800	(c)
East Malartic Mines Limited	307,461	.....	307,461	43,623	11,916	1,500	(c)
Eder Mines Limited	23,401	.....	.....	601	.....	.....	(b)
Francoeur Gold Mines Ltd.	73,427	.....	19,820	9,988	447	.....	(b)
Lamaque Mining Co. Ltd.	145,315	.....	145,315	36,687	6,436	1,200	(c)
Malartic Gold Fields Ltd.	208,354	.....	208,354	37,845	1,293	750	(c)
Mic-Mac Mines Limited	174,652	.....	174,784	24,731	5,937	650	(a)
O'Brien Gold Mines Limited	51,167	.....	51,050	22,681	1,430	190	(a) (c)
Perron Gold Mines Limited	117,081	3,195	113,740	19,607	1,654	400	(c)
Powell Rouyn Gold Mines Limited	87,809	.....	.....	10,246	.....	450	(b)
Senator-Rouyn Limited	95,596	.....	92,759	12,877	1,136	300	(c)
Sigma Mines (Quebec) Ltd.	299,236	.....	299,236	49,674	9,744	1,100	(c)
Siscoe Gold Mines Ltd.	157,791	.....	157,791	22,799	2,308	270	(a) (c)
Sladen-Malartic Mines Ltd.	181,701	.....	181,557	16,274	11,555	700	(c)

For footnotes, see end of table, p. 128.

Table 33.—Production of Gold and Silver in Canada by Principal Mines, 1946—Continued

Property and Province	Ore hoisted	Material sorted (discarded)	Ore treated	Gold produced	Silver produced	Mill capacity 24 hours	See footnotes
	tons	tons	tons	fine oz.	fine oz.	tons	
QUEBEC—Con.							
Stadacona Rouyn Mines Ltd.	123,877	.....	123,877	21,721	4,416	500	(c)
Sullivan Consolidated	139,995	19,056	120,939	26,706	6,958	500	(c)
West Malartic Mines Ltd.	3,274	.....	3,274	482	34	300	(c)
Total Principal Gold Mines	.....	.....	.....	440,237	101,299	.....	.....
Copper-gold-silver and other ores	.....	.....	.....	178,102	.....	.....	.....
Total Quebec	.....	.....	.....	618,339	.....	.....	.....
ONTARIO—							
Porcupine District							
Aunor Gold Mines Ltd.	167,705	.....	167,705	56,712	4,490	300	(c)
Bonetal Gold Mines Ltd.	29,019	2,321	26,698	4,674	467	.....	(d)
Broulan Porcupine Mines Ltd.	84,931	9,140	75,791	15,850	1,538	350	(c)
Buffalo Ankerite Gold Mines Ltd.	234,379	.....	234,370	37,873	3,355	1,300	(c)
Coniaurum Mines Ltd.	114,385	.....	114,385	28,114	5,837	500	(c)
Delnite Mines Ltd.	92,600	.....	92,731	17,171	1,426	520	(c)
Dome Mines Ltd.	573,400	.....	573,400	147,649	34,543	1,700	(c)
Hallnor Mines Ltd.	112,357	.....	112,357	52,519	3,954	400	(c)
Hollinger Cons. Gold Mines Ltd. (Timmins)	1,045,601	.....	1,048,646	250,075	48,140	3,900	(c)
Hollinger Cons. Gold Mines Ltd. (Ross)	70,236	.....	70,309	12,981	39,171	300	(c)
Hoyle Mining Co. Ltd.	72,779	4,827	67,952	5,382	.....	.....	(e)
McIntyre Porcupine Mines Ltd.	614,138	.....	613,200	168,587	34,398	2,400	(c)
Pamour Porcupine Mines Ltd.	386,686	.....	386,686	35,447	6,032	1,600	(c)
Paymaster Cons. Mines Ltd.	151,432	.....	140,015	31,158	9,677	600	(c)
Preston East Dome Mines Ltd.	231,259	.....	230,899	40,604	4,952	1,000	(a) (c)
Kirkland Lake District							
Bidgood Kirkland Gold Mines Ltd.	27,634	.....	27,634	7,381	2,311	125	(c)
Kirkland Lake Gold Mining Co. Ltd.	91,443	.....	91,443	29,876	3,404	400	(c)
Lake Shore Mines Ltd.	310,968	.....	310,968	128,094	35,073	2,300	(c)
Macassa Mines Ltd.	87,383	.....	87,383	35,931	7,071	400	(c)
Sylvanite	154,765	.....	154,562	45,740	8,942	600	(c)
The Teck-Hughes Gold Mines Ltd.	91,302	.....	91,302	29,831	3,572	600	(c)
Toburn Gold Mines Ltd.	40,753	.....	40,753	13,071	4,040	175	(c)
Upper Canada	99,431	.....	99,431	28,521	11,145	300	(c)
Wright Hargreaves Mines Ltd.	174,314	.....	174,314	85,143	16,742	1,200	(c)
Larder Lake District							
Chesterville Larder Lake Gold Mining Ltd.	225,458	.....	225,458	28,078	1,481	700	(c)
Kerr-Addison Gold Mines Ltd.	531,815	.....	531,695	105,483	5,975	2,100	(c)
Omega Gold Mines Ltd.	104,925	.....	104,925	11,768	1,515	500	(c)
Matachewan District							
Hollinger Cons. Gold Mines Ltd. (Young-Davidson)	207,444	.....	208,619	18,533	4,110	1,050	(c)
Matachewan Consolidated Mines Ltd.	223,090	.....	222,890	24,169	9,663	1,000	(c)
Thunder Bay District							
Hard Rock Gold Mines Ltd.	144,378	41,612	102,766	19,581	293	450	(c)
Leitch Gold Mines Ltd.	34,585	4,879	28,692	24,319	759	90	(a) (c)
Little Long Lac Gold Mines Ltd.	77,664	9,814	67,850	19,702	1,665	300	(a) (c)
MacLeod-Cockshutt Gold Mines Ltd.	224,631	66,197	158,434	32,870	723	650	(c)
Magnet Consolidated Mines Ltd.	26,018	.....	26,018	9,448	985	150	(a) (c)
Maylac Gold Mines Ltd.	989	228	761	588	34	.....	.....
Patricia District							
Berens River Mines Ltd.	41,925	.....	41,925	9,776	507,866	225	(f)
Central Patricia Gold Mines Ltd.	97,808	.....	97,808	32,622	3,195	400	(c)
Cochenour Willans Gold Mines Ltd.	61,526	.....	59,570	21,898	623	50	(a) (c)

For footnotes, see end of table, p. 128.

Table 33.—Production of Gold and Silver in Canada by Principal Mines, 1946—Concluded

Property and Province	Ore hoisted	Material sorted (discarded)	Ore treated	Gold produced	Silver produced	Mill capacity 24 hours	See footnotes
	tons	tons	tons	fine oz.	fine oz.	tons	
ONTARIO—Conc.							
Hasaga Gold Mines Ltd.	106,132	23,958	82,427	7,973	3,295	350	(c)
Jason Mines Ltd.	11,549	1,437	9,956	2,221	264	135	(a) (c)
Madsen Red Lake Gold Mines Ltd.	121,649	.....	121,649	29,751	6,741	400	(a) (c)
McKenzie Red Lake Gold Mines Ltd.	79,660	10,459	69,201	16,217	6,297	250	(c)
Pickle Crow Gold Mines Ltd.	73,990	880	73,209	37,664	4,944	400	(a) (c)
Total Principal Gold Mines	.....	.....	.....	1,761,045	850,717	.....	.....
Nickel-copper and other mines	.....	.....	.....	52,288	.....	.....	.....
Total Ontario	.....	.....	.....	1,813,333	.....	.....	.....
MANITOBA—							
San Antonio Gold Mines Ltd.	150,335	.....	149,875	43,819	6,621	550	(a) (c)
Copper-gold-silver ores	.....	.....	.....	35,583	.....	.....	.....
Total Manitoba	.....	.....	.....	79,402	.....	.....	.....
SASKATCHEWAN—							
Copper-gold-silver and alluvial ores	.....	.....	.....	112,101	.....	.....	.....
ALBERTA—							
Placer gold	.....	.....	.....	110	.....	.....	.....
BRITISH COLUMBIA—							
Bralorne Mines Ltd.	69,526	4,992	64,534	31,432	8,552	500	(a)
Cariboo Gold Quartz Mining Co. Ltd.	45,224	.....	45,224	14,092	1,179	350	(c)
Hedley Mascot Gold Mines Ltd.	32,448	.....	32,448	9,050	2,263	225	(c)
Island Mountain Mines Co. Ltd.	20,807	.....	20,807	9,298	1,249	150	(c)
Kelowna Exploration Co. Ltd.	46,494	.....	46,494	18,491	908	275	(c)
Polaris-Taku Mining Co. Ltd.	25,724	.....	25,724	3,276	143	300	(f)
Pioneer Gold Mines of B.C. Ltd.	13,706	1,161	12,175	5,896	1,008	400	(a) (c)
Privateer Mine Ltd.	7,045	3,484	3,661	1,801	893	90	(c)
Reno Gold Mines Ltd.	3,843	1,185	2,658	872	612	50	(a) (f)
Sheep Creek Gold Mines Ltd.	18,208	.....	18,208	5,678	1,457	150	(c)
Silbak Premier Mines Ltd.	34,804	.....	34,804	8,163	38,066	500	(f)
Total Principal Gold Mines	.....	.....	.....	108,049	56,330	.....	.....
Placer gold	.....	.....	.....	15,530	.....	.....	.....
Copper-gold and other ores	.....	.....	.....	12,663	.....	.....	.....
Total British Columbia	.....	.....	.....	136,242	.....	.....	.....
YUKON—							
Placers	.....	.....	.....	45,286	9,416	.....	(a)
NORTHWEST TERRITORIES—							
Negus Mines Ltd.	27,287	2,790	24,419	(g) 15,772	(g) 4,061	65	(a) (c)
Cons. Mining & Smelting Co. Ltd.	19,918	.....	19,918	7,648	2,051	350	(a) (c)
Total Northwest Territories	.....	.....	.....	23,420	.....	.....	.....
TOTAL CANADA	.....	.....	.....	2,832,554	.....	.....	.....

(a) Amalgamation process.
(b) Shipped to smelter.
(c) Cyanidation.
(d) Shipped to Broulan mill.
(e) Shipped to Pamour Porcupine.
(f) Flotation process concentrates exported.
(g) Receipts at Royal Canadian Mint.

Table 34.—Production of New Gold* by Provinces and Territories, 1937-1946

Year	Nova Scotia		Quebec		Ontario		Manitoba	
	Fine ounces	$	Fine ounces	$	Fine ounces	$	Fine ounces	$
1937	19,918	696,931	711,480	24,894,685	2,587,095	90,522,454	157,949	5,526,636
1938	26,560	934,248	881,263	30,998,426	2,896,477	101,883,578	185,706	6,532,209
1939	29,943	1,082,170	953,377	34,455,998	3,086,076	111,533,873	180,875	6,537,003
1940	22,219	855,432	1,019,175	39,238,238	3,261,688	125,574,988	152,295	5,863,357
1941	19,170	738,045	1,089,339	41,939,552	3,194,308	122,980,858	150,553	5,799,290
1942	12,989	500,076	1,092,388	42,056,938	2,763,819	106,407,032	136,226	5,244,701
1943	4,129	158,967	922,533	35,517,521	2,117,215	81,512,777	91,775	3,533,337
1944	5,840	224,840	746,784	28,751,184	1,731,836	66,675,686	74,168	2,855,468
1945	3,291	126,704	661,608	25,471,908	1,625,368	62,576,668	70,655	2,720,218
1946	4,321	158,797	618,339	22,723,958	1,813,333	66,639,988	79,402	2,918,024
Total	**148,380**	**5,476,210**	**8,696,286**	**326,048,408**	**25,677,215**	**936,387,902**	**1,279,604**	**47,577,243**
	Saskatchewan		British Columbia		Yukon		Northwest Territories	
1937	65,886	2,305,351	505,857	17,699,936	47,982	1,678,890	.....	.....
1938	50,021	1,759,489	605,617	21,302,578	72,368	2,545,544	6,800	239,190
1939	77,120	2,787,194	626,970	22,659,323	87,745	3,171,192	51,914	1,876,224
1940	102,925	3,962,613	617,011	23,754,924	80,458	3,097,633	55,159	2,123,621
1941	138,015	5,313,578	608,203	23,415,816	70,959	2,731,922	74,417	2,865,054
1942	178,871	6,886,533	474,339	18,262,052	83,246	3,204,971	99,394	3,826,669
1943	174,090	6,702,465	241,346	9,291,821	41,160	1,584,660	59,032	2,272,732
1944	122,782	4,727,107	196,857	7,578,994	23,818	916,993	20,775	799,838
1945	108,568	4,179,868	186,854	7,193,879	31,721	1,221,258	8,655	333,218
1946	112,101	4,119,712	136,242	5,006,893	45,286	1,664,260	23,420	860,685
Total	**1,130,379**	**42,743,910**	**4,199,296**	**156,166,216**	**584,743**	**21,817,323**	**399,566**	**15,197,231**

* From all sources.

Table 35.—Gold Recovered in Canada According to Nature of Ore, by Provinces, 1942-1946

Year and Province	Placer gold	Auriferous quartz ores†	Copper-gold-silver ores	Nickel-copper ores	Silver-lead and other ores	Total
	oz.	oz.	oz.	oz.	oz.	oz.
1942						
Nova Scotia	...	12,989	...	...	...	12,989
Quebec	...	811,714	280,580	...	94	1,092,388
Ontario	...	2,692,828	...	70,861	130	2,763,819
Manitoba	...	85,193	51,033	...	...	136,226
Saskatchewan	9	15,141	163,721	...	...	178,871
Alberta	34	...	...	...	...	34
British Columbia	26,323	418,048	19,892	...	10,076	474,339
Northwest Territories	...	99,394	...	...	...	99,394
Yukon	83,198	...	...	...	48	83,246
Total Canada	**109,564**	**4,135,307**	**515,226**	**70,861**	**10,348**	**4,841,306**
1943						
Nova Scotia	...	4,129	...	...	...	4,129
Quebec	...	625,429	284,112	...	12,992*	922,533
Ontario	...	2,061,376	1	55,776	62	2,117,215
Manitoba	...	62,254	29,521	...	...	91,775
Saskatchewan	...	4	174,086	...	...	174,090
Alberta	21	...	...	...	...	21
British Columbia	11,680	205,850	18,137	...	5,679	241,346
Northwest Territories	...	59,032	...	...	...	59,032
Yukon	41,157	...	...	...	3	41,160
Total Canada	**52,858**	**3,018,074**	**505,857**	**55,776**	**18,736**	**3,651,301**
1944						
Nova Scotia	...	5,840	...	...	...	5,840
Quebec	...	522,894	209,989	...	13,901*	746,784
Ontario	...	1,676,486	...	55,286	64	1,731,836
Manitoba	...	40,669	33,499	...	...	74,168
Saskatchewan	5	...	122,777	...	...	122,782
Alberta	51	...	...	...	...	51
British Columbia	9,402	169,132	14,852	...	3,471	196,857
Northwest Territories	...	20,775	...	...	...	20,775
Yukon	23,816	...	...	...	2	23,818
Total Canada	**33,274**	**2,435,796**	**381,117**	**55,286**	**17,438**	**2,922,911**
1945						
Nova Scotia	...	3,291	...	...	...	3,291
Quebec	...	434,784	212,146	...	14,678*	661,608
Ontario	...	1,832,715	44,544	48,109	...	1,625,368
Manitoba	...	38,326	32,329	...	...	70,655
Saskatchewan	...	...	108,568	...	...	108,568
Alberta	7	...	...	...	...	7
British Columbia	10,071	161,960	12,453	...	2,370	186,854
Northwest Territories	...	8,655	...	...	...	8,655
Yukon	31,721	...	...	...	...	31,721
Total Canada	**41,799**	**2,179,731**	**410,040**	**48,109**	**17,048**	**2,696,727**
1946						
Nova Scotia	...	4,321	...	...	...	4,321
Quebec	...	440,263	167,850	...	10,226*	618,339
Ontario	...	1,761,717	...	51,490	126	1,813,333
Manitoba	...	43,819	35,583	...	...	79,402
Saskatchewan	2	...	112,099	...	...	112,101
Alberta	110	...	...	...	...	110
British Columbia	15,530	108,944	7,287	...	4,481	136,242
Northwest Territories	...	23,420	...	...	...	23,420
Yukon	45,283	...	...	...	3	45,286
Total Canada	**60,925**	**2,382,484**	**322,819**	**51,490**	**14,836**	**2,832,554**

* Contains a relatively small quantity of gold recovered from certain complex ores (lead, copper, etc.), which are difficult to classify.

† Includes production of Golden Manitou mine which was classified prior to 1943 as auriferous quartz.

Table 36.—Canadian Gold Production According to Method of Computation and Recovery, 1932-1946

Year	In alluvial gold	In crude gold bullion produced at mines (a)	In base bullion produced at lead smelters	In blister and anode copper produced (b)	In ores matte, slags, etc. exported	Total gold produced
	%	%	%	%	%	fine oz.
1932	1·8	79·3	1·0	15·1	2·8	3,041,387
1933	2·0	79·8	0·7	14·2	3·3	2,949,309
1934	2·0	78·7	1·1	13·4	4·8	2,972,074
1935	1·8	78·3	2·2	13·2	3·9	3,284,890
1936	2·2	77·4	1·6	13·8	5·0	3,748,028
1937	2·2	80·2	0·9	11·7	5·0	4,096,213
1938	2·5	80·8	0·9	11·2	4·5	4,725,117
1939	2·5	82·1	0·6	10·4	4·4	5,094,379
1940	2·1	82·7	0·6	10·0	4·6	5,311,145
1941	2·0	82·6	0·4	10·3	4·7	5,345,179
1942	2·3	80·8	0·2	12·1	4·6	4,841,308
1943	1·45	78·71	0·19	15·61	4·04	3,651,301
1944	1·14	78·98	0·12	15·41	4·35	2,922,911
1945	1·55	76·77	0·09	15·30	6·29	2,686,727
1946	2·15	80·91	0·16	13·48	3·30	2,832,551

(a) Includes a relatively small quantity of gold contained in shipments of gold ores, slags, etc. to Canadian smelters.
(b) Canadian blister copper is sometimes refined in the United States; also contains a relatively small quantity of gold recovered from auriferous quartz ores.

Table 37.—Production of Gold in Canada, by Months*, 1944-1946 (Fine Ounces)

Month	1944	1945	1946	Month	1944	1945	1946
January	258,607	237,210	238,502	July	236,362	213,815	239,583
February	257,613	215,993	229,488	August	237,617	215,386	231,151
March	267,485	232,610	248,308	September	237,151	215,157	239,066
April	245,577	227,575	238,604	October	230,749	233,487	241,003
May	257,647	221,288	240,702	November	223,806	224,542	231,305
June	240,673	215,802	234,503	December	229,624	243,862	229,439

* Compiled from monthly reports received from principal operators and the totals were adjusted to agree with the 12 months' total as compiled from final annual reports; production includes recoveries from all types of ore.

Table 38.—Precious Metals Consumed by the Jewellery and Silverware Industry in Canada, 1944 and 1945

Material	Cost at works	
	1944	1945
	$	$
Fine gold	3,665,017	4,467,387
Gold alloys	826,199	775,026
Fine silver	1,749,154	2,449,548
Silver alloys	1,014,775	1,344,939
Platinum	150,966	360,655
Old gold, jewellers' findings, waste and scrap for refining	1,379,536	1,228,148
Gold-filled wire and stock	349,871	395,526
Precious and semi-precious stones	1,252,769	1,459,821

Table 39.—Gold Production of the World (a)—(In Fine Ounces)—1940, 1943 and 1946 (Taken from American Bureau of Metal Statistics)

Country	1940	1943	1946
NORTH AMERICA—			
United States	5,919,928	1,365,223	1,625,431
Canada	5,311,145	3,651,301	2,828,404
Mexico	883,096	634,752	417,950
Newfoundland	22,000	18,735	15,751
Total North America	12,136,169	5,670,011	4,887,536
CENTRAL AMERICA AND WEST INDIES	287,296	302,300	250,000
SOUTH AMERICA—			
Brazil	264,311	191,300	170,000
Chile	335,424	173,745	230,517
Columbia	631,926	565,501	437,176
Ecuador	71,217	90,691	72,500
Peru	281,248	199,638	173,000
Guina—British	35,746	19,470	25,000
Dutch	15,921	5,795	6,000
French	32,568	20,608	21,000
Venezuela	146,800	62,802	50,000
Other South America	30,000	30,000	20,000
Total South America	1,845,161	1,359,550	1,205,193
EUROPE	600,000	450,000	450,000
OCEANIA—			
New South Wales	89,839	63,779	31,000
Queensland	126,831	62,838	50,000
Victoria	163,662	56,511	86,993
Western Australia	1,191,481	546,470	616,962
Tasmania	19,171	17,245	15,400
New Guinea	294,795	.....	.....
New Zealand	185,665	149,150	102,000
Fiji	111,300	64,420	72,000
Other Oceania (c)	46,538	4,436	5,000
ASIA—BRITISH INDIA	289,357	252,353	131,000
AFRICA—			
Belgian Congo	554,652	443,481	320,000
French West Africa	73,576	80,296	76,000
Kenya	77,243	45,118	40,000
Madagascar	11,574	9,163	7,000
Rhodesia	842,266	657,387	544,848
British West Africa (b)	939,223	586,013	595,000
Tanganyika	142,074	69,741	48,300
Transvaal Cape Colony and Natal	14,037,741	12,800,021	11,917,914
Totals for World (d)	**34,065,614**	**23,690,283**	**21,452,141**

(a) In compiling this table, free use has been made of the reports of the United States Director of the Mint. Production of the Philippine Islands is included with the United States in this table.

(b) Comprising Gold Coast, Sierra Leone and Nigeria.

(c) Includes Papua.

(d) Outside of Russia, Japan and Asiatic countries, except British India. Unknown production of U.S.S.R., Japan and other countries in Asia have been omitted. In 1940-41 these omissions accounted for about 6,700,000 ounces, and for subsequent years probably decreased to abour 5,500,000 ounces. This will enable anyone to continue an estimationnl line of figures if it be desired to do so.

Table 40.—Gold Production for the World Since the Discovery of America

Year	Russia (a)	Transvaal since the commencement of fields (i)	United States (f) (a)	Canada since the recording of production in 1858	World since the discovery of America (a)
	fine ounces	fine ounces	fine ounces	fine ounces	fine ounces
1493-1600					24,266,820
1601-1700					29,330,445
1701-1800					61,088,215
1801-1840					20,488,552
1841-1850			(c) 1,187,170		17,605,018
1851-1860				220,039	64,482,933
1861-1870			(d) 58,279,778	1,477,999	61,098,343
1871-1880			(e) 15,281,264	904,093	55,670,618
1881-1890		1,070,651	15,808,339	584,102	51,280,184
1891-1895		6,870,158	9,106,834	291,564	39,412,823
1896-1900		12,578,869	15,728,572	3,469,791	62,234,698
1901-1905		13,632,908	19,393,722	4,592,261	78,033,650
1906		5,792,823		556,415	19,471,080
1907		6,450,740		405,517	19,977,260
1908		7,056,266	22,993,218	476,112	21,422,244
1909		7,295,108		453,865	21,965,111
1910		7,527,108		493,707	22,022,180
1911		8,249,461	4,687,053	473,159	22,397,136
1912	(g)	9,107,512	4,520,719	611,885	22,605,068
1913	1,583,677	8,798,336	4,299,784	802,973	22,556,347
1914	1,733,914	8,394,322	4,572,976	773,178	21,652,883
1915	1,382,450	9,093,902	4,887,604	918,056	22,846,608
1916	1,089,885	9,296,618	4,479,057	930,492	22,032,542
1917	871,265	9,018,084	4,051,440	738,831	20,346,043
1918	554,558	8,418,292	3,320,784	699,681	18,588,127
1919	173,610	8,331,294	2,918,628	766,764	17,339,679
1920	73,045	8,158,226	2,476,166	765,007	16,146,830
1921	65,907	8,128,681	2,422,006	926,329	15,997,692
1922	101,614	7,009,767	2,363,075	1,263,364	15,496,859
1923	305,425	9,148,771	2,502,632	1,233,341	17,845,349
1924	546,550	9,574,918	2,528,900	1,525,382	18,619,481
1925	632,390	9,597,573	2,411,987	1,735,735	18,673,178
1926	760,605	9,954,762	2,335,042	1,754,228	19,117,568
1927	688,492	10,122,459	2,197,125	1,852,785	19,058,736
1928	385,800	10,354,157	2,233,251	1,890,592	18,885,849
1929	707,300	10,412,326	2,208,386	1,928,308	19,207,452
1930	1,501,083	10,716,349	2,285,603	2,102,068	20,903,736
1931	1,655,725	10,877,708	2,395,878	2,693,892	22,284,290
1932	1,938,000	11,557,858	2,449,032	3,044,387	24,098,676
1933	2,700,000	11,012,340	2,558,246	2,949,309	25,400,295
1934	3,858,000	10,479,194	3,091,183	2,972,074	27,372,374
1935	4,784,030	10,773,041	3,609,283	3,284,890	29,999,245
1936	(h) 6,500,000	11,335,092	4,357,394	3,748,028	32,930,554
1937	(h) 5,900,000	11,734,553	4,804,540	4,096,213	35,118,298
1938	(h) 5,800,000	12,161,375	5,089,811	4,725,117	37,703,334
1939	(h) 5,000,000	12,821,061	5,611,171	5,094,379	39,534,430
1940	(h) 4,000,000	14,037,741	(j) 6,003,105	5,311,145	41,067,101
1941	(b)	14,386,361	(l) 5,976,419	5,345,179	(k) 40,332,204
1942	(b)	14,120,617	(n) 3,741,806	4,841,306	(m) (k) 36,000,000
1943	(b)	12,800,021	(q) 1,304,522	3,651,301	(o)
1944	(b)	12,277,228	1,002,238	2,922,911	(o)
1945	(b)	12,213,545	(p) 915,403	2,696,727	(o)
1946	(b)	11,927,165	1,462,354	2,828,404	(o)

(a) Supplied by United States Mint.
(b) Not available.
(c) 1792-1847.
(d) 1848-1872.
(e) 1873-1880.
(f) Including Philippine Islands production received in United States. Data represent receipts at United States Mint's refineries assay offices.
(g) Data not available for preceding years. A revision by the United States Mint of estimated Russian gold production for the years 1913 to 1934 was made from United States consular reports, based principally on Soviet publications. While available data are quite indefinite and, in many instances, contradictory, it is believed that this revision more nearly represents actual production than data heretofore used. Figures for Russian production since 1937 supplied by American Bureau of Metal Statistics.
(h) Subject to revision. American Bureau of Metal Statistics.
(i) Annual Report—Department of Mines, Union of South Africa. 1941 to 1944 figures, Transvaal Chamber of Mines.
(j) Includes 1,140,126 fine ounces received from Philippines.
(k) Includes conjectural data for Russia.
(l) Includes 1,144,332 fine ounces from Philippine Islands.
(m) The Mining Journal, London—subject to revision.
(n) Includes 158,726 ounces received from Philippine Islands.
(o) Omitted due to incomplete data.
(p) American Bureau of Metal Statistics—preliminary.
(q) Includes 13,764 ounces received from Philippine Islands.

Table 41.—Estimated Average Monthly Value of an Ounce of Fine Gold, Expressed in Canadian Funds, 1932-1946

Month	1932	1933	1934	1935	1936	1937	1938	1939	1940-1945	1946
	$	$	$	$	$	$	$	$	$	$
January	24·24	23·64	33·05	34·95	35·06	35·01	34·99	35·30	38·50	38·50
February	23·67	24·74	35·29	35·05	35·18	35·01	35·00	35·19	38·50	38·50
March	23·11	24·78	35·08	35·40	35·11	34·98	35·05	35·13	38·50	38·50
April	22·98	25·33	34·93	35·18	35·13	34·95	35·15	35·15	38·50	38·50
May	23·38	27·75	34·94	34·95	35·00	34·94	35·22	35·13	38·50	38·50
June	23·83	28·24	34·73	35·05	35·09	35·02	35·36	35·07	38·50	38·50
July	23·73	30·58	34·59	35·08	34·91	35·05	35·24	35·06	38·50	35·35
August	23·61	30·09	34·19	35·09	35·00	35·00	35·12	35·01	38·50	35·00
September	22·88	31·79	34·18	35·28	34·99	35·00	35·12	37·21	38·50	35·00
October	22·65	31·48	34·27	35·49	34·99	34·99	35·32	38·43	38·50	35·00
November	23·73	32·68	34·16	35·37	34·95	34·98	35·25	38·50	38·50	35·00
December	23·85	32·14	34·57	35·33	34·98	34·93	35·28	38·50	38·50	35·00
Yearly average	**23·47**	**28·60**	**34·50**	**35·19**	**35·03**	**34·99**	**35·17**	**36·14**	**38·50**	**36·75**

NOTE.—Procedure regarding the marketing of gold by the Department of Finance, Ottawa, is noted elsewhere in this report. At December 31, 1944 the price paid by the United States Treasury for gold purchased by the Mints continued at $35 per troy ounce of fine gold, less ¼ of 1 per cent. Actual payment by the United States Treasury for gold in imported and domestic ore or concentrate was at 99·75 per cent of the price quoted by the Treasury which, at the close of 1944, was equal to $34·9125 per ounce. The United States Senate Banking and Currency Committee, on March 14, 1945, rejected a proposal to increase the price of gold from $35 an ounce to $56. The Committee voted to reduce to 25 per cent the gold reserve requirements against Federal Reserve Bank deposits and notes.

Table 42.—Average Commercial Ratio of Silver to Gold for Each Specified Year Since 1700

(Supplied by United States Mint)

Year		Year		Year	
1700	14·81	1905	33·87	1936	77·09
1750	14·55	1910	38·22	1937	77·44
1800	15·68	1915	40·48	1938	80·39
1850	15·70	1920	20·28	1939	88·84
1875	16·64	1925	29·78	1940	99·76
1880	18·05	1930	53·74	1941	99·73
1885	19·41	1932	73·29	1942	90·57
1890	19·75	1933	59·06	1943	77·67
1895	31·60	1934	72·49	1944	77·67
1900	33·33	1935	54·19	1945	67·00
				1946	40·83

Table 43.—Monetary Stock of Principal Countries at End of 1946 (Report of U.S. Mint) Gold and Silver Converted to United States Money (000's omitted)

Country	Name of unit	Average exchange rate December 1946 New York	Gold Stock	Monetary silver stock
United States	dollar	1·000	20,528,979	3,412,870
Canada	dollar	1·000	536,038	60,333
Mexico	peso	0·2058	180,615	96,732
British Honduras	dollar	1·000	.....	202
Costa Rica	colon	0·1770	2,015	.....
Dominican Republic	dollar	1·000	2,000	1,150
El Salvador	colon	0·4000	24,243	1,220
Guatemala	quetzal	1·000	28,734	2,502
Nicaragua	cordoba	0·2000	4,391	301
Bolivia	boliviano	0·0236	21,986	52
Brazil	cruzeiro	0·0541	354,328	.....
Chile	peso	0·0516	64,706	.....
Colombia	peso	0·5714	145,380	10,294
Ecuador	sucre	0·0665	21,455	.....
Paraguay	guarani	0·3205	1,870	.....
Peru	sol	0·1538	24,035	3,537
Uruguay	peso	0·6583	199,583	11,961
Venezuela	bolivar	0·2985	226,711	38,898
Austria	schilling	.....	14	.....
Belgium	franc	0·0228	734,590	.....
Denmark	krone	0·2087	37,354	.....
Eire	pound	4·0294	15,919	10,009
Finland	markka	.....	76	.....
France	franc	0·0084	796,064	.....
Greece	drachma	.....	.....	.....
Hungary	forint	.....	24,195	.....
Netherlands	florin	0·3779	264,255	139,714
Roumania	leu	.....	.....	.....
Spain	peseta	0·0913	110,830	47,069
Sweden	krona	0·2782	380,899	48,278
Ceylon	rupee	0·3015	.....	.....
Iraq	dinar	4·0294	.....	4,391
Japan	yen	.....	.....	.....
Korea	won	.....	.....	.....
Palestine and Transjordan	pound	4·0294	.....	7,293
Algeria	franc	0·0084	1,805	.....
Ethiopia	dollar	0·4015	.....	5,626
Portuguese East Africa	escudo	0·0400	5,016	939
Portuguese West Africa	angolar	0·0400	.....	.....
Rhodesia	pound	4·0294	15	9,690
Union of South Africa	pound	4·0050	941,109	31,064
Fiji	pound	3·6301	.....	930
New Zealand	pound	3·2236	23,087	12,862

THE ALLUVIAL GOLD MINING INDUSTRY, 1946

By far the major portion of alluvial gold was produced in the Yukon and British Columbia; relatively small quantities were obtained in Alberta.

In 1946 there were 60,925 troy ounces of fine gold recovered from crude gold obtained in Canadian alluvial deposits. This is an increased production of 46 per cent over the preceding year. Reviewing the past twenty years, it is noted that the peak of production of placer gold occurred in 1939, and lowest annual output was in 1944.

No placer gold mining operations were reported for 1946 from the eastern provinces, including Quebec and Ontario.

Saskatchewan and Alberta.—The small amount of gold, considered as being placer in origin, received at the Royal Canadian Mint, Ottawa, is assumed to have come from along the North Saskatchewan River. There has been activity in this district, vicinity of Edmonton, dating from about 1860.

British Columbia.—It has been found impractical to obtain complete reports for each individual placer mining operation in British Columbia inasmuch as a considerable quantity of the crude placer gold is recovered annually by prospectors of no fixed abode who, in many instances, market their recoveries through local merchants and banks. Recoveries in 1945 were made chiefly from deposits located in the Atlin and Cariboo districts.

Table 44.—Summary Statistics of Alluvial Gold Mining in Canada, 1945 and 1946

—	1945			1946		
	British Columbia	Yukon	Alberta and Saskatchewan	British Columbia	Yukon	Alberta and Saskatchewan
Number of firms and individual operators (d)	33	5	.....	29	3	(a) .....
Number of employees	69	165	.....	94	246	.....
Salaries and wages paid ..... $	119,714	572,969	.....	206,293	906,691	.....
Electricity generated for own use ..... k.w.h.	260,000	11,630,900	.....	.....	22,401,700	.....
Electricity generated for sale	.....	5,955,900	.....	.....	6,366,700	.....
Crude gold recovered ..... crude oz.	12,589	38,000	110	11,812	50,243	136
Quantity of material handled ..... cu. yd.	263,527	2,981,599	.....	428,603	5,917,740	.....
Length of ditches ..... Miles (b)	54	48	.....	23	48	.....
Total gross value of alluvial products ..... $	398,591	1,224,210	3,952	367,122	1,474,231	4,079
Fuel and electricity used (purchased) ..... $	7,948	33,556	.....	18,411	65,795	.....
Process supplies used ..... $	8,260	19,742	.....	26,879	19,991	.....
Cost of freight and express on dust, nuggets, bullion, etc. shipped (c) ..... $	1,289	5,259	.....	2,012	8,733	.....
Cost of smelter, refinery and mint treatment on material shipped (c) ..... $	2,507	2,187	.....	2,745	11,377	.....
Total net value of alluvial products ..... $	378,587	1,163,466	3,952	317,075	1,368,335	4,079

(a) Represents receipts of crude gold at Dominion Assay Office, Vancouver, B.C. or Royal Canadian Mint, Ottawa.
(b) Includes flume in use.
(c) Information not completely available.
(d) In addition to the number shown in the table, there were numerous small operators from whom returns were not obtainable.

Table 45.—Alluvial Gold Recovered and Quantity of Material Handled (b), 1926-1946

Year	British Columbia				Yukon				Average value gold per fine ounce
	Material handled (c)	Gold recovered	Ounces per cu. yd.	Value per cu. yd.	Material handled (c)	Gold recovered	Ounces per cu. yd.	Value per cu. yd.	
	cu. yd.	fine oz.	fine oz.	$	cu. yd.	fine oz.	fine oz.	$	$
1926	1,237,090	16,730	0·0135	0·279	2,501,200	25,344	0·0101	0·208	20·67
1927	2,470,552	7,353	0·0029	0·0599	2,421,489	30,778	0·0127	0·262	20·67
1928	1,188,667	6,739	0·0057	0·1178	5,097,182	34,116	0·0067	0·1385	20·67
1929	1,336,390	5,158	0·0039	0·0806	4,500,000	35,678	0·0079	0·1633	20·67
1930	224,339	7,164	0·0319	0·6593	3,559,642	35,160	0·0099	0·2046	20·67
1931	1,587,271	13,741	0·0086	0·1853	4,914,638	44,061	0·0090	0·1939	21·55
1932	1,053,677	16,320	0·0155	0·3637	6,051,256	40,373	0·0067	0·1572	23·47
1933	1,326,721	19,142	0·0144	0·4118	5,605,522	39,174	0·0070	0·2002	28·60
1934	2,034,522	20,145	0·0099	0·3415	6,315,070	38,703	0·0061	0·2104	34·50
1935	1,855,937	24,744	0·0133	0·4680	5,442,861	35,705	0·0066	0·2322	35·19
1936	1,083,934	34,711	0·0166	0·5815	8,067,159	50,192	0·0062	0·2172	35·03
1937	3,472,025	43,322	0·0125	0·4373	8,298,514	46,679	0·0056	0·1959	34·99
1938	4,138,746	46,207	0·0112	0·3939	8,870,628	71,303	0·0080	0·2813	35·17
1939	4,779,407	39,797	0·0083	0·2999	11,152,198	85,572	0·0077	0·2782	36·14
1940	6,680,457	32,128	0·0048	0·1848	11,551,170	79,905	0·0069	0·2656	38·50
1941	4,587,103	35,020	0·0076	0·2926	8,792,220	70,847	0·0081	0·3119	38·50
1942	1,884,887	26,323	0·0139	0·5352	11,875,833	(a) 83,198	0·0070	0·2695	38·50
1943	754,202	11,680	0·0156	0·6006	8,028,117	(a) 41,157	0·0051	0·1964	38·50
1944	531,737	9,402	0·0177	0·6815	4,687,174	(a) 23,816	0·0050	0·1956	38·50
1945	263,527	10,071	0·0382	1·4707	2,981,599	(a) 31,721	0·0106	0·4081	38·50
1946	428,603	15,530	0·0362	1·3303	5,917,740	(a) 45,283	0·0076	0·2793	36·75

(a) Fine gold received at Royal Canadian Mint (Vancouver Assay Office); previous year's figures represent estimated fine gold in crude gold recovered.
(b) In addition relatively small amounts of alluvial gold have been recovered in Quebec, Saskatchewan and Alberta but complete data are not available; also, data relating to material handled, particularly those pertaining to small operations, are not complete and necessitate estimates in order to obtain totals.
(c) Data partly conjectural and include some overburden and barren material.

THE AURIFEROUS QUARTZ MINING INDUSTRY IN CANADA

The great part of the gold of Canada comes from the Canadian Shield, an immense area of precambrian rocks extending from the Labrador coast westward almost to the mouth of the MacKenzie River. The area of the shield is roughly 1,825,000 square miles, almost half of Canada. The deposits of the shield are of two main types, namely, quartz veins, from which most of the gold, up to the present time, has been won, and sulphide deposits which produce a smaller but very considerable proportion. The second great source of gold in Canada has been the Western or Cordilleran section, comprising British Columbia and Yukon Territory—the gold production from this section includes relatively large quantities obtained from alluvial deposits. The third principal area in which gold deposits occur is the Acadian region of Eastern Canada, the metal occurring principally in Nova Scotia where it has been mined since 1862.

Lode gold deposits, like most metalliferous ore deposits, are very closely linked in origin and place with geological formations of certain ages and types. In broad outline these relationships are known and easily understood, but because geological information is very incomplete for Canada—less than a fifth of Canada has been studied in any adequate manner—it is not yet possible to indicate the location of more than a part of the ground that is favourable for the occurrence of metallic ore deposits.

Geological explorations extending far beyond ground that has been geologically mapped provide general information and permit the delineation of broad features relating to ore deposition. In mapped areas much more detailed information of like type is available. Knowledge of the relationship between geology and ore deposition is of the greatest importance because it guides the search for new deposits.

Canada is divisible broadly into four large regions, each having its own characteristic stratigraphy and structure. These are from west to east: (1) the Cordilleran region embracing most of British Columbia and Yukon, (2) the Plains region forming a broad belt east of the Cordillera, (3) the Canadian Shield extending east to the St. Lawrence and (4) the Appalachian region embracing southeastern Quebec and the Maritime Provinces. A description of these regions, by George Hanson, Ph.D., Chief Geologist of the Geological Survey, Ottawa, appeared in the Dominion Bureau of Statistics' Gold Mining Report for 1943.

In 1946 there were 684 active auriferous quartz mines compared with 716 in 1945. The number of producing properties totalled 88 during the year under review, as against 83 in the preceding year.

The gross value of output of the entire auriferous quartz mining industry, including the value of all recoverable metals—gold, silver, etc.—totalled $88,422,683 in 1946 compared with $85,819,315 in 1945. The major producing provinces were Ontario with $65,297,233, Quebec with $16,363,386, and British Columbia with $4,176,664.

Employees in the lode gold mining industry totalled 21,973 compared with 18,388 in 1945. Salaries and wages paid amounted to $47,211,062 against $37,690,177 in the preceding year. Fuel and electricity consumed by the industry in 1946 totalled $6,259,876, and the cost of explosives, drill steel and other process supplies used amounted to $14,401,904. The Canadian gold mining companies paid $7,334,500 in taxes and spent $6,417,109 in prospecting and preliminary exploration of new areas or deposits.

Table 46.—Principal Statistics of the Auriferous Quartz Mining Industry in Canada, 1945 and 1946

Province	Number of active operators	(b) Number of operating plants or mines	Number of employees	Salaries and wages	Cost of fuel and electricity	(a) Cost of process supplies used	Amount of freight, etc., paid on shipments of ore, slag, etc.	Smelter and refinery treatment costs	Gross value of bullion, ore, concentrates or residues shipped from mines (c)	Net value of bullion, ore, concentrates or residues shipped from mines (c)
				$	$	$	$	$	$	$
1945—										
Nova Scotia	4	4	78	114,054	27,164	32,430	161	1,251	116,549	55,543
Quebec	367	368	4,672	9,191,570	1,523,310	2,582,764	57,793	472,994	17,974,078	13,337,217
Ontario	229	230	11,535	24,162,621	3,228,662	7,486,469	100,910	627,930	59,649,319	48,205,348
Manitoba	11	11	264	513,498	107,546	128,682	3,834	16,496	1,479,140	1,222,582
Saskatchewan	2	2	20	34,910	5,561	.....	.....	.....	.....	−5,561
British Columbia	36	38	1,476	2,857,211	388,076	787,634	185,467	268,969	6,266,155	4,636,009
Northwest Territories	62	62	337	802,487	120,680	83,285	687	3,498	334,074	125,924
Yukon	1	1	6	13,826	.....	.....	.....	.....	.....	.....
Canada	**712**	**716**	**18,388**	(d) **37,690,177**	**5,400,999**	**11,101,264**	**348,852**	**1,391,138**	**85,819,315**	**67,577,062**
1946—										
Nova Scotia	4	4	72	106,018	24,943	27,082	274	938	151,538	98,301
Quebec	405	405	5,409	11,774,895	1,826,256	2,893,785	63,507	341,786	16,363,386	11,238,052
Ontario	166	167	14,050	29,864,349	3,669,993	9,503,694	121,664	586,350	65,297,233	51,415,532
Manitoba	16	16	419	897,713	150,072	199,919	3,457	15,368	1,609,198	1,240,382
Saskatchewan	2	2	3	1,440	.....	.....	.....	.....	.....	.....
British Columbia	45	46	1,532	3,290,245	392,070	1,573,076	109,021	161,820	4,176,664	1,940,677
Northwest Territories	46	46	488	1,276,402	196,542	204,348	7,884	6,682	824,604	409,208
Yukon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canada	**684**	**686**	**21,973**	(d) **47,211,062**	**6,259,876**	**14,401,904**	**305,807**	**1,112,944**	**88,422,683**	**66,342,152**

(a) Explosives, chemicals, etc.
(b) Producing mines: 1945—83; 1946—88.
(c) Value of bullion produced plus value of ore, concentrates, etc., shipped.
(d) Includes in salaries $6,488,334 for 1945 and $7,243,424 for 1946.

Table 47.—Principal Statistics Relating to Producers Only in the Auriferous Quartz Mining Industry in Canada, 1946

Province	Number of producing plants or mines	Number of employees	Salaries and wages	Cost of fuel and electricity	(a) Cost of process supplies used	Value of freight paid on shipments of ore, slag, etc.	(b) Smelter and refinery treatment costs	Gross value of bullion, ore, concentrates or residues shipped from mines (c)	Net value of bullion, ore, concentrates or residues shipped from mines (c)
			$	$	$	$	$	$	$
Nova Scotia	4	72	106,018	24,943	27,082	274	938	151,538	98,301
Quebec	20	3,690	8,069,259	1,458,317	2,613,087	63,507	341,786	16,363,386	11,886,689
Ontario	43	13,289	28,296,801	3,527,419	9,262,591	121,664	586,350	65,297,233	51,799,209
Manitoba	1	234	495,790	115,178	159,518	3,457	15,368	1,609,198	1,315,677
Saskatchewan	.....	.....	.....	.....	.....	.....	.....	.....	.....
British Columbia	17	1,251	2,726,361	345,154	1,323,570	109,021	161,820	4,176,664	2,237,099
Northwest Territories	3	254	659,423	125,584	174,738	7,884	6,682	824,664	509,776
Yukon	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total Canada 1946	**88**	**18,790**	**40,353,652**	**5,596,595**	**13,560,586**	**305,807**	**1,112,941**	**88,422,683**	**67,846,751**
Total Canada 1945	**83**	**16,382**	**34,556,530**	**5,159,813**	**10,953,744**	**348,852**	**1,391,138**	**85,819,315**	**67,965,768**
Total Canada 1944	**85**	**16,657**	**36,153,991**	**5,850,906**	**11,119,240**	**373,074**	**1,586,095**	**94,263,116**	**75,334,101**
Total Canada 1943	**135**	**18,933**	**40,485,008**	**6,385,147**	**12,762,116**	**453,720**	**1,620,898**	**116,833,847**	**95,611,966**
Total Canada 1942	**184**	**25,814**	**54,033,613**	**7,570,656**	**17,880,267**	**741,329**	**2,346,261**	**160,564,783**	**132,026,267**
Total Canada 1941	**255**	**31,850**	**61,063,035**	**8,336,180**	**20,721,498**	**916,323**	**2,678,508**	**179,103,182**	**146,450,673**
Total Canada 1940	**278**	**30,353**	**53,560,938**	**7,935,193**	**20,390,784**	**691,649**	**2,486,587**	**178,794,078**	**147,289,865**

(a) Explosives, etc.
(b) Includes handling charges.
(c) Value of bullion *produced* plus value of ore, concentrates, etc., *shipped*.

Table 48.—Ores Mined and Milled, Crude Bullion Recovered and Crude Bullion and Concentrates Shipped in the Auriferous Quartz Mining Industry, 1946

—	Nova Scotia	Quebec	Ontario	Manitoba	Saskatchewan	British Columbia	Northwest Territories	Canada
Number of producing mines	4	20	43	1	.....	17	3	88
Ore mined ... ton	15,094	2,721,822	7,457,567	150,335	.....	320,592	47,205	10,712,615
Material discarded (sorted) ... ton	.....	39,973	175,752	.....	.....	10,722	2,790	229,237
Ore milled (ground, etc.) ... ton	15,094	2,547,296	7,266,796	149,875	.....	283,322	44,337	10,306,720
Tailings re-treated ... ton	.....	.....	.....	.....	.....	.....	.....	.....
Gold content of ores, slags, residues and concentrates shipped—								
To foreign smelters ... fine oz.	.....	.....	16,429	.....	.....	42,385	.....	58,814
To Canadian smelters ... fine oz.	.....	29,622	1,930	.....	.....	985	.....	32,537
Bullion bars shipped—								
Gold content ... fine oz.	4,155	390,232	1,660,843	43,819	.....	65,987	22,673	2,187,709
Silver content ... fine oz.	137	90,102	236,407	6,621	.....	12,587	6,112	351,966
Bullion produced by amalgamation ... crude oz.	4,442	32,063	205,999	4,544	.....	38,573	5,643	291,264
Bullion produced by cyanidation ... crude oz.	.....	516,279	2,027,778	57,792	.....	42,951	28,802	2,673,602
Total bullion produced ... crude oz.	4,442	548,342	2,233,777	62,336	.....	81,524	34,445	2,964,866
Content of bullion bars produced—								
Gold ... fine oz.	4,155	410,616	1,742,689	43,819	.....	65,987	22,381	2,289,647
Silver ... fine oz.	137	95,938	340,273	6,621	.....	12,587	6,010	461,566
Gold value (standard) ... $	85,892	8,488,186	36,024,596	905,822	.....	1,364,072	462,646	47,331,214
Silver value ... $	116	80,252	294,468	5,572	.....	10,529	5,155	396,092
Exchange premium on bullion bars produced ... $	65,530	6,601,952	27,820,128	697,804	.....	1,060,950	356,863	36,603,227
Value of ores, concentrates, slags and residues sold (shipped) ... $	.....	1,192,996	1,158,041	.....	.....	1,741,113	.....	4,092,150
Total Gross Value of Production ... $	**151,538**	**16,363,386**	**65,297,233**	**1,609,198**	.....	**4,176,664**	**824,664**	**88,422,683**
Value of fuel, electricity and process supplies used, also freight on shipments, marketing, smelter and refinery charges ... $	53,237	5,125,334	13,881,701	368,816	.....	2,235,987	415,456	22,080,531
Net Value of Production ... $	**98,301**	**11,238,052**	**51,415,532**	**1,240,382**	.....	**1,940,677**	**409,208**	**66,342,152**

Table 49.—Ores, Concentrates, Slags, Etc., Shipped to Smelters From Canadian Gold Mines, 1930-1946

Year	To Canadian plants						To Foreign plants					
	Ores		Concentrates		Slags, residues, precipitates		Ores		Concentrates		Slags, residues, precipitates	
	Tons	Gold content fine oz.	Tons	Gold content fine oz.	Tons	Gold content fine oz.	Tons	Gold content fine oz.	Tons	Gold content fine oz.	Tons	Gold content fine oz.
1930	52,540	22,910	1,187	9,665	2	117	70,497	22,432	18,276	46,102	53	1,009
1931	51,579	21,756	3,120	16,805	12	1,505	24,244	11,870	20,271	48,743	47	1,306
1932	36,397	17,943	191	952	26	1,416	36,736	15,810	16,925	52,508	30	869
1933	30,096	14,882	490	1,349	55	6,279	3,292	2,203	29,111	76,601	34	1,392
1934	48,106	29,688	2,490	10,440	203	1,487	1,419	1,936	43,053	114,476	27	599
1935	18,239	7,008	7,045	35,958	58	6,231	1,242	2,840	46,050	90,167	25	11,310
1936	4,705	6,567	7,865	34,654	64	3,609	1,864	3,421	65,660	137,273	25	16,903
1937	37,126	9,649	6,981	21,865	130	2,060	2,516	8,108	62,987	163,781	74	912
1938	172,377	36,008	8,404	25,552	37	420	4,445	8,443	40,828	142,513	1,281	23,101
1939	271,666	47,114	7,747	24,184	797	4,507	3,853	8,930	39,530	112,126	235	26,631
1940	201,941	34,315	4,485	13,532	158	3,761	7,453	8,107	44,570	125,704	103	47,160
1941	202,943	38,380	1,628	7,492	369	4,444	7,453	11,222	43,855	122,619	115	56,183
1942	280,978	38,492	2,555	7,307	137	2,831	1,356	1,020	40,428	126,931	68	55,999
1943	268,334	36,429	4,490	12,335	311	2,069	.....	.....	20,615	59,949	40	34,704
1944	205,379	26,535	4,835	11,900	143	1,858	.....	.....	20,755	54,233	73	35,955
1945	177,099	26,834	5,474	13,903	647	1,832	109	185	19,596	49,193	47	44,559
1946	146,075	19,532	5,155	10,646	314	2,359	.....	.....	11,969	49,164	25	9,650
Grand Total	**2,205,580**	**434,042**	**74,142**	**258,539**	**3,463**	**46,785**	**166,479**	**106,527**	**584,479**	**1,572,083**	**2,302**	**368,242**

Table 50.—Certain Data Relating to the Production of Gold by the Entire Auriferous Quartz Mining Industry in Canada, 1929-1946 (Averages)

Year	Ounces of gold produced per wage-earner year	Cost of fuel and electricity per ounce of gold produced	Cost of wages per ounce of gold produced	Cost of explosives and other process supplies used per ounce of gold produced	Cost of freight and smelter refinery treatment on ores and bullion shipped per ounce of gold produced	Taxes per ounce gold produced	**Total of specified costs**
	ounces	$	$	$	$	$	$
1929	218	1·46	7·18	Information not available	Information not available	Information not available	.....
1930	237	1·25	6·63				.....
1931 (a)	250	1·19	6·50				.....
1932	255	1·21	6·31				.....
1933 (b)	207	1·36	7·45				.....
1934 (c)	154	1·71	9·64				.....
1935	146	1·89	10·48	4·38	.....	.....	**16·75**
1936	137	1·98	11·32	4·46	.....	.....	**17·76**
1937	132	2·10	12·18	4·65	(d) 0·33	.....	**19·26**
1938	150	1·85	10·95	4·53	0·56	.....	**17·89**
1939	157	1·81	10·69	4·45	0·67	.....	**17·62**
1940	161	1·76	10·48	4·49	0·69	.....	**17·42**
1941	155	1·82	11·56	4·53	0·77	.....	**18·68**
1942	176	1·84	11·47	4·34	0·75	.....	**18·40**
1943	176·7	2·12	11·47	4·24	0·69	4·89	**23·41**
1944	159	2·43	12·81	4·60	0·81	4·15	**24·80**
1945	140	2·45	14·08	5·09	0·74	3·74	**26·10**
1946	122	2·63	16·77	6·05	0·59	3·08	**29·12**

(a) Equalization exchange premiums paid by the Dominion Government to gold miners (Great Britain goes off gold standard).
(b) United States goes off gold standard.
(c) United States gold dollar reduced in weight from 25·8 to 15 5/21 grains, 0·9 fine.
(d) Not including Mint charges and marketing prior to 1938.

NOTE.—The data contained in the foregoing table have been compiled from reports received from both producing and non-producing (exploring and developing) operators in the auriferous quartz mining industry. This fact should be noted if the information is to be construed or employed as possible criteria for technological or other statistical study. The trends revealed are not to be interpreted as entirely reflecting "Cause and effect" in the operation of producing mines *only*, but rather as indices of change in the industry as a whole. For data relating to producers only, see Table 51.

Table 51.—Certain Data (Averages) Relating to the Total Production of Gold by Producers only in the Auriferous Quartz Mining Industry in Canada, 1931, 1939-1946

Year	Ounces of gold produced per wage-earner year	Cost of fuel and electricity per ounce of gold produced	Cost of wages per ounce of gold produced	Cost of explosives and other process supplies used per ounce of gold produced	Cost of freight and smelter refinery treatment on ores and bullion shipped per ounce of gold produced	Taxes per ounce gold produced	**Total of specified costs**
	ounces	$	$	$	$	$	$
1931	256	1·19	6·38	(*)	(*)	(*)	.....
1939	164	1·76	10·25	4·33	0·67	(*)	**17·01**
1940	165	1·72	10·20	4·41	0·69	(*)	**17·02**
1941	158	1·79	11·37	4·46	0·77	(*)	**18·39**
1942	177	1·83	11·41	4·33	0·75	(*)	**18·32**
1943	177	2·12	11·42	4·23	0·69	4·89	**23·35**
1944	163	2·41	12·59	4·57	0·81	4·12	**24·50**
1945	151	2·34	13·17	4·97	0·74	3·68	**24·90**
1946	141	2·35	14·38	5·69	0·59	2·99	**26·00**

* Data not available.

Table 52.—Principal Statistics Relative to all Ontario Gold Mines, by Areas (d), 1944-1946

Camp or District	Number of producers	Ore treated (c)	Total gold recovered	Average ounces per ton recovered	Employees	Salaries and wages paid	Cost of fuel electricity and process supplies
1944	No.	Tons	Fine oz.		No.	$	$
Porcupine	16	3,788,313	873,027	0·23	6,022	13,225,351	5,085,404
Kirkland Lake	9	1,011,225	383,167	0·38	2,346	5,129,054	2,396,345
Larder Lake	3	752,954	114,838	0·15	644	1,371,210	875,748
Matachewan	2	341,359	28,635	0·08	238	507,215	421,418
Sudbury	1	.....	(b) 49	.....	64	157,374	74,995
Thunder Bay	4	(a) 305,276	100,667	0·33	695	1,576,544	943,352
Rainy River and Kenora	.....	.....	.....	.....	3	4,233	.....
Patricia	8	601,441	175,657	0·29	1,107	2,481,223	1,384,795
Total	**43**	**6,800,568**	**1,676,040**	**0·24**	**11,119**	**24,452,204**	**11,182,057**
1945							
Porcupine	14	3,585,003	830,909	0·23	6,307	13,163,072	5,168,124
Kirkland Lake	10	983,724	309,992	0·32	2,400	5,073,479	2,292,892
Larder Lake	3	688,205	109,354	0·16	663	1,350,314	830,454
Matachewan	2	367,917	35,088	0·09	244	499,223	413,975
Sudbury	1	.....	4	.....	72	160,025	75,670
Algoma	1	.....	36	.....	10	14,335	185
Thunder Bay	5	128,543	49,829	0·39	615	1,295,052	663,625
Rainy River and Kenora	2	75	29	0·39	21	52,448	4,910
Patricia	8	524,044	138,752	0·26	1,199	2,551,222	1,265,146
Eastern Ontario	.....	.....	.....	.....	4	3,451	150
Total	**46**	**6,277,511**	**1,533,993**	**0·24**	**11,535**	**24,162,621**	**10,715,131**
1946							
Porcupine	15	3,955,153	904,797	0·23	7,254	15,158,203	6,142,520
Kirkland Lake	9	1,077,790	403,589	0·37	2,726	5,799,277	2,576,045
Larder Lake	3	862,078	145,329	0·17	836	1,754,359	1,028,894
Matachewan	2	431,509	42,702	0·10	288	604,755	494,814
Sudbury	.....	.....	.....	.....	.....	.....	.....
Algoma	.....	.....	.....	.....	.....	.....	.....
Thunder Bay	6	384,521	106,509	0·28	861	1,835,947	962,747
Rainy River and Kenora	.....	.....	.....	.....	.....	.....	.....
Patricia	8	555,745	158,122	0·28	1,324	3,144,260	1,584,990
Total	**43**	**7,266,796**	**1,761,048**	**0·24**	**13,289**	**28,296,801**	**12,790,010**

(a) In addition, 15,732 tons of tailings were re-treated in 1944.
(b) Mill clean-up.
(c) Does not include low grade discarded by sorting, but includes crude ore milled and smelted.
(d) Includes data for all active properties.

Table 53.—Ores Mined and Treated by Auriferous Quartz Mining Industry for Years Specified

Year	Ore hoisted	Ore milled (c)	Crude ore shipped to smelters (d)	Low grade sorted out	Tailings retreated	Gold recovered as bullion (b)	Gold in crude ore shipped	Gold in concentrates slag, etc., shipped
	tons	tons	tons	tons	tons	fine oz.	fine oz.	fine oz.
1930	4,472,803	4,306,869	123,037	(a)	37,095	1,782,556	45,342	56,893
1935	8,832,901	8,888,129	19,481	(a)	57,798	2,492,145	9,848	143,666
1936	10,694,208	10,504,181	6,569	(a)	33,814	2,903,063	9,088	192,439
1937	12,388,489	11,880,323	39,642	457,622	97,710	3,283,795	17,757	188,618
1938	14,749,649	14,158,555	176,822	528,696	64,926	3,810,642	44,451	191,586
1939	17,105,744	16,150,173	275,519	660,578	18,426	4,160,352	56,044	167,448
1940	18,986,306	18,083,439	209,394	757,538	180,311	4,386,673	42,422	190,157
1941	20,031,736	19,026,273	210,396	936,003	480,289	4,405,986	49,602	190,738
1942	17,722,866	16,820,442	282,334	658,439	5,176	3,898,999	39,512	193,068
1943	12,853,010	12,206,518	268,334	361,522	29,716	2,869,635	36,429	109,055
1944	10,790,495	10,330,899	205,379	234,820	18,233	2,300,090	26,535	103,946
1945	9,780,555	9,437,796	177,208	136,328	.....	2,068,910	27,019	109,487
1946	10,712,615	10,306,720	146,075	229,237	.....	2,289,647	19,532	71,819

(a) Not available.
(b) Content of bullion shipped 1930-1935; 1936-1946 content of bullion produced.
(c) + (d) = total crude ore treated.

Table 54.—Gold and Silver Content of Bullion Produced and of Ores, Concentrates, etc., Shipped, with Average Grade of Ore Shipped and Ore Milled at Auriferous Quartz Mines in Canada, with Average Price of Gold and Silver in Canadian Funds, 1930-1946

Year	Tonnage treated (c)	Gold content (b)	Silver content (b) (d)	Oz. of fine gold per ton	Oz. of fine silver per ton	Average price of gold	Average price of silver
		fine oz.	fine oz.			$ per oz.	$ per oz.
1930	4,429,906	1,884,791	4,784,549	0·43	1·08	20·67	0·381
1931	5,526,379	2,271,278	2,725,751	0·41	0·49	21·55	0·298
1932	5,997,492	2,502,327	2,085,133	0·42	0·35	23·47	0·317
1933	6,480,164	2,455,365	1,643,793	0·38	0·25	28·60	0·378
1934	7,524,803	2,490,513	1,399,282	0·33	0·19	34·50	0·475
1935	8,907,610	2,645,659	1,439,672	0·30	0·16	35·19	0·648
1936	10,510,750	3,095,427	1,928,854	0·29	0·18	35·03	0·451
1937	(a) 11,919,965	3,490,170	1,912,286	0·29	0·16	34·99	0·449
1938	(a) 14,335,377	4,046,679	1,928,175	0·28	0·13	35·17	0·435
1939	(a) 16,425,692	4,383,844	2,119,708	0·27	0·13	36·14	0·405
1940	(a) 18,292,833	4,619,252	2,729,998	0·25	0·15	38·50	0·382
1941	(a) 19,236,669	4,646,326	2,773,460	0·24	0·14	38·50	0·383
1942	(a) 17,102,776	4,131,579	2,186,369	0·24	0·13	38·50	0·422
1943	(a) 12,474,852	3,015,119	1,399,778	0·24	0·11	38·50	0·452
1944	(a) 10,536,278	2,430,571	906,788	0·23	0·09	38·50	0·430
1945	(a) 9,615,004	2,205,416	1,205,147	0·23	0·13	38·50	0·47
1946	10,452,775	2,380,998	1,025,619	0·23	0·10	36·75	0·836

(a) Material discarded by sorting not included.

(b) Relatively small quantity of gold and silver contained in concentrates, slags, etc., shipped and in cyanide solution in circuit may have originated in ores treated during the previous year; from 1937 represents metal content of total bullion produced plus metal in ores or concentrates shipped to smelters.

(c) Does not include tailings re-treated, but includes ore milled plus crude ore shipped to smelters.

(d) The relatively high proportion of silver produced in 1930 and 1931 resulted chiefly from increased shipments of high silver content gold ores from the Premier and Prosperity mines in British Columbia; these mines are classified as being auriferous quartz. Prices are reported in Canadian funds.

Table 55.—Milling Capacity of Operating Canadian Gold Mines, 1936-1946 (Tons of 2,000 pounds per 24 hours)

Year	Nova Scotia	Quebec	Ontario	Manitoba	Saskatchewan	British Columbia	Northwest Territories
1936	713	4,514	22,639	1,000	.....	4,120	.....
1937	565	6,090	25,249	975	30	3,915	.....
1938	542	8,217	30,097	875	1,000	4,590	.....
1939	562	9,580	33,324	865	1,000	4,417	.....
1940	450	11,215	35,030	690	1,200	4,255	275
1941	319	12,654	37,416	990	1,355	4,510	510
1942	247	14,330	36,135	903	1,202	4,303	710
1943	280	13,304	32,555	753	2	2,845	510
1944	180	13,059	30,710	550	.....	2,650	34
1945	187	12,600	30,457	550	.....	2,740	417
1946	172	12,035	30,370	550	.....	3,052	417

Table 56.—Specified Costs Per Ton of Ore Milled at Certain of the Principal Auriferous Quartz Mines in Canada, 1946

Name of Mine	Development and exploration (a)	Mining	Milling	General (b)	Total before depreciation and taxes	Depreciation	Taxes	Total costs
	$	$	$	$	$	$	$	$
QUEBEC								
Belleterre Quebec Mines Ltd.	1·475	4·425	1·286	0·311	7,497	1·313	1·098	9·908
Consolidated Beattie Mines Ltd.	0·477	1·329	1·888	1·471	5·165	.....	.....	.....
East Malartic Mines Ltd.	0·414	2·464	0·703	0·496	4·077	0·762	0·123	4·962
Francoeur Gold Mines Ltd.	0·56	2·39	1·50	0·98	5·43	0·56	nil	5·99
Lamaque Mining Co. Ltd.	1·47	2·47	1·03	1·49	6·46	0·20	1·02	7·68
O'Brien Gold Mines Ltd.	1·29	5·78	2·70	4·75	14·02	1·16	1·76	16·94
Perron Gold Mines Ltd.	0·505	2·441	0·929	0·916	4·791	0·263	0·433	5·487
Senator-Rouyn Ltd.	1·01	2·62	1·00	1·21	5·84	1·58	0·03	7·45
Sigma Mines (Quebec) Ltd.	0·394	2·132	0·713	0·482	3·721	0·433	0·669	4·823
Siscoe Gold Mines Ltd.	0·448	2·734	0·856	0·674	4·712	.....	.....	.....
Sladen Malartic Mines Ltd.	0·56	1·62	0·88	0·39	3·45	0·22	0·03	3·70
Stadacona Mines (1944) Ltd.	0·62	2·24	1·01	1·48	5·35	.....	0·18	5·53
Sullivan Consolidated Mines Ltd.	2·22	2·29	0·94	0·40	5·85	0·92	0·50	7·27
ONTARIO								
Porcupine District								
Aunor Gold Mines Ltd.	1·32	4·08	1·07	0·79	7·26	1·45	1·15	9·86
Bonetal Gold Mines Ltd.	0·75	2·31	1·39	1·00	5·45	1·24	.....	6·69
Broulan Porcupine Mines Ltd.	0·39	3·22	1·01	1·10	5·72	1·70	.....	7·42
Buffalo Ankerite Gold Mines Ltd.	1·28	3·36	0·84	0·76	6·24	0·23	nil	6·47
Coniaurum Mines Ltd.	2·33	3·79	1·05	0·27	7·44	.....	.....	.....
Hollinger Cons. Gold Mines—								
(Timmins)	1·124	3·662	0·755	1·087	6·528	0·246	0·596	7·370
(Ross)	3·045	1·901	1·870	1·054	7·870	1·019	0·054	8·943
McIntyre Porcupine Mines Ltd.	0·614	4·994	0·974	0·268	6·850	0·154	1·180	8·184
Pamour Porcupine Mines Ltd.	0·40	1·37	0·63	0·27	2·67	0·36	0·07	3·10
Paymaster Consolidated Mines Ltd.	1·13	3·68	1·37	0·79	6·97	0·27	0·36	7·60
Preston East Dome Mines Ltd.	1·74	3·86	0·80	0·29	6·39	0·49	0·31	7·19
Kirkland Lake District								
Bidgood Kirkland Gold Mines Ltd.	6·07	5·29	2·33	1·90	15·59	0·25	0·04	15·88
Kirkland Lake Gold Mining Co. Ltd.	1·71	5·05	1·31	1·51	9·58	0·87	0·39	10·84
Macassa Mines Ltd.	1·169	5·315	1·416	1·749	9·649	0·776	1·179	11·604
Teck-Hughes Gold Mines Ltd.	(c)	6·01	1·43	1·80	9·24	nil	0·52	9·76
Upper Canada Mines Ltd.	3·22	3·36	1·07	0·68	8·33	0·73	0·65	9·71
Wright-Hargreaves Mines Ltd.	(c)	6·446	1·622	1·875	9·943	0·316	2·502	12·761
Larder Lake District								
Chesterville Mines Ltd.	0·44	1·46	0·81	0·52	3·23	1·16	nil	4·39
Kerr-Addison Gold Mines Ltd.	0·900	1·269	0·756	0·492	3·417	0·369	1·090	4·876
Omega Gold Mines Ltd.	0·325	3·080	1·470	0·091	4·966	0·119	0·010	5·095
Matachewan District								
Hollinger (Young-Davidson) Mines	0·413	0·835	0·766	0·458	2·472	0·041	0·194	2·707
Matachewan Cons. Mines Ltd.	0·242	1·372	0·759	0·546	2·919	0·089	0·125	3·133
Thunder Bay District								
Leitch Gold Mines Ltd.	3·29	9·61	2·84	0·33	16·07	2·14	3·13	21·34
Little Long Lac Gold Mines Ltd.	1·03	5·22	2·26	1·96	10·47	0·07	nil	10·54
Magnet Consolidated Mines Ltd.	5·903	6·643	1·994	0·443	14·983	.....	.....	.....
Patricia District								
Cochenour Willans Gold Mines Ltd.	2·309	3·909	1·986	2·931	11·135	1·302	.....	.....
Hasaga Gold Mines Ltd.	1·067	1·729	1·225	0·624	4·645	0·557	.....	.....
Madsen Red Lake Gold Mines Ltd.	1·872	2·495	1·068	1·139	6,574	0·714	0·288	7·576
McKenzie Red Lake Gold Mines Ltd.	1·27	4·03	1·40	1·46	8·16	0·44	0·03	8·63
Pickle Crow Gold Mines Ltd.	2·83	5·24	1·45	1·64	11·16	1·09	.....	.....
British Columbia								
Bralorne Mines Ltd.	1·24	5·21	1·01	4·55	12·01	.....	1·70	13·71
Cariboo Gold Quartz Mining Co. Ltd.	1·425	7·466	1·910	2·619	13·420	.....	3·42	13·762
Hedley-Mascot Gold Mines Ltd.	3·92	2·55	2·27	3·65	12·39	.....	0·15	12·54
Island Mountain Mines Co. Ltd.	1·22	6·15	2·81	2·79	12·97	.....	1·26	14·23
Pioneer Gold Mines of B.C. Ltd.	3·30	14·00	5·35	5·15	27·79	.....	0·47	28·26
Sheep Creek Gold Mines Ltd.	1·63	5·99	2·28	1·63	11·53	.....	0·21	11·74
Silbak Premier Mines Ltd.	1·986	2·817	2·113	8·627	15·543	.....	0·221	15·764

(a) Exclusive of outside exploration.
(b) Marketing, head office, etc. (exclusive of taxes).
(c) Included in mining.

Table 57.—Employees and Salaries and Wages Paid by Entire Auriferous Quartz Mining Industry*, 1931-1946

Year	Wage-earners	Salaried employees	Total employees		Wages paid	Average per capita wages paid	Salaries paid	Total salaries and wages
	No.	No.	No.		$	$	$	$
1931	9,083	553	**9,636**		14,755,669	1,625	1,711,496	**16,467,165**
1932	9,809	633	**10,442**		15,803,139	1,611	1,883,445	**17,686,584**
1933	11,880	943	**12,823**		18,303,504	1,541	2,232,508	**20,536,012**
1934	16,139	1,623	**17,762**		24,017,667	1,488	3,139,220	**27,156,887**
1935	18,121	1,713	**19,834**		27,717,164	1,529	3,806,743	**31,523,907**
1936	22,662	2,435	**25,097**		35,049,354	1,547	4,777,388	**39,826,742**
1937	26,440	2,700	**29,140**		42,505,613	1,608	5,713,705	**48,219,318**
1938	26,938	2,709	**29,647**		44,302,484	1,645	6,159,608	**50,462,092**
1939	27,959	2,663	**30,622**		46,836,845	1,675	6,369,380	**53,206,225**
1940	28,747	2,658	**31,405**		48,410,841	1,684	6,794,255	**55,205,096**
1941	29,820	2,731	**32,551**		54,735,716	1,836	7,415,094	**62,150,810**
1942	23,517	2,513	**26,030**		47,409,542	2,016	6,979,330	**54,388,872**
1943	17,061	1,977	**19,038**		34,576,891	2,027	6,088,392	**40,665,283**
1944	15,260	1,966	**17,226**		31,151,908	2,041	5,871,597	**37,023,505**
			Male	**Female**				
1945	15,807	2,581	**17,995**	**393**	31,201,843	1,964	6,488,334	**37,690,177**
1946	19,501	2,472	**21,631**	**342**	39,967,638	2,050	7,243,424	**47,211,062**

(*) Including any bonus paid.

Table 58.—Salaries and Wages Paid, Fuel and Electricity Used and Process Supplies Consumed by the Auriferous Quartz Mining Industry, by Provinces, 1931-1946

Year	Nova Scotia		Quebec		Ontario		Manitoba	
	Producing	Non-producing	Producing	Non-producing	Producing	Non-producing	Producing	Non-producing
	$	$	$	$	$	$	$	$
1931	5,409	3,988	573,192	48,115	16,543,014	448,768	256,743	[illegible]
1932	4,500	51,861	924,375	328,091	17,712,693	162,763	496,049	.....
1933	17,612	28,090	1,544,880	744,382	18,128,149	590,012	588,125	154,194
1934	206,729	32,940	2,007,574	1,418,330	20,763,904	1,419,484	826,625	512,586
1935	408,422	57,353	4,165,141	1,754,595	30,809,094	1,866,010	1,659,407	312,556
1936	779,767	40,304	6,448,220	2,317,382	35,829,753	3,789,527	1,896,053	217,017
1937	815,398	43,912	8,956,849	3,104,728	41,230,811	5,897,085	2,043,151	121,042
1938	808,872	8,834	11,396,444	1,396,019	46,899,149	2,473,232	1,914,962	15,627
1939	829,631	4,681	12,604,061	940,207	52,470,713	1,321,013	1,621,765	100,753
1940	596,592	158	14,090,722	770,280	54,745,840	895,822	1,642,103	2,558
1941	457,305	9,342	16,256,086	978,161	59,620,822	399,527	1,796,321	.....
1942	225,276	6,104	17,160,699	159,376	50,881,444	175,528	1,557,240	.....
1943	162,920	.....	14,892,857	159,840	38,831,504	8,681	958,737	.....
1944	157,802	2,548	13,323,443	523,566	35,312,042	322,219	595,795	.....
1945	171,000	2,648	11,701,727	1,595,917	34,041,088	836,664	630,069	119,657
1946	158,043	.....	12,140,663	4,354,273	41,086,811	1,951,225	770,486	477,218

Year	Saskatchewan		British Columbia		Northwest Territories		Canada	
1931	.....	.....	1,210,309	15,722	.....	.....	**18,588,667**	578,824
1932	.....	3,350	1,027,168	7,228	.....	.....	**20,164,785**	553,293
1933	.....	.....	1,736,556	334,149	.....	.....	**22,015,322**	1,850,827
1934	.....	8,367	3,398,918	810,726	.....	.....	**27,203,750**	4,202,433
1935	.....	94,162	6,312,731	678,467	.....	.....	**43,354,795**	4,763,143
1936	118,651	79,963	7,287,019	863,104	.....	42,766	**52,359,463**	7,350,062
1937	62,429	391,097	7,836,968	970,866	.....	321,305	**60,915,606**	10,849,816
1938	.....	519,791	9,526,363	338,303	531,534	442,035	**71,077,324**	5,123,811
1939	490,633	4,201	8,963,013	425,451	614,912	162,551	**77,594,728**	3,048,947
1940	602,534	.....	9,094,704	218,225	1,114,420	329,643	**81,886,915**	2,216,686
1941	726,468	.....	9,613,778	152,619	1,649,933	19,966	**90,120,713**	1,559,615
1942	413,441	.....	7,031,550	101,616	2,214,886	.....	**79,484,536**	442,624
1943	80	.....	3,771,871	26,010	1,014,302	.....	**59,632,271**	191,531
1944	.....	38,060	3,372,009	61,892	363,046	20,946	**53,124,137**	969,231
1945	.....	40,471	3,819,667	213,254	306,536	713,742	**50,670,087**	3,522,353
1946	.....	1,440	4,395,085	860,306	959,745	717,547	**59,510,833**	8,362,009

Table 59.—Wage-Earners, by Months, in the Entire Auriferous Quartz Mining Industry, 1931-1946

Month	1931	1941	1942	1943	1944	1945	1946
January	8,273	29,772	26,730	19,332	15,796	15,222	19,083
February	8,482	29,765	26,812	19,160	16,001	15,137	19,577
March	8,681	29,783	26,451	18,822	16,014	14,887	19,837
April	8,746	29,633	26,155	18,123	15,634	14,573	20,036
May	9,030	29,869	25,325	17,421	15,314	14,624	20,182
June	9,319	29,807	24,938	17,138	15,172	14,873	20,175
July	9,345	30,310	23,687	16,743	15,134	15,082	19,480
August	9,285	30,158	21,883	16,173	14,837	15,249	19,125
September	9,391	30,605	21,246	15,687	14,501	15,746	18,623
October	9,524	30,870	20,024	15,241	14,486	16,988	18,946
November	9,496	29,567	19,692	15,479	14,786	18,110	19,093
December	9,323	27,566	19,192	14,976	14,595	18,170	18,990

Table 60.—Employment* in Producing Lode Gold Mines in Canada, by Provinces, 1946 and 1947†

Month	Quebec		Ontario		British Columbia		Other districts and provinces		**Canada**	
	1946	1947	1946	1947	1946	1947	1946	1947	**1946**	**1947**
January	3,471	3,442	12,040	13,607	1,584	1,048	402	339	**17,497**	**18,436**
February	3,514	3,567	12,187	13,620	1,622	1,221	419	333	**17,742**	**18,741**
March	3,491	3,542	12,288	13,510	1,630	1,418	392	324	**17,801**	**18,794**
April	3,451	3,389	12,322	13,454	1,579	1,446	394	376	**17,746**	**18,665**
May	3,284	3,025	12,310	13,585	1,528	1,577	407	348	**17,529**	**18,535**
June	3,170	3,162	12,306	13,579	1,370	1,674	412	322	**17,258**	**18,737**
July	3,156	.....	12,260	.....	341	.....	495	.....	**16,252**	.....
August	3,100	.....	11,835	.....	363	.....	537	.....	**15,835**	.....
September	2,987	.....	11,675	.....	324	.....	534	.....	**15,520**	.....
October	3,083	.....	11,983	.....	303	.....	499	.....	**15,868**	.....
November	3,139	.....	12,171	.....	368	.....	541	.....	**16,219**	.....
December	3,029	.....	12,044	.....	988	.....	518	.....	**16,579**	.....

(*) Mines with 15 or more employees.
(†) Subject to revision.

Table 61.—Classification of Wage-Earners Employed in Entire Auriferous Quartz Mining Industry, 1945 and 1946

Province	1945					1946				
	Mine			Mill		Mine			Mill	
	Surface		Underground			Surface		Underground		
	Male	Female	Male	Male	Female	Male	Female	Male	Male	Female
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Nova Scotia	25	1	41	4	.....	16	1	45	6	.....
Quebec	1,365	32	2,030	285	.....	1,847	46	2,472	305	1
Ontario	2,971	68	6,454	881	.....	3,661	65	8,052	1,018	.....
Manitoba	95	6	91	15	.....	206	9	120	15	.....
Saskatchewan	9	1	.....	.....	.....	3	.....	.....	.....	.....
British Columbia	390	29	619	170	.....	424	25	657	112	.....
Northwest Territories	182	7	27	4	.....	276	8	99	15	.....
Yukon	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canada	**5,042**	**144**	**9,262**	**1,359**	.....	**6,433**	**154**	**11,445**	**1,471**	**1**

Table 62.—Cost of Prospecting Conducted by Canadian Auriferous Quartz Mining Companies, 1945 and 1946

Province prospecting was conducted in—(a)	By Quebec companies (b)	By Ontario companies (b)	By Manitoba companies (b)	By Saskatchewan companies (b)	By British Columbia companies (b)	By Yukon and Northwest Territories companies	Total
	$	$	$	$	$	$	$
1945							
Nova Scotia	827	1,069	...	...	...	...	1,896
New Brunswick	...	...	...	...	...	...	...
Quebec	1,380,656	155,524	...	...	...	11,215	1,547,395
Ontario	91,527	1,324,929	...	...	...	6,377	1,422,833
Manitoba	6,319	26,173	103,739	4,943	...	16,512	157,686
Saskatchewan	...	...	...	8,778	...	21,324	30,102
British Columbia	46,433	48,487	...	...	104,775	47,083	246,778
Northwest Territories	40,927	331,375	6,970	...	740	598,767	978,779
Yukon	...	13,108	...	...	...	51,203	64,311
Total, Canada	**1,566,689**	**1,900,665**	**110,709**	**13,721**	**105,515**	**752,481**	**4,449,780**
1946							
Nova Scotia	329	...	...	...	...	...	329
New Brunswick	...	...	...	...	...	...	...
Quebec	2,467,116	123,575	2,028	...	700	22,926	2,616,345
Ontario	407,757	1,539,964	11,902	...	6,663	70,286	2,036,572
Manitoba	41,474	35,229	177,773	...	10,800	33,905	299,181
Saskatchewan	...	...	...	2,501	500	16,346	19,347
British Columbia	30,264	102,597	...	...	387,309	41,820	561,990
Northwest Territories	1,803	61,176	...	1,901	...	737,882	802,762
Yukon	...	31,754	...	...	13,312	35,517	80,583
Total Canada	**2,948,743**	**1,894,295**	**191,703**	**4,402**	**419,284**	**958,682**	**6,417,109**

(a) Prospecting includes the search for new mineral deposits on the surface, and preliminary exploration.
(b) Province in which the companies' principal operations are conducted.

Table 63.—Drilling Completed on Auriferous Quartz Deposits in 1945 and 1946

—	Footage Drilled (a)	
	1945	1946
Diamond drilling for exploration (testing)—		
By companies with their own equipment and personnel	591,243	571,794
By contractors	4,011,223	4,412,958
Other drilling—		
Diamond drilling for breaking rock or ore—		
By companies with their own equipment and personnel	134,555	161,363
By contractors	420,519	466,153
Drilling by percussion and other machines (b)	14,649,301	18,156,746

(a) Subject to revision as drilling was not reported by some new companies.
(b) This is not complete as some companies do not compile these data.
The value of diamonds in all forms (bits, etc.) purchased by gold mining companies in 1946 totalled $345,909.

Table 64.—Specified Taxes Paid by Active Canadian Auriferous Quartz Mines in 1945 and 1946 by Provinces*

Nature of Tax	Nova Scotia	Quebec	Ontario	Manitoba	British Columbia	Northwest Territories	Canada
	$	$	$	$	$	$	$
1945							
Dominion income tax, including tax on non-operating revenue	.....	530,915	2,139,636	72,717	225,152	22,842	2,991,262
Dominion excess profits tax	.....	490,003	3,399,707	105,943	248,491	27,251	4,271,395
Provincial taxes	581	250,100	295,328	250	110,424	8,081	664,764
Municipal taxes	1,125	111,085	184,160	251	5,657	11,200	313,478
Total	**1,706**	**1,382,103**	**6,018,831**	**179,161**	**589,724**	**69,374**	**8,210,899**
1946							
Dominion income tax, including tax on non-operating revenue	.....	455,622	1,950,134	70,600	96,040	.....	2,572,396
Dominion excess profits tax	.....	374,580	3,160,085	94,998	11,264	.....	3,640,927
Provincial taxes	559	278,177	369,862	1,074	82,059	3,757	735,508
Municipal taxes	396	151,340	212,366	66	2,925	18,596	385,669
Total	**955**	**1,259,719**	**5,692,147**	**166,738**	**192,288**	**22,353**	**7,334,500**

(*) Does not include complete data relating to taxes that may have been paid by dormant firms.

Table 65.—Certain Specified Expenditures Made by Auriferous Quartz Mining Companies, 1943-1946

Province and Year	Workmen's compensation	Silicosis assessment	Unemployment insurance	Aggregate cost of all supplies purchased	Aggregate cost of plant and equipment purchased	Cost of buildings, machinery and equipment erected or installed
	$	$	$	$	$	$
Nova Scotia 1943	5,032	.....	1,000	28,508	6,000	(*)
1944	4,511	.....	935	30,108	5,290	.....
1945	4,309	.....	1,191	21,732	6,204	200
1946	3,044	.....	1,187	43,109	6,855	3,664
Quebec 1943	276,270	3,864	65,393	4,985,946	392,997	(*)
1944	268,868	604	54,237	4,486,519	484,699	514,139
1945	333,339	446	52,076	4,873,803	840,504	1,166,339
1946	577,507	574	60,671	7,127,669	2,195,574	4,373,899
Ontario 1943	679,519	562,053	194,002	12,687,037	532,737	(*)
1944	629,785	295,269	154,672	11,639,621	571,010	378,286
1945	645,288	288,470	142,803	12,172,411	702,336	1,171,712
1946	856,306	329,442	175,822	18,785,560	2,312,524	4,086,869
Manitoba 1943	20,561	4,920	3,264	263,082	18,646	(*)
1944	12,492	3,123	2,074	225,705	12,844	20,931
1945	15,743	3,487	2,972	296,102	40,792	45,927
1946	27,429	6,291	4,275	783,824	1,060,318	403,590
Saskatchewan 1943	(*)	(*)	(*)	(*)	(*)	(*)
1944	379	.....	197	8,820	20,000	25,660
1945	587	.....	284	2,160	16,596	11,237
1946	44	.....	34	.....	674	.....
British Columbia 1943	104,921	104,816	18,092	1,112,819	28,307	(*)
1944	114,866	71,630	13,852	1,230,811	30,289	32,415
1945	118,157	93,523	15,325	1,266,627	171,105	315,528
1946	129,471	106,968	15,448	1,965,146	708,065	661,426
Northwest Territories 1943	17,206	.....	2,575	451,798	573,969	(*)
1944	6,191	.....	850	178,193	18,532	8,852
1945	16,854	43	3,679	611,511	164,474	344,443
1946	36,692	257	6,661	1,398,783	233,517	666,492
Yukon 1945	1,014	690	16	2,822	.....	.....
1946	.....	.....	.....	.....	.....	.....
Total Canada 1943	**1,103,509**	**675,653**	**284,326**	**19,529,190**	**1,552,656**	(*)
1944	**1,036,892**	**370,626**	**226,817**	**17,799,777**	**1,142,664**	**980,283**
1945	**1,135,291**	**386,459**	**218,346**	**19,247,168**	**1,942,011**	**3,055,386**
1946	**1,630,493**	**443,532**	**264,098**	**30,104,091**	**6,517,527**	**10,195,940**

(*) Data not available.

THE COPPER-GOLD-SILVER MINING INDUSTRY

The mining of "copper-gold-silver" ores in Canada during 1946 was confined to the provinces of Quebec, Ontario, Manitoba, Saskatchewan and British Columbia. It is to be noted that in addition to the copper recovered from ores of this type there is a very large quantity of the metal obtained in the smelting and refining of the copper-nickel ores mined in the Sudbury area of Ontario; important quantities of gold and silver are also being extracted from these copper-nickel ores. General statistics relating to labour, etc., in the nickel-copper industry are not included in this report.

Mining operations conducted on Canadian copper-gold-silver deposits (sulphides) during 1946 were reported by 42 firms compared with 38 in 1945 and 23 in 1944. The gross value of crude ore, concentrates, etc., shipped in 1946 from the mines and mills to smelters was estimated at $54,304,549, the cost of fuel, purchased electricity, process supplies, freight and treatment totalled $16,870,567, and the net value of shipments was computed at $37,433,982. Employees in 1946 totalled 4,958 compared with 4,658 in 1945 and 5,175 in 1944.

The gross value of ores shipped by firms which both mine and smelt their own ores is sometimes not reported. This necessitates considerable estimating in determining gross and net values for mine shipments. However, possible abnormal evaluations resulting from this are largely compensated for in determining the value added at the smelters and refineries. This added value is credited to the non-ferrous smelting and refining industry and is also included in the total net value of production of the entire Canadian mining industry. This fact should be noted in making any statistical study of the annual production values shown for shipments from copper-gold-silver mines.

The statistics as herein shown under the copper-gold-silver mining industry refer only to mines and mills and are not inclusive of data pertaining to the operation of smelters and refineries. Statistics relating to the reduction of non-ferrous ores are recorded under the non-ferrous smelting and refining industry.

Quebec

Noranda Mines Limited.—"A total of 789 feet of drifting was done to facilitate the mining of previously known ore, but because of the acute shortage of miners, no exploratory drifting was done and underground exploration was limited to 42,621 feet of diamond drilling on the northerly section of our Adsit claim which adjoins the property of the Quemont Mining Corporation on the east. Most of this diamond drilling was done from the ice surface of Osisko Lake and the unusually early break-up of the ice interrupted this work before much definite information was obtained, so the programme of drilling this area was resumed this winter with four diamond drills.

"During the period from January 1 to November 21, 1946, the smelter treated 752,518 tons of ore, concentrate, slag and scrap brass (shell cases), from which 74,065,031 pounds of anodes were produced. Included in the total material smelted were 250,226 tons of ore, concentrate and scrap which was smelted for other companies on a toll basis. After deducting the copper, gold and silver which was recovered from secondary products, such as slag and scrap brass, the estimated recovery of new metals was 70,378,097 pounds of fine copper, 198,660 ounces of gold and 823,171 ounces of silver.

"During the period from January 1 to November 21, 1946 the concentrator treated 562,034 tons of ore from the Horne mine, from which 107,252 tons of copper-gold concentrate and 134,287 tons of pyrite concentrate were produced. The copper-gold concentrate was sent to the smelter and the pyrite concentrate was treated in the cyanide plant, where 9,354 ounces of gold was recovered by cyanidation, after which it was dried and sold to chemical plants."

Normetal Mining Corporation Ltd.—"Due mainly to shortage of underground workmen, output of the mine was reduced to an average of 511 tons per day, the lowest since 1940. All zinc concentrate produced was shipped to a smelter in the United States. Copper concentrate was shipped until the begining of the strike at Noranda smelter on November 22 and after that time was stored at the mine. Following is summary of underground development work done during the year: drifts 3,094 feet; crosscuts, 1,517 feet; raises 511 feet; stations and pockets

127 feet; diamond drilling, 9,403 feet. Lateral development on the 2900-foot level was completed and on the 3,050 level about 75 per cent of the necessary work was done. Grade of ore continued to be satisfactory but tonnage per vertical foot is less than at the 2600-foot horizon and on some of the levels above. A series of holes, twelve in number, were diamond drilled below the 3200-foot level. Results from these were disappointing but not conclusive, and plans are being made to sink a winze to approximately the 4000-foot level to more fully explore the lower horizons of the mine."

Quemont Mining Corporation Ltd.—"Drilling from the ice was under way at the first of the year. Five drills were employed initially. This number was increased to ten, after overburden difficulties had indicated that the footage per drill would be lower than anticipated. The drill holes extended the known ore area and added greatly to the indicated ore tonnage.

"During the summer, one drill was employed on surface drilling of an exploratory nature. As the ice formed again in December the number of drills was increased to six, in order to continue exploration from the ice from where it left off at the break-up.

"During the year, preparations were made for sinking a large capacity production shaft. The site selected is on the point adjacent to the western end of the ore area, across the northwest arm of Osisko Lake from No. 1 shaft. The site was prepared and the shaft sunk 38 feet in rock, prior to commencing foundation work."

Waite Amulet Mines Ltd.—"The tonnage treated in the mill during the year fell off sharply due to the scarcity of manpower, the production of zinc concentrate being severely affected. Mining of the main pillar in the lower "A" orebody commenced in July and it is expected that this operation will continue until the end of 1947 with the result that copper production should improve considerably. After the treatment of 427,400 tons during the year, the ore reserves of Amulet Dufault Mines, Ltd. were reduced by 15 per cent and the ore reserves of the Waite Amulet orebodies were reduced over 40 per cent."

Manitoba and Saskatchewan

Hudson Bay Mining and Smelting Co. Ltd.—"Labour supply became adequate for the first time in several years. Total mine production was maintained at approximately the same rate as in 1945. There were 1,837,742 tons of ore milled during the year, of which 29·6 per cent was hoisted through the north main shaft and 70·4 per cent through the south main shaft. The tonnage of ore milled and the production of slab zinc, gold, silver and cadmium were all somewhat higher than in 1945, while the production of blister copper was only slightly lower.

"Major development and exploration work was increased as the labour situation improved. Drifting and crosscutting in the vicinity of the south main shaft were done on the 3000-3250, 3500-and 3750-foot levels. The south main shaft was sunk a distance of 369 feet full size from the 3631-foot level to the 4000-foot level, an 84-foot rock pentice being temporarily left below the 3500-foot level."

Sherritt-Gordon Mines Ltd.—"The exhaustion of the mine at Sherridon is now proceeding at a rate which should permit the plant being released in time to be used in equipping our new nickel-copper mines for production. The East Mine was finally exhausted during the latter part of the year and part of this mining plant has already been shipped to Lynn Lake for use in sinking the first shaft. The West Mine will be worked at capacity, which is about 500,000 tons per year, throughout the present year. After that the tonnage will taper off over a two-or three-year period. Some parts of the plant can be dismantled and moved to Lynn Lake as required, before the final clean-up of the mine at Sherridon is completed.

"The results of the past year's exploration work at the Granville Lake area have been most gratifying. The bulk of the work was concentrated upon our nickel-copper property at Lynn Lake, where by the end of the year approximately 5,000,000 tons of ore averaging 1·18 per cent nickel and 0·60 per cent copper had been proven by closely spaced diamond drill holes, in three orebodies, to a depth of about 1,000 feet. As all three orebodies are quite strong at that horizon it is a reasonable assumption that a considerable additional tonnage will be developed at greater depths."

British Columbia

Britannia Mining and Smelting Co. Ltd.—"On July 3rd a strike was called by the Mine, Mill and Smelter Workers' Union simultaneously at all producing copper and gold properties operating in British Columbia. Operations were resumed on October 21st, but as the organization was widely scattered, production did not begin until November 5th. Production which started after the strike at 1,800 tons, has been increased steadily and was at a level of 3,000 tons per day at the year's end. With a continuation of the present favourable price level for copper, and barring unexpected difficulties with labour, the general outlook at this property is better than at any time during the past several years."

Granby Consolidated Mining, Smelting and Power Co. Ltd.—"During the year, 597,678 tons of ore was milled at the property located at Copper Mountain. The milled ore produced 20,007 tons of concentrates which has a metal content of 2,487 ounces of gold, 76,116 ounces of silver and 10,628,042 pounds of copper. The concentrates were exported to the smelter at Tacoma, Washington."

NOTE.—The preceding quotations were extracted from the annual reports of the firms named.

Table 66.—Principal Statistics (a) of the Copper-Gold-Silver Mining Industry in Canada for Specified Years

Year	Number of active operators (b)	Number of operating plants or mines (b)	Capital employed (b)	Number of employees (b)	Salaries and wages (b)	Cost of fuel and electricity (b)	Value of ores and concentrates shipped by mines
			$		$	$	$
1936	19	21	40,732,717	3,738	5,473,325	495,843	15,619,897
1937	28	31	73,338,258	5,164	8,240,614	901,088	24,902,851
1938	37	39	65,416,729	5,577	8,921,465	1,100,284	28,795,492
1939	28	30	58,867,620	6,083	9,920,591	1,223,523	26,182,577
1940	25	26	60,446,948	6,115	10,777,827	1,297,454	25,804,419
1941	21	22	81,521,902	5,866	10,695,023	1,264,567	30,220,331
1942	26	28	84,776,243	5,646	11,097,412	1,338,737	33,688,642
1943	20	22	94,750,186	5,748	11,806,827	1,426,710	43,840,679
1944	23	26	(c)	5,175	10,710,071	1,402,243	38,198,039
1945	38	41	(c)	4,658	9,663,612	1,175,916	38,165,269
1946	42	44	(c)	4,958	10,244,487	1,152,925	37,433,982

(a) Data relating to idle mines and smelters not included.

(b) Not including data relating to any Rossland properties leased by Consolidated Mining and Smelting Co. of Canada Ltd.

(c) Not reported.

NOTE.—The cost of fuel, purchased electricity and process supplies was deducted; however, values are less freight and estimated treatment charges. Also, value of ores and concentrates shipped from mines to smelters operated by the same companies are often of a nominal or conjectural nature.

Table 67.—Shipments from Copper-Gold-Silver Mines of Canada, 1945 and 1946

—	Quantity	Value	Total Metal Content as Determined by Settlement Assay (c)				
			Gold	Silver	Copper	Sulphur	Zinc
	tons	$	fine oz.	fine oz.	pounds	tons	pounds
1945							
11 mines shipped to Canadian plants (a)—							
Ores	518,902	8,594,812	74,200	593,058	41,044,522	...	...
Copper concentrates	646,079	31,466,061	229,695	2,378,694	172,606,419	...	...
Zinc concentrates	140,826	7,111,328	5,812	161,511	1,476,682	...	105,771,054
Iron pyrites concentrates	71,067	152,603	...	...	...	35,002	...
Slags, residues, gold precipitates and bullion	325	1,241,062	30,094	182,636	12,382	...	...
8 mines shipped to foreign plants—							
Ores	...	...	...	...	...	...	...
Copper concentrates	52,742	4,140,213	14,267	174,272	25,967,476	...	(d)1,511,353
Zinc concentrates	91,845	6,139,799	554	14,705	...	...	94,831,659
Iron pyrites concentrates	156,667	329,608	...	...	...	75,201	...
Precipitates	698	124,386	...	...	963,905	...	...
Total	**1,679,151**	**59,299,872**	**354,622**	**3,504,876**	**242,071,386**	**110,203**	**200,602,713**
Value of process supplies, etc. (b)	...	21,134,603	...	...	...	...	...
Net Value	...	**38,165,269**	...	...	...	...	...

For footnotes, see end of table, p. 153.

Table 67.—Shipments from Copper-Gold-Silver Mines of Canada, 1945 and 1946 —Concluded

—	Quantity	Value	Total Metal Content as Determined by Settlement Assay (c)				
			Gold	Silver	Copper	Sulphur	Zinc
1946	tons	$	fine oz.	fine oz.	pounds	tons	pounds
8 mines shipped to Canadian plants (a)—							
Ores	409,586	5,045,788	83,920	168,485	14,266,861	.....	.....
Copper concentrates	623,152	31,000,561	214,252	2,615,150	166,971,148	.....	.....
Zinc concentrates	158,538	9,107,497	7,184	201,686	1,477,494	.....	145,034,100
Iron pyrites concentrates	154,323	298,027	.....	.....	.....	73,953	.....
Slags, residues, bullion and gold precipitates	358	1,215,129	27,678	198,750	272,959	.....	.....
7 mines shipped to foreign plants							
Ores	.....	.....	.....	.....	.....	.....	.....
Copper concentrates	34,892	3,212,765	7,287	104,647	17,443,833	.....	.....
Zinc concentrates	61,587	4,268,237	.....	.....	.....	.....	63,746,167
Iron pyrites concentrates	47,612	104,307	.....	.....	.....	22,585	.....
Precipitates	302	52,238	.....	.....	338,656	.....	.....
Total	**1,496,350**	**54,304,549**	**340,321**	**3,288,718**	**200,770,951**	**96,538**	**208,780,267**
Value of process supplies, etc. (b)	.....	16,870,567	.....	.....	.....	.....	.....
Net Value	.....	**37,433,982**	.....	.....	.....	.....	.....

(a) Certain mines, sometimes operated in Rossland area by several leases, are usually treated, statistically, as one mine.
(b) Includes freight on ore shipments, smelter charges and purchased electricity.
(c) In addition, cadmium, tellurium and selenium are recovered from these ores.
(d) Lead.

Table 68.—Content of Ores, Concentrates, Etc., Shipped from Copper-Gold-Silver Mines, 1941-1944

—	Tons	Content				
		Gold	Silver	Copper	Zinc	Sulphur
To Canadian Smelters		fine oz.	fine oz.	pounds	pounds	tons
1941—						
Copper ore	865,921	159,647	320,994	22,516,954	.....	.....
Copper concentrates	828,622	296,302	4,282,053	240,003,806	3,138,594	.....
Zinc concentrates	135,582	6,263	212,115	1,246,645	125,006,638	.....
Pyrite	94,818	.....	.....	.....	.....	45,446
Slag, precipitates, etc.	189	28,893	113,299	162,553	68,337	.....
1942—						
Copper ore	760,973	146,412	318,805	28,927,383	.....	.....
Copper concentrates	816,793	342,995	4,700,629	234,276,699	.....	.....
Zinc concentrates	172,519	11,424	293,259	1,409,389	159,543,348	.....
Pyrite	69,014	.....	.....	.....	.....	32,580
Slag, precipitates, etc.	193	35,146	227,776	129,659	.....	.....
1943—						
Copper ore	772,641	148,995	373,215	38,948,373	.....	.....
Copper concentrates	820,759	320,512	4,502,041	230,639,502	.....	.....
Zinc concentrates	181,032	12,397	310,210	1,656,227	167,005,660	.....
Pyrite	65,395	.....	.....	.....	.....	32,116
Slag, precipitates, etc.	198	36,749	240,302	151,001	.....	.....
1944—						
Copper ore	530,579	79,516	508,091	35,392,376	.....	.....
Copper concentrates	757,837	253,193	3,061,569	204,189,160	.....	.....
Zinc concentrates	149,522	8,318	227,036	1,508,641	137,386,498	.....
Pyrite	68,064	.....	.....	.....	.....	33,178
Slag, precipitates, etc.	366	34,625	193,697	266,486	.....	.....

Table 68.—Content of Ores, Concentrates, Etc., Shipped from Copper-Gold-Silver Mines, 1941-1944—Concluded

—	Tons	Content				
		Gold	Silver	Copper	Zinc	Sulphur
To Foreign Smelters		fine oz.	fine oz.	pounds	pounds	tons
1941—						
Copper ore	21	5	72	865	...	...
Copper concentrates and precipitates	145,549	49,802	430,563	68,313,890	...	...
Zinc concentrates	51,983	471	47,051	397,450	57,515,573	...
Pyrite	208,542	...	...	...	...	103,762
1942—						
Copper ore	...	...	...	...	...	...
Copper concentrates and precipitates	101,752	19,892	283,595	50,619,295	...	...
Zinc concentrates	92,135	...	...	...	94,931,818	...
Pyrite	310,479	...	...	...	...	150,199
1943—						
Copper ore	...	...	...	...	...	...
Copper concentrates and precipitates	94,714	20,410	299,753	45,227,248	...	...
Zinc concentrates	131,418	85	3,797	...	134,809,240	...
Pyrite	219,181	...	...	...	...	107,339
1944—						
Copper ore	...	...	...	...	...	...
Copper concentrates	84,920	18,194	306,198	39,940,660	...	943,067*
Zinc concentrates	125,465	421	11,575	...	128,873,442	...
Pyrite	182,007	...	...	...	...	88,595
Slag, precipitates, etc.	570	3	69	705,277	...	...

* Lead.

Table 69.—Classification of Wage-Earners Employed in the Copper-Gold-Silver Mining Industry, by Provinces, 1944-1946

Year	Surface		Underground	Mill		Total	
	Male	Female	Male	Male	Female	Male	Female
Total Canada 1944	**1,389**	**145**	**2,254**	**689**	**76**	**4,332**	**221**
Total Canada 1945	**1,314**	**85**	**1,919**	**653**	**62**	**3,886**	**147**
1946							
Quebec	487	9	741	177	13	1,405	22
Ontario	6	...	...	...	...	6	...
Manitoba	356	21	363	72	1	791	22
Saskatchewan	734	9	502	154	1	1,390	10
British Columbia	196	22	303	205	11	704	33
Total Canada	**1,779**	**61**	**1,909**	**608**	**26**	**4,296**	**87**

Table 70.—Specified Data Relating to the Copper-Gold-Silver Mining Industry, 1931-1946*

Year	Wage-earners	Wages paid	Average per capita wages paid	Salaried employees	Salaries paid	Total salaries and wages
	No.	$	$ (†)	No.	$	$
PRODUCING MINES—						
1931	2,901	4,140,890	1,427	160	465,603	4,606,493
1932	2,900	3,392,322	1,170	131	328,079	3,720,401
1933	2,590	3,550,417	1,371	123	275,650	3,826,067
1934	2,878	4,357,517	1,514	168	413,127	4,770,644
1935	2,946	4,144,095	1,407	207	473,988	4,618,083
1936	3,328	4,608,774	1,385	308	708,200	5,316,974
1937	4,618	7,019,595	1,520	436	1,058,082	8,077,677
1938	5,051	7,694,141	1,523	418	1,075,014	8,769,155
1939	5,401	8,498,360	1,573	470	1,126,561	9,624,921
1940	5,605	9,434,060	1,683	479	1,313,509	10,747,569
1941	5,324	9,249,863	1,737	524	1,428,993	10,678,856
1942	4,945	9,442,054	1,909	608	1,524,584	10,966,638
1943	5,042	9,931,712	1,970	629	1,764,200	11,695,912
1944	4,539	8,927,879	1,967	602	1,721,494	10,649,373
1945	3,936	7,788,083	1,966	583	1,608,225	9,396,308
1946	4,105	7,865,062	1,916	531	1,656,938	9,522,000
Total	.....	**110,044,824**	.....	.....	**16,942,247**	**126,987,071**
NON-PRODUCING MINES—						
1931	224	256,204	.....	66	95,620	351,824
1932	33	27,439	.....	12	22,787	50,226
1933	92	81,998	.....	36	30,713	112,711
1934	87	65,485	.....	36	33,672	99,157
1935	248	367,685	.....	29	54,428	422,113
1936	84	119,084	.....	18	37,267	156,351
1937	84	126,155	.....	26	36,782	162,937
1938	93	129,246	.....	15	23,064	152,310
1939	186	256,999	.....	26	38,671	295,670
1940	18	18,746	.....	13	11,512	30,258
1941	12	10,449	.....	6	5,718	16,167
1942	71	107,532	.....	22	23,242	130,774
1943	51	79,818	.....	26	31,097	110,915
1944	14	20,348	.....	20	40,350	60,698
1945	97	180,861	.....	42	86,443	267,304
1946	278	601,289	.....	44	121,198	722,487
Total	.....	**2,449,338**	.....	.....	**692,564**	**3,141,902**

(*) Not including smelters or refineries.
(†) Including any bonus paid.

Table 71.—Specified Data Relating to the Copper-Gold-Silver Mining Industry, 1931-1946 (a)

Year	Producing Mines						Non-producing Mines			
	Electricity purchased	Total cost of purchased fuel and power used	Hydraulic turbines used	Process supplies used	Freight on ore, etc., shipped	Smelter treatment charges	Electricity purchased	Total cost of purchased fuel and power used	Hydraulic turbines used	Process supplies used
	k.w.h.	$	h.p.	$	$	(b) $	k.w.h.	$	h.p.	$
1931	225,088,928	700,614	9,300	(c)	(c)	(c)	311,800	16,888	1,159	(c)
1932	127,331,868	446,736	9,300	(c)	(c)	(c)	1,584,700	16,727	609	(c)
1933	68,188,303	387,312	9,300	(c)	(c)	(c)	453,000	17,313	609	(c)
1934	90,097,659	526,941	9,300	(c)	(c)	(c)	1,108,500	15,729	.....	(c)
1935	91,828,181	520,724	9,300	2,892,443	(c)	(c)	1,108,500	13,428	.....	6,689
1936	71,134,263	441,132	9,300	3,127,527	(c)	(c)	2,253,803	54,711	.....	28,698
1937	199,045,597	871,002	9,300	4,808,504	344,818	9,735,109	.....	30,086	.....	43,341
1938	214,030,438	1,049,325	9,300	4,746,830	960,791	13,639,953	5,501,100	50,959	609	96,833
1939	247,180,650	1,203,878	8,900	5,539,545	1,582,350	16,587,402	2,110,520	19,645	1,250	46,071
1940	270,601,445	1,297,454	8,900	5,812,178	882,633	17,378,092	.....	.....	.....	.....
1941	251,488,789	1,264,533	10,520	5,504,530	1,873,728	25,964,492	.....	34	.....	1,425
1942	259,238,497	1,333,969	8,900	5,682,271	1,932,958	26,483,998	108,000	4,768	.....	21,184
1943	269,523,279	1,413,989	8,900	5,493,875	1,353,139	21,409,079	.....	12,721	.....	12,840
1944	262,411,942	1,401,935	8,900	5,170,105	720,920	16,898,032	.....	308	.....	476
1945	243,557,533	1,154,097	8,900	4,870,144	1,240,533	13,800,559	443,000	21,819	.....	.....
1946	260,558,741	1,094,763	8,900	3,917,734	939,213	10,755,921	4,411,365	58,162	.....	104,774

(a) Not including smelters or refineries.
(b) Partly conjectural.
(c) Not available.

Table 72.—Taxes Paid by the Copper-Gold-Silver Mining Industry in Calendar Years 1945 and 1946

—	1945	1946
	$	$
Dominion income tax, including tax on non-operating revenue	3,245,130	3,219,764
Dominion excess profits tax	6,086,445	4,967,843
Provincial tax	1,617,992	1,788,132
Municipal tax	305,760	264,911
Grand Total Taxes Paid	**11,255,327**	**10,240,650**

Table 73.—Specified Expenditures by the Copper-Gold-Silver Mining Industry, 1944-1946

—	1944	1945	1946
	$	$	$
Workmen's compensation	409,782	412,603	495,645
Silicosis assessment	86,744	96,004	91,082
Unemployment insurance	75,832	66,238	67,076
Aggregate cost of all supplies purchased	6,065,754	8,314,676	8,710,123
Aggregate cost of plant and equipment purchased	989,675	434,764	1,174,342
Cost of buildings, machinery and equipment erected or installed during year	1,304,542	424,066	1,845,259

Table 74.—Cost of Prospecting Conducted by the Copper-Gold-Silver Mining Industry, by Provinces, 1945 and 1946

—	1945	1946	—	1945	1946
	$	$		$	$
Conducted in—			Conducted in—		
Nova Scotia	1,769	.....	Saskatchewan	2,875	8,257
New Brunswick	4,525	.....	British Columbia	93,139	41,946
Quebec	35,687	319,395	Yukon	.....	.....
Ontario	145,736	55,134	Northwest Territories	1,399	40
Manitoba	87,905	465,078			
			Total	**373,035**	**889,850**

Table 75.—Ores Mined, Milled, and Concentrates Produced by the Copper-Gold-Silver Mining Industry, 1930-1946

Year	Ore mined	Ore milled	Copper concentrates produced (d)	Zinc concentrates produced	Iron pyrites concentrates produced	Net value of all estimated mine and mill shipments (c)
	tons	tons	tons	tons	tons	$
1930	5,768,664	4,926,431	298,085	72,112	53,453	(a) 15,629,564
1931	6,002,865	5,243,382	469,059	63,828	63,293	(a) 15,951,103
1932	5,453,173	4,607,659	518,609	76,507	71,945	(a) 11,143,759
1933	5,448,690	4,521,301	521,399	88,645	59,354	(a) 7,707,270
1934	6,065,692	5,127,189	587,045	81,811	80,684	(a) 8,265,071
1935	5,650,665	4,693,387	614,942	96,466	66,700	(a) 16,676,447
1936	5,052,222	4,091,570	503,650	101,303	105,669	(a) 19,271,965
1937	6,749,809	5,802,031	630,664	116,698	201,494	(b) 30,655,784
1938	7,929,434	6,961,188	756,065	123,887	173,444	(b) 34,739,439
1939	8,474,855	7,760,725	828,963	105,842	161,238	(b) 32,991,716
1940	8,931,291	8,325,979	930,622	126,346	172,500	(b) 34,914,051
1941	9,263,071	8,402,656	974,250	187,622	309,050	(b) 36,990,853
1942	8,575,626	7,816,813	858,580	264,739	219,874	(b) 40,730,834
1943	8,251,579	7,482,831	914,360	315,670	292,007	(b) 50,774,104
1944	7,395,608	6,873,542	870,726	276,737	257,423	(b) 44,770,863
1945	5,914,580	5,441,121	730,724	229,980	228,618	(b) 44,258,780
1946	5,009,490	4,606,503	661,554	219,985	201,873	(b) 42,609,415

(a) Value f.o.b. mine and presumed gross value less freight and treatment charges which were not reported separately by operators prior to 1937.

(b) Gross value reported by operators less only freight and treatment costs deducted by Dominion Bureau of Statistics.

(c) Includes the value of any cyanide precipitate shipped from mills to smelters.

(d) Exclusive of copper precipitate 1943-1946.

Table 76.—Drilling Completed on Copper-Gold-Silver Deposits in Canada, 1945 and 1946

—	Footage Drilled	
	1945	1946
Diamond drilling for exploration (testing only)—		
By mining companies with their own personnel and equipment	76,089	71,786
By diamond drilling contractors	319,515	381,898
Other diamond drilling—		
Blast hole diamond drilling—		
By mining companies with their own personnel and equipment	517,940	700,436
By diamond drilling contractors	310,446	.....
Drilling by percussion or other machines(*)	3,778,401	2,829,740

(*) Not complete as these data are not recorded by some operators.

Table 77.—Ore Reserves of Specified Copper-Gold-Silver Mining Companies*

—	Tons	Copper	Zinc	Gold	Silver
		per cent	per cent	ounces per ton	ounces per ton
Noranda Mines Ltd., January 1, 1947—					
Indicated above the 2,975 foot level—					
Sulphide ore over 4 per cent copper	4,960,000	7·14	.....	0·159	(x)
Sulphide ore under 4 per cent copper	14,692,000	0·67	.....	0·196	(x)
Silicious fluxing ore	838,000	0·11	.....	0·108	(x)
Capacity of mill: 24 hours	3,000	.....	.....	.....	.....
Waite Amulet Mines Ltd., December 31, 1945—					
Waite Mine—					
Copper ore	40,000	4·5	.....	0·04	0·5
Zinc ore	5,000	.....	9·5	.....	.....
Other Waite Amulet orebodies—					
"F" orebody	30,000	3·2	9·9	0·01	1·01
"C" shaft orebodies	24,000	2·0	9·07	0·02	4·0
Amulet Dufault—					
Lower "A" orebody	1,865,739	6·0	4·01	0·045	1·5
Upper "A" orebody	132,000	2·0	6·5	0·07	1·6
Capacity of mill: 24 hours	1,800	.....	.....	.....	.....
Normetal Mining Corp. Ltd., December 31, 1946	1,716,000	3·68	7·28	0·033	2·66
Capacity of mill: 24 hours	750	.....	.....	.....	.....
Sherritt Gordon Mines Ltd., December 31, 1946—					
East orebody—					
Zinc ore	.....	.....	.....	.....	.....
Copper ore	.....	.....	.....	.....	.....
West orebody	1,368,000	2·60	2·12	0·021	0·61
Capacity of mill: 24 hours	750	.....	.....	.....	.....
					w
Hudson Bay Mining & Smelting Co. Ltd., January 1, 1946	26,000,000	2·99	4·24	0·089	1·25
Capacity of mill: 24 hours	6,000	.....	.....	.....	.....
Granby Cons. Mining, Smelting & Power Co. Ltd., 1946	9,982,000	1·25	.....	(x)	(x)
Capacity of mill: 24 hours	5,000	.....	.....	.....	.....
Britannia Mining & Smelting Co. Ltd.	.....	.....	(x)	.....	.....
Capacity of mill: 24 hours	6,000	.....	.....	.....	.....

(*) Subject to revision.
(x) Not reported.

ROYAL CANADIAN MINT

The Ottawa Mint, established as a branch of the Royal Mint under the (Imperial) Coinage Act, 1870, and opened up on January 2, 1908, was by 21-22 Geo. V, c. 48, constituted a branch of the Department of Finance and since December 1, 1931, has operated as the Royal Canadian Mint. The great development of the gold mining industry in Canada has resulted in gold refining becoming one of the principal activities of the Mint. Gold coins have never been a popular medium of exchange in Canada and have not been struck since 1919, most of the fine gold produced from the rough shipments from the mines being delivered to the Bank of Canada in the form of bars, the rest being sold in convenient form to manufacturers.

The domestic gold currency of Canada, as at present authorized by the Currency Act, consists of $20, $10, $5 and $2½ gold pieces, 900 millesimal fineness (only $10 and $5 have been issued). Gold was used only to an insignificant extent as a circulating medium in Canada, its monetary use being practically confined to reserves; $5 and $10 gold pieces weighing respectively 129 and 258 grains, 9/10ths pure gold by weight, have been coined, the Canadian gold dollar thus containing 23·22 grains of pure gold. The $5, $10 and $20 gold coins of the United States, which contain exactly the same weight of gold as Canadian gold coins of these denominations, are legal tender for their face value only, as are the British sovereigns, which are legal tender for $4.86 2/3, their equivalent in Canadian gold dollars.

The regulations in part for the receipt of gold bullion at the Royal Canadian Mint, Ottawa, are as follows: Each parcel of bullion for which a separate assay is required shall be regarded as a separate deposit, and no ingot exceeding 1,500 ounces troy, gross weight, will be accepted. All deposits shall be dealt with in the order in which they are received. Deposits containing, by assay, less than 200 parts of gold in 1,000, or appearing, either before or after melting and assaying, to be unsuitable for treatment by the refining process in use, may be rejected. A deposit so rejected shall be returned to the depositor on payment by him of any costs incurred for melting and assaying.

The Mint charges, to be calculated on the gross weight of the deposit after melting, shall be as follows:

(a) For melting and assaying—one dollar for the first four hundred ounces or part thereof and twenty-five cents for each additional one hundred ounces or part thereof.

(b) For refining—when the deposit contains not more than 5 per cent base metal, 3 cents the ounce;

over 5 per cent but not over 10 per cent base metal, 3½ cents the ounce;

over 10 per cent but not over 15 per cent base metal, 4¼ cents the ounce;

over 15 per cent but not over 20 per cent base metal, 5 cents the ounce;

on deposits which contain over 20 per cent base metal, or which require other treatment, a charge not exceeding 10 cents the ounce, to be determined by the cost of treatment.

The minimum charge for refining shall be two dollars for each deposit and the charge for refining shall apply to all deposits containing by assay less than 995 parts fine gold in 1,000.

A handling charge at the rate of 20 cents the ounce fine, to cover costs of realization in a market outside Canada, shall be made on all newly-mined Canadian gold deposited with the Mint, and this charge shall be increased to $1.00 the ounce fine on all other gold accepted as a deposit. The charges under this paragraph are in addition to the Mint charges payable under Clause 5 of the Mint Regulations and are effective on and after July 27, 1946.

The gross value of gold deposited for sale with the Royal Canadian Mint or the Dominion of Canada Assay Office, Vancouver, shall be the market price of gold in the country to which the Government is at the time of the receipt of the deposit exporting gold, converted into Canadian funds at the average of the buying rates of exchange of that country reported to the Department of Finance by the Bank of Canada at 11 a.m. daily during the week in which the gold is deposited with the Mint or Assay Office.

In addition to newly-mined Canadian gold there may be accepted at the Mint, (gold over 1 ounce troy fine) in the following forms: old jewellery and dental scrap, provided it has not been

melted or otherwise treated in any way to prevent its origin being readily recognized; scrap from manufacturers and refiners the result of processes carried out by them in the ordinary course of their business; gold coin which, when of full weight and fineness, is not legal tender in Canada. Satisfactory evidence as to the origin of the gold shall be furnished by the depositor if required.

Delivery of deposits shall be accepted at the Mint counter only, free of all charges, and when bullion is forwarded by mail or express the original packages will not ordinarily be opened until an invoice of the description and weight of their several contents has been received. When there is a serious discrepancy between the actual and the invoice weights of any deposit, further action in regard to it will be deferred pending communication with depositor.

The gross value of a deposit shall be calculated at a rate of one dollar for each 23·22 grains fine gold contained therein (equivalent to $20.6718+ the ounce fine) and at a rate for all silver in excess of one per centum of the weight of the deposit after melting to be determined by the Minister of Finance. The rate to be paid, under Clause 4 of the Regulations, for silver in excess of one per centum of the weight of deposits received in any week, shall average for that week of the official New York daily quotation for fine silver, from Monday to Friday, inclusive, converted into Canadian funds at the average of the Foreign Exchange Control Board's buying rate for United States funds. This Instruction shall become effective for the week commencing Monday, December 9, 1946.

COINAGE

There was a decrease of $2,594,100 in the amount of coin issued during 1946 as compared with the previous year. A detailed statement of the issues by denominations for the years 1945 and 1946 is set out below.

Denomination	Coin issued in	
	1945	1946
	$	$
Silver coin—		
1 dollar	38,300	91,000
50 cents	980,000	400,000
25 cents	1,324,000	556,000
10 cents	1,074,000	654,000
Total Silver	**3,416,300**	**1,701,000**
Nickel coin—		
5 cents	.....	291,500
Steel coin—		
5 cents	950,300	.....
Bronze coin—		
1 cent	748,500	528,500
Total	**5,115,100**	**2,521,000**
	Number of pieces	
Representing	111,890,300	68,335,000

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:

—	Silver				Nickel	Bronze
	Dollar	50 cents	25 cents	10 cents		
	$	$	$	$	$	$
Calgary	2,000	10,000	28,000	40,000	40,000	38,300
Charlottetown	.....	8,000	28,000	14,000	3,500	6,500
Halifax	4,000	50,000	76,000	54,000	28,000	26,000
Montreal	16,000	6,000	92,000	122,000	49,000	111,000
Ottawa	13,000	6,000	66,000	20,000	12,000	12,100
Regina	4,000	94,000	38,000	58,000	33,000	43,000
Saint John	2,000	2,000	34,000	28,000	11,000	25,500
Toronto	42,000	188,000	144,000	230,000	70,000	189,600
Vancouver	2,000	36,000	.....	34,000	42,000	35,500
Winnipeg	6,000	.....	50,000	54,000	3,000	41,000
Total	**91,000**	**400,000**	**556,000**	**654,000**	**291,500**	**528,500**

Worn and mutilated coin withdrawn from circulation:

—	Withdrawn	Net Increase in Circulation
	$ cts.	$ cts.
Silver coin	84,040 45	1,616,959 55
Nickel coin—5 cents (mutilated only)	1,634 15	289,865 85
Tombac coin—5 cents	251,670 15	.....
Steel coin—5 cents	320 75	.....
Bronze coin	3,216 28	525,283 72

GOLD BULLION

Three thousand, five hundred and seventy-six deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Dominion of Canada Assay Office, Vancouver, and sundry persons. The gross weight of the deposits amounted to 3,271,246 ounces, containing, by assay 2,652,245 ounces fine gold and 372,595 ounces fine silver. The receipts show an increase as compared with the year 1945 of 171 in the number of deposits, gross weight 168,255 ounces, gold content 148,828 ounces fine and fine silver 14,856 ounces.

The net amount paid by cheque to depositors was $94,662,727.75. In addition 14,521·432 ounces of fine gold with a statutory value of $300,184.74 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to $10,671.52.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table.

Source	Gross Weight	Fine Gold	Fine Silver
	ounces	ounces	ounces
From Canadian Mines and Refineries—			
Ontario	2,088,834·000	1,699,440·377	237,409·80
Quebec	850,325·800	709,867·647	93,275·29
British Columbia	108,655·105	87,683·119	14,703·67
Manitoba	94,030·900	75,575·704	6,523·98
Yukon	56,440·940	45,282·908	9,416·94
Nova Scotia	4,670·200	4,320·912	144·32
Northwest Territories	30,068·400	21,119·923	5,793·21
Alberta and Saskatchewan	146·640	110·825	12·90
Total from Mines and Refineries	3,233,171·985	2,634,401·415	367,280·11
From Jewellery and Scrap	41,310·430	19,221·236	5,675·18
Grand Total	**3,274,482·415**	**2,653,622·651**	**372,955·29**

A detail of the fine gold issued in the form of trade bars to the Bank of Canada, and granulated, sweep and medals to sundry persons is shown hereunder—

	Ounces Fine
6,304 Trade bars to Bank of Canada	2,522,853·880
Depositors	14,521·432
Sales to manufacturers	119,044·048
Proof plate	1·500
Medals	5·443
Sweep	9,538·460
	2,665,964·763

This total shows an increase of 166,801·089 ounces fine as compared with the year 1945.

Summary of Transactions in Gold Bullion of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1946

Year	Gold Received		Gold Issued		
	Gross Weight	Value (Statutory) Gold only	Coin	Bullion	Statutory Value Coin and Bullion
	ounces	$	$	fine oz.	$
1908 to 1936	53,910,494·021	910,817,142·05	7,923,878·73	43,634,524·862	909,929,577·75
1937	4,959,970·893	81,311,693·73	.....	3,937,910·698	81,403,837·11
1938	5,601,260·642	90,920,063·13	.....	4,308,067·369	89,055,654·13
1939	6,181,336·290	100,656,105·55	.....	4,834,214·285	99,932,075·82
1940	6,295,218·554	103,169,907·38	30·00	5,026,792·728	103,913,055·43
1941	6,444,056·215	105,273,560·67	.....	5,134,347·805	106,136,385·78
1942	5,761,045·973	95,338,135·90	.....	4,611,892·227	95,336,270·79
1943	4,456,437·559	74,769,168·35	.....	3,645,739·964	75,364,131·92
1944	3,537,734·636	59,163,794·79	.....	2,829,755·000	58,496,226·17
1945	3,102,991·020	51,750,218·87	.....	2,499,163·674	51,662,297·22
1946	3,271,246·445	54,826,765·59	.....	2,665,964·763	55,110,381·61
Total	**103,521,792·248**	**1,727,996,619·01**	**7,923,908·73**	**83,128,373·375**	**1,726,339,873·73**

BUREAU OF MINES, OTTAWA, EQUIPPED TO SERVE CANADA'S GOLD INDUSTRY

(Bureau of Mines, Ottawa, Canada)

The anticipated expansion in the industry is of special interest to the Bureau of Mines in Ottawa, for if past experience can be used as a guide, the facilities of its Ore Dressing and Extractive Metallurgy Laboratories will be used to work out treatment processes for most of the milling plants that come into operation. Prior to 1941, by far the greater part of the work in the Laboratories was on gold ores from mining areas throughout the Dominion. Gold production had been increasing steadily and for several years in succession the annual value of gold output exceeded that of all the other metals. From 20 to 30 milling plants were entering production each year, and even though additions had been made to its facilities, the Bureau found it difficult at times to handle the many requests for test work on gold ores. To an increasing extent the ores received were refractory, containing either arsenopyrite or pyrite, and frequently such ores require roasting to liberate the gold. Even then the gold recovery is often in the neighbourhood of 90 per cent, compared with recoveries of 95 per cent or higher in the case of ores free of arsenic and pyrite.

Ores from several of the gold prospects which have been receiving active exploratory attention are known to be refractory to a varying degree and thus the experience gained by the Bureau in working out treatment methods for these types of ores will be of particular advantage. For its work on gold and other metallic ores, the Bureau has all the necessary equipment for small and large-scale tests, and the layout allows for flexibility in the devising of flow sheets. For large-scale work the equipment includes a sampling plant with a capacity of four tons an hour; two large grinding units with classifiers; three batteries of flotation machines; small ball mill units for use in grinding middlings; a gravity concentrative section with a full deck Wilfley table and three tables of quarter deck size; a pair of jigs; magnetic concentrating equipment, comprising various types of high and low intensity separators; a sink-and-float pilot plant; a precipitating unit; and a small cyanide plant with four agitators and thickeners and drum type filter and accessories. Fully equipped laboratories are also maintained for assay, chemical, microscopic and spectroscopic analyses.

Samples of ores from a few hundred pounds to 50 tons or more are accepted for investigative work, and a staff of engineers undertakes the development of the most economic method of treatment, and prepares a report detailing the results that may be anticipated and a flow sheet by which such results may be attained. The samples originate from prospectors; prospecting and mining syndicates; the mining companies that develop the properties to a stage where a milling plant is erected; consulting engineers; contractors who design and erect the plants; and operating companies who may be experiencing difficulties in their extraction methods, or who are endeavouring to improve their methods of treatment.

Conditions governing the shipment and acceptance of samples of ores, minerals and metallurgical products for examination and test are as given below.

The application should state the exact location of the property from which the sample was taken and the nature of the test work desired.

Samples should be representative of the grade and character of the ore that it is proposed to treat. According to the nature and scale of the tests desired, the size of the sample should be within the following ranges:

1. For examination and identification of the mineral constituents only—from a few pounds up to 100 pounds.
2. For examination and preliminary tests—100 pounds to 1,000 pounds.
3. For examination, preliminary tests, and for small-scale continuous tests—2 to 5 tons.
4. For large-scale continuous tests on tonnage check basis—5 tons to carload lots.

All samples under two tons in weight must be bagged and properly tagged. Two tons or over may be shipped in bulk if desired.

All transportation charges must be paid by the shipper. These charges must be prepaid, except on shipments from points where there is no Agent, in which case the Bureau of Mines will pay and will bill the shipper for the amount. No examination or test work will be made until reimbursement of such payment is made.

In addition to the transportation charges, the shipper of bulk or tonnage samples intended for analysis only must pay a fee based on the size of the bulk sample and on the elements determined. This fee is payable in advance of submittal of the report of the analysis.

Information regarding the results of any work undertaken in the Laboratories, whether contained in a report or in related correspondence shall not be used as publicity or advertising matter for the sale of shares in any promotion.

Shipments should be addressed to "The Ore Dressing and Extractive Metallurgy Laboratories, Bureau of Mines, 552 Booth Street, Ottawa, Canada".

Co-operation of the shipper's representative and consulting engineers in doing the test work is welcomed, and in this connection it may be noted that the facilities of the Laboratories have been used at various times by several mining companies in working out some particular problem or process, using their own staff, with the guidance of the Bureau's engineers.

Although research and investigative work in ore dressing and extractive metallurgy has been left mainly with the Dominion Government, the provinces of British Columbia, Ontario, Quebec and Nova Scotia have separately established less pretentious laboratories that have been of noticeable assistance to the mineral industries in the respective provinces. The other provinces, where mining is on a smaller scale, have no special laboratory facilities for such work, except n some respects through provincial assistance to university laboratories.

In British Columbia, the Metals and Minerals Division of the British Columbia Industrial and Scientific Research Council is carrying on the work of the British Columbia War Metals Research Board which ceased to function at the close of 1944. Its laboratory is housed in the Mining Building of the University of British Columbia and will be available to render useful service within the Province to the mineral industry.

In Ontario, the Ontario Research Foundation in Toronto does a very limited amount of ore dressing work, but does considerable work on other metallurgical problems. The Foundation is almost self-sustaining by means of service charges from industry. The Ontario Department of Mines provides an assay and mineral identification service to prospectors free of charge or at nominal cost.

The Province of Quebec provides a service through its Department of Mines to prospectors by maintaining well-equipped chemical, assay, spectrographic, and mineralogical laboratories. The Province has supplied certain universities with ore dressing and metallurgical equipment. For instance, the Laval University Laboratories have been equipped with modern testing facilities.

In Nova Scotia, the Provincial Government has provided the Nova Scotia Technical College with small-scale equipment for test work in ore dressing.

The Bureau of Mines in Ottawa co-operates fully with all the provinces by supplying any information desired and by supplying the provincial departments concerned copies of all reports on investigations on ores originating in the respective provinces.

CHAPTER THREE

THE SILVER MINING INDUSTRY IN CANADA

(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 inasmuch as silver-bearing minerals usually occur in association with other metals of economic value—with lead and zinc; with copper, nickel and arsenic; with lode and placer free gold; in copper-gold and nickel-copper ores, and at Great Bear Lake, North West Territory, with pitchblende. Silver-lead-zinc mining is a very important industry in British Columbia and, to a lesser extent, in the Yukon Territory. In Eastern Canada, lead and zinc ores have been mined in Ontario, Quebec and Nova Scotia.

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

General statistical data contained in this chapter are essentially those pertaining only to the mining of silver-cobalt and silver-lead-zinc ores but the output figures for specific metals represent the total production from all sources.

(a) The Silver-Cobalt Mining Industry

The mining of silver-cobalt ores in Canada is confined almost entirely to the district of Temiskaming in northern Ontario. Veins containing these metals were discovered at or near the present town of Cobalt in 1903 and shipments of ores from this area have been continuous since 1904. Depletion and exhaustion of ore reserves during recent years have resulted in a relatively great decline in the production of metals from these deposits. In most instances, operations at properties, some of which were prominent as producers in the past, are conducted by lessees and shipments range from one to several hundred tons. The increased demand for cobalt as an alloying metal has, for some years, stimulated operations of a salvage nature at several of the older mines.

In order to encourage the production of cobalt for war requirements, United States and Canadian government agencies co-operated during a considerable period of the war in the purchase of Canadian cobalt ores. Ores thus acquired were consigned in 1942 and 1943 to a United States Government agency stock pile located at Deloro, Ontario. These government purchases were discontinued early in 1944.

The number of operators reported as actively engaged in the mining or shipping of silver-cobalt ores in 1946 totalled 11, employees numbered 247, and payments for salaries and wages amounted to $404,012. The gross value of mine and mill shipments was $325,846. There was no addition to or withdrawal from the stock pile accumulated during the war for the Metals Reserve Company and located at Deloro, Ontario.

Table 78.—Principal Statistics of the Silver-Cobalt Mining Industry in Canada, 1930-1946

Year	Number of active operators (a)	Number of operating mines (c)	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Net value of bullion, ore, concentrates or residues sold
			$		$	$	$
1930	23	28	12,268,322	1,043	1,488,591	352,844	(b) 3,637,181
1935	27	28	6,380,731	402	494,791	114,439	1,070,716
1936	24	25	5,946,702	363	458,546	104,372	915,376
1937	23	25	2,055,060	300	394,386	90,134	540,762
1938	34	30	2,696,217	297	386,851	73,549	288,293
1939	36	43	2,461,556	323	412,728	63,486	653,032
1940	48	44	337,089	123	158,024	10,900	809,263
1941	24	14	439,877	182	229,984	40,875	662,443
1942	13	14	358,691	192	283,980	68,349	(d) 600,207
1943	20	21	587,039	221	290,654	74,691	(d) 578,861
1944	10	11	(e)	165	260,575	48,323	(d) 323,260
1945	7	8	(e)	106	247,203	49,553	82,508
1946	11	11	(e)	247	404,012	58,712	207,483

(a) Includes lessees shipping from dumps.
(b) Gross value.
(c) Includes properties on which operations were of a salvage nature only.
(d) Includes value of ores consigned to the United States Government stock pile at Deloro, Ontario.
(e) Not recorded.

Note.—The cost of process supplies used—explosives, etc.—was recorded for the first time in 1935 and, beginning with 1935, this cost together with the cost of fuel and purchased electricity, freight and smelter charges were deducted from the gross value of sales.

Table 79.—Summary (b) of Operations of Silver-Cobalt Mines and Mills in Canada, 1944-1946

—		1944	1945	1946
Number of mines in operation (*)		11	11	11
Ore mined	tons	27,184	30,519	32,841
Ore salvaged from surface (c)	tons	2,189	4,521	291
Ore treated (milled) (a)	tons	30,190	39,319	29,635
Concentrates produced	tons	862	1,047	678
Gross value of bullion, ore, concentrates and residues sold	$	(d) 422,860	152,475	325,846
Cost of freight	$	3,138	1,704	759
Smelter charges	$	12,330	8,231	9,960
Cost of fuel and purchased electricity used	$	48,323	49,553	58,712
Cost of process supplies used	$	35,809	10,479	48,932
Net value of sales	$	323,260	82,508	207,483

(*) All mines located in northern Ontario and includes properties on which the operations consisted only in salvaging of ore from dumps, etc.

(a) Does not include crude ore shipped.

(b) Partly estimated as data unobtainable from some small shippers.

(c) Complete data not available.

(d) Includes value of ore consigned to the United States Government stock pile at Deloro, Ontario.

Table 80.—Mine and Mill Shipments of Canadian Silver-Cobalt Ores and Concentrates, 1945 and 1946

—	Gross Weight	Metal Content			
		Silver	Cobalt	Nickel	Copper
	tons	oz.	lb.	lb.	lb.
1945					
To Canadian smelters and to Government stock pile at Deloro, Ontario	245	223,784	30,383	19,260	6,293
To foreign plants	430	.....	109,123	56,138	.....
Total	**675**	**223,784**	**139,596**	**75,398**	**6,293**
1946					
To Canadian smelters and to Government stock pile at Deloro, Ontario	130	288,877	.....	.....	1,798
To foreign plants	342	32,884	74,286	30,601	.....
Total	**472**	**321,761**	**74,286**	**30,601**	**1,798**

Table 81.—Employees, Salaries and Wages in the Silver-Cobalt Mining Industry, 1939-1946

Year	On salaries		On wages		Total employees	Salaries	Wages	Total salaries and wages
	Male	Female	Male	Female				
	Number	Number	Number	Number	Number	$	$	$
1939	41	4	278	.....	**323**	75,730	336,998	**412,728**
1940	17	1	105	.....	**123**	40,970	117,054	**158,024**
1941	22	3	157	.....	**182**	60,914	169,070	**229,984**
1942	24	3	165	.....	**192**	63,722	220,258	**283,980**
1943	34	6	180	1	**221**	56,570	234,084	**290,654**
1944	20	4	140	1	**165**	43,960	216,615	**260,575**
1945	14	5	146	1	**166**	42,267	204,936	**247,203**
1946	20	3	223	1	**247**	59,085	344,927	**404,012**

Table 82.—Number of Workmen on Payroll or Time Record at End of Month in the Silver-Cobalt Mining Industry, 1945-1946

Month	1945					1946					
	Mine			Mill	Total	Mine			Mill		Total
	Surface		Underground			Surface		Underground			
	Male	Female	Male	Male		Male	Female	Male	Male	Female	
January	36	1	107	26	170	56	.....	82	14	2	154
February	31	1	88	23	143	52	.....	87	14	2	155
March	31	1	90	19	141	68	.....	95	14	2	179
April	29	1	82	22	134	85	.....	95	18	2	200
May	35	1	84	14	134	101	.....	95	29	1	226
June	49	1	71	11	132	99	.....	96	33	2	229
July	51	1	77	11	140	107	.....	115	35	1	259
August	63	1	72	11	147	121	.....	109	35	1	266
September	65	1	71	11	148	127	.....	115	41	1	284
October	77	1	63	12	153	131	.....	108	39	1	279
November	71	1	78	12	162	136	.....	90	36	1	263
December	60	1	79	13	153	124	.....	67	20	1	212
Average	50	1	81	15	147	112	.....	84	27	1	224

COBALT

Output of Canadian cobalt comes entirely from cobalt-bearing deposits located in northern Ontario and usually includes the cobalt recovered and sold in the Metallic state, the cobalt content of oxides and salts sold and the metal content of cobaltiferous ores exported. No cobalt metal, oxides or salts have been produced in Canada from Canadian ores since 1942 and the 73,900 pounds valued at $70,215 credited as Canadian cobalt production during the year under review, represents the metal content of Canadian ores exported. Included in these exports is the cobalt content of ores and concentrates reshipped from the stock pile of the Metals Reserve Company, located at Deloro, Ontario. Ores placed on this stock pile are not credited as commercial production until reshipped from Deloro.

Deloro Smelting and Refining Company, Limited, has the only plant in Canada that treats ores for the recovery of cobalt. The plant is located at Deloro, Ontario, and produces cobalt metal, oxides, and salts, chiefly for the British market. For the past three years the company has been treating cobalt residues from Africa and has processed little or no Canadian ores. The Canadian production of cobalt ore from 1942 to 1944 was largely purchased by Deloro Smelting and Refining Company as agent for the Department of Munitions and Supply, acting for Metals Reserve Company of the United States, and was stockpiled for this account. The purchase of these ores for the Metals Reserve Company was discontinued February 22, 1944.

The Bureau of Mines, Ottawa, reported recently that about 75 per cent of the world production of cobalt is used in the metallurgical industry and most of the remainder in the ceramic industry. The metallurgical uses are for high-speed cutting steels; for making stellite or stellite-type alloys, which contain 45 to 50 per cent cobalt, 30 to 37 per cent chromium, and 12 to 17 per cent tungsten. There are various modifications of this composition, but all contain high percentages of cobalt. Stellite is used for cutting metals at high speed and for making permanent magnets, also in the manufacture of valves for aeroplane engines. Small quantities of cobalt used with other chemicals in nickel-plating solutions are said to produce a bright nickel electro deposit as an undercoating for later chromium plating. A certain amount of cobalt is used in electro-plating and as a catalyst. Cobalt oxide is used mainly in the ceramic industry owing to its fine colouring properties. Other compounds of cobalt are used as driers in paints and varnishes.

Since 1904, the first year for which cobalt production was recorded in Canada, the output from Canadian ores, to the end of 1946, totalled 34,600,409 pounds of cobalt in all forms, valued at $33,887,158.

Table 83.—Production of Cobalt from Canadian Ores, 1932-1946

Year	Pounds	Year	Pounds
1932	490,631	1940	794,359
1933	466,702	1941	263,257
1934	594,671	1942	(*) 83,871
1935	681,419	1943	(*) 175,961
1936	887,591	1944	(*) 36,283
1937	507,064	1945	109,123
1938	459,226	1946	73,900
1939	732,561		

(*) Exclusive of cobalt in ores placed on the United States Government stock pile at Deloro, Ontario, but includes metal in ores reshipped from this stock pile.

Table 84.—Production of Cobalt from Canadian Ores, Imports and Exports, 1945 and 1946

—	1945		1946	
	Quantity	$	Quantity	$
	pounds		pounds	
PRODUCTION—				
(In terms of metallic cobalt and cobalt in oxides and salts sold and in ores exported)	109,123	90,026	73,900	70,215
IMPORTS—				
Cobalt ore	2,390,000	869,415	1,170,000	451,115
Oxide of cobalt	16,072	22,390	16,250	21,550
EXPORTS—				
Cobalt, contained in ore	65,000	57,119	48,100	41,091
Cobalt, metallic	583,334	954,257	510,526	854,282
Cobalt, alloys	321,047	1,247,249	111,651	345,012
Cobalt oxides and cobalt salts	555,522	975,035	456,088	608,767

Table 85.—World Production of Cobalt, 1939-1945 (from the Annual Report of the American Bureau of Metal Statistics)

Country	1939	1940	1941	1942	1943	1944	1945
	pounds	pounds	pounds	pounds	pounds	pounds	pounds
Canada (a)	732,561	794,359	263,257	83,871	175,961	36,283	109,123
Burma (b)	504,000	480,000	160,000	Not available			
Northern Rhodesia (c)	3,487,456	Not available					
Belgian Congo (c)	2,070,000	5,326,000	5,040,000	3,648,000	4,544,000	4,138,000	7,500,000
French Morocco	1,610,000	804,000	174,000	6,600	606,000	626,000	650,000

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

(b) Estimated cobalt content of nickel speiss.

(c) Cobalt content of alloys.

NOTE.—Production in Northern Rhodesia has probably continued at 1939 rate.

ARSENIC

Production of Arsenic (As^2O^3) from Canadian ores during 1946 was 745,885 pounds valued at $38,264, compared with 2,045,730 pounds worth $130,909 in 1945. The major portion of the production had its origin in Quebec where the O'Brien Gold Mines Ltd., recovers crude arsenic which is shipped to the Deloro smelter for refining. Due to a mud slide in the Beattie mines, production of arsenic there was temporarily suspended. The production from Ontario ores originated in the silver-cobalt ores treated at the Deloro plant. The auriferous quartz ores exported to the United States from British Columbia mines contain considerable amounts of arsenic but no data are available on the possible recovery of this arsenic and since the Canadian gold mines receive no payment for the arsenic content, it is not credited as commercial production.

Table 86.—Production in Canada, Imports and Exports of Arsenic, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	pounds	$	pounds	$
PRODUCTION—				
White arsenic	2,045,730	130,909	745,885	38,264
IMPORTS—				
Arsenic	5,013,269	185,133	3,867,606	149,111
White arsenic (arsenious oxide)	.....	.....	500	140
Soda, arseniate of, binarseniate	47,250	16,980	82,668	15,920
Arsenate of lime	31,398	2,453	60,056	4,292
Total	.....	**204,566**	.....	**169,463**
Exports—Arsenic (*) Total	**6,070,100**	**282,718**	**1,718,300**	**74,253**

(*) Includes arsenic content in gold ores exported from British Columbia.

Table 87.—Production in Canada, Imports and Exports of Arsenic, 1942-1946

Year	Production (*)	Imports	Exports	
			Refined	Crude
	pounds	pounds	pounds	pounds
1942	7,853,123	2,082	2,204,889	5,844,611
1943	3,153,538	400	2,358,400	199,358
1944	2,627,022	2,405	2,016,000	.....
1945	2,045,730	.....	1,519,697	.....
1946	745,885	.....	418,000	.....

(*) Crude and refined.

Table 88.—Consumption of Refined Arsenic in Canada, 1943-1946

—	1943	1944	1945	1946
	pounds	pounds	pounds	pounds
Glass	135,399	193,530	303,246	336,501
Insecticides (*)	333,178	131,978	340,000	55,808
White metals	60,959	60,902	62,000	60,110
Miscellaneous	7,662	7,800	8,000	14,800
Total Accounted For	**537,198**	**394,210**	**713,246**	**467,219**

(*) Does not include arsenic acid (As_2O_5) imported for use in making insecticides, as follows:

1943	4,594,034 lb.	1945	5,667,053 lb.
1944	4,565,142 lb.	1946	3,867,606 lb.

(b) The Silver-Lead-Zinc Mining Industry

In 1946 the silver-lead-zinc Mining industry in Canada reported 33 operators or firms engaged in the mining, exploration or development of silver-lead-zinc deposits. Employees numbered 2,451 and salaries and wages paid amounted to $5,987,111. The cost of explosives and other process supplies consumed totalled $2,636,735 and fuel and electricity used was recorded at $780,136. The gross value of production, as reported by the entire industry, totalled $48,342,501. After deducting fuel, electricity, supplies, freight and treatment charges, the net value was $39,262,606.

Table 89.—Principal Statistics of the Silver-Lead-Zinc Mining Industry in Canada, 1937-1946

Year	Number of active operators	Number of operating plants or mines	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Value of ores and concentrates sold (b)
	(a)	(a)	$		$	$	$
1937	128	130	29,637,739	2,220	3,914,643	845,898	22,740,582
1938	107	108	30,386,714	1,640	3,027,915	702,571	18,483,945
1939	82	83	23,664,620	1,646	2,803,057	667,661	13,555,609
1940	82	83	19,969,198	1,585	3,052,532	468,157	16,439,530
1941	63	64	17,717,334	1,666	3,452,199	610,168	20,653,212
1942	44	44	19,484,442	2,185	4,730,370	791,772	23,504,642
1943	31	32	20,603,191	3,097	6,423,724	986,519	21,932,644
1944	20	20	(c)	2,769	5,810,290	860,231	16,802,759
1945	19	19	(c)	2,485	5,473,582	816,972	24,858,013
1946—							
Quebec	12	10	(c)	597	1,215,867	194,599	3,687,769
British Columbia	21	21	(c)	1,854	4,771,244	585,537	41,237,861
Yukon	.....	.....	(c)	.....	.....	.....	.....
Total	**33**	**31**	**(c)**	**2,451**	**5,987,111**	**780,136**	**44,925,630**

(a) Usually includes a number of small shippers from whom no particulars were received relating to wages, etc.
(b) The value of fuel, purchased electricity and process supplies have been deducted.
(c) Data not recorded since 1943.

Table 90.—Ore Mined and Milled in the Silver-Lead-Zinc Mining Industry in Canada, 1945 and 1946

—		Yukon and Northwest Territories	British Columbia	Quebec	Canada
1945—Ore mined	ton	93	2,605,238	481,352	3,086,683
Ore milled	ton	.....	2,603,703	480,822	3,084,525
Concentrates produced—Lead	ton	2	231,043	9,037	240,082
Zinc	ton	.....	304,242	49,895	354,137
Pitchblende-silver	ton	.....	.....	.....	(*)
Gold precipitate	ton	.....	.....	13	13
1946—Ore mined	ton	.....	2,382,412	423,246	2,805,658
Ore milled	ton	.....	2,379,609	423,786	2,803,395
Concentrates produced—Lead	ton	.....	233,630	7,708	241,338
Zinc	ton	.....	278,784	42,081	320,865
Pitchblende-silver	ton	.....	.....	.....	(*)
Gold precipitate	ton	.....	.....	16	16

(*) Data not available for publication.

Table 91.—Destination of Shipments from Silver-Lead-Zinc Mines of Canada, 1945 and 1946

—	Tons shipped	Gross value at shipping point	Total metal content as determined by settlement assay			
			Gold	Silver	Lead	Zinc
		$	fine oz.	fine oz.	pounds	pounds
1945						
To Canadian smelters—						
Lead ore	1,113	91,797	51	202,394	99,539	1,737
Lead concentrates	228,009	13,229,040	.....	4,519,559	316,116,514	22,778,061
Zinc concentrates (*)	281,032	8,452,888	.....	585,376	28,848,207	272,777,802
Dry ore	311	15,817	98	29,959	2,178	.....
Total	**510,465**	**21,789,542**	**149**	**5,337,288**	**345,066,438**	**295,557,600**
To Foreign smelters—						
Lead ore	221	41,618	4	41,319	188,420	1,958
Lead concentrates	12,073	1,051,115	2,602	756,797	12,289,803	87,541
Zinc concentrates (*)	73,105	3,593,571	.....	80,983	8,987	81,738,255
Gold precipitate	13	625,618	11,690	270,838	.....	.....
Total	**85,412**	**5,311,922**	**14,296**	**1,149,937**	**12,487,210**	**81,827,754**
Grand Total (Gross)	.....	**27,101,464**	.....	.....	.....	.....
Cost of freight	.....	1,255,218	.....	.....	.....	.....
Cost of fuel and purchased electricity	.....	816,972	.....	.....	.....	.....
Smelter charges	.....	735,592	.....	.....	.....	.....
Cost of process supplies	.....	1,426,479	.....	.....	.....	.....
Net Value	.....	**22,867,203**	.....	.....	.....	.....
1946						
To Canadian smelters—						
Lead ore	2,539	354,879	139	427,162	308,346	257,022
Lead concentrates	232,242	25,067,780	.....	4,894,027	323,499,207	22,387,002
Zinc concentrates (*)	275,623	17,925,145	.....	551,866	26,380,871	267,970,154
Dry ore	29	8,533	.....	9,924	.....	.....
Total	**510,433**	**43,356,337**	**139**	**5,882,979**	**350,194,424**	**290,614,178**
To Foreign smelters—						
Lead concentrates	9,096	1,530,761	2,343	719,530	9,624,349	.....
Zinc concentrates (*)	45,242	2,867,858	.....	6,428	.....	50,738,171
Gold precipitates	16	587,545	7,872	359,800	.....	.....
Total	**54,354**	**4,986,164**	**10,215**	**1,085,758**	**9,624,349**	**50,738,171**
Grand Total (Gross)	**564,787**	**48,342,501**	**10,354**	**6,968,737**	**359,818,773**	**341,352,349**
Cost of freight	.....	1,561,558	.....	.....	.....	.....
Cost of fuel and purchased electricity	.....	780,136	.....	.....	.....	.....
Smelter charges	.....	4,101,466	.....	.....	.....	.....
Cost of process supplies	.....	2,636,735	.....	.....	.....	.....
Net Value	.....	**39,262,606**	.....	.....	.....	.....

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

NOTE.—In addition to the metals contained in shipments listed in Table 91, there are considerable quantities of lead and silver contained in ores shipped from certain gold mines in British Columbia. Cadmium, bismuth, antimony, tin and sulphur are also recovered from these ores [illegible] and zinc.

Table 92.—Employees, Salaries and Wages in the Silver-Lead-Zinc Mining Industry, 1939-1946

Year	On salaries		On wages		Total employees	Salaries	Wages	Total salaries and wages
	Male	Female	Male	Female				
	Number	Number	Number	Number	Number	$	$	$
1939	242	29	1,375	.....	**1,646**	466,721	2,336,336	**2,803,057**
1940	224	20	1,341	.....	**1,585**	519,705	2,532,827	**3,052,532**
1941	217	22	1,427	.....	**1,666**	526,818	2,925,381	**3,452,199**
1942	281	27	1,877	.....	**2,185**	711,770	4,018,600	**4,730,370**
1943	359	48	2,646	44	**3,097**	940,099	5,483,625	**6,423,724**
1944	318	56	2,336	59	**2,769**	920,827	4,889,463	**5,810,290**
1945	309	57	2,068	51	**2,485**	935,838	4,537,744	**5,473,582**
1946	336	63	2,030	22	**2,451**	1,047,121	4,939,990	**5,987,111**

Table 93.—Number of Workmen, by Months, in the Silver-Lead-Zinc Mining Industry 1945 and 1946

Month	1945 Total	1946					
		Mine			Mill		Total
		Surface		Underground			
		Male	Female	Male	Male	Female	
January	2,352	390	18	1,118	383	.....	1,909
February	2,343	412	18	1,112	386	.....	1,928
March	2,304	409	17	1,079	388	.....	1,893
April	2,091	420	16	1,117	406	.....	1,959
May	2,101	477	16	1,143	426	.....	2,062
June	2,067	538	15	1,224	421	.....	2,198
July	2,053	514	16	1,164	391	4	2,089
August	1,977	556	16	1,102	370	.....	2,044
September	1,939	512	16	1,097	367	.....	1,992
October	2,066	500	21	1,176	373	.....	2,070
November	2,122	528	21	1,292	378	.....	2,219
December	2,056	494	20	1,296	384	.....	2,194
Average	**2,119**	**480**	**21**	**1,160**	**390**	**1**	**2,059**

Table 94.—Drilling Completed on Silver-Lead-Zinc Deposits in Canada, 1945 and 1946

—	Footage drilled	
	1945	1946
Diamond drilling for exploration and testing—		
By mining companies with their own personnel and equipment	4,100	5,149
By diamond drilling contractors	53,360	74,288
Other diamond drilling—Blast hole diamond drilling—		
By mining companies with their own personnel and equipment	.....	381,434
By diamond drilling contractors	272,508	6,537
Drilling by percussion or other machines	(*) 1,538,711	468,959

(*) Not complete as records are unobtainable at certain mines.

Table 95.—Taxes Paid in 1945 and 1946 by Silver-Lead-Zinc, Nickel-Copper and Copper-Gold-Silver Mining and Smelting Companies

Tax Paid	1945	1946
	$	$
Dominion income tax	9,782,110	4,132,029
Dominion excess profits tax	14,544,969	7,485,000
Provincial tax	2,893,782	850,610
Municipal tax	719,178	295,535

SILVER

Production of fine new silver from all types of Canadian ores totalled 12,544,100 troy ounces valued at $10,493,139 in 1946 compared with 12,942,906 troy ounces worth $6,083,166 in 1945. The average estimated price of the fine metal in Canadian funds was 83·65 cents per troy ounce in 1946 as against 47 cents in 1945. Of the total Canadian production in 1946 the British Columbia mines contributed 6,078,419 ounces, Ontario 2,485,215 ounces, Quebec, 1,916,453 ounces, Saskatchewan, 1,498,496 ounces, Manitoba, 528,017 ounces and smaller amounts from Yukon, Northwest Territories and Nova Scotia. Production of silver in Canada since 1887, the first year for which data are available, to the end of 1946, totalled 906,405,934 ounces, valued at $511,142,131.

Table 96.—Production of Silver (in All Forms) from All Ores in Canada for Years Specified, 1887-1946

Year	Ounces	Cents per ounce	Year	Ounces	Cents per ounce
1887	355,083	98·00	1932	18,347,907	31·67
1891	414,523	98·00	1933	15,187,950	37·83
1896	3,205,343	67·06	1934	16,415,282	47·46
1901	5,539,192	58·95	1935	16,618,558	64·79
1906	8,473,379	66·79	1936	18,334,487	45·13
1910 (*)	32,869,264	53·49	1937	22,977,751	44·88
1911	32,559,044	53·30	1938	22,219,195	43·48
1916	25,459,741	65·66	1939	23,163,629	40·49
1919	16,020,657	(†) 111·122	1940	23,833,752	38·25
1920	13,330,357	100·90	1941	21,754,408	38·26
1925	20,228,988	60·06	1942	20,695,101	42·17
1927	22,736,698	56·37	1943	17,344,569	45·25
1929	23,143,261	52·99	1944	13,627,109	43·0
1930	26,443,823	38·15	1945	12,942,906	47·0
1931	20,502,247	29·87	1946	12,544,100	83·65

(*) Year of maximum output.
(†) Highest price per ounce recorded since 1887.

Table 97.—Production of Silver (All Forms) in Canada, by Months, 1945 and 1946

Month	1945	1946
	ounces	ounces
January	1,032,679	1,172,602
February	964,449	1,013,668
March	1,214,945	1,028,797
April	1,067,862	1,135,744
May	1,213,710	1,011,263
June	1,113,656	1,142,305
July	963,561	1,233,310
August	1,069,038	1,155,447
September	975,250	929,005
October	1,049,562	906,467
November	1,110,380	820,218
December	1,167,814	995,274
Total	**12,942,906**	**12,544,100**

Table 98.—Production of Silver Bullion in Canada, 1942-1946 (Fine Ounces)

1942	17,390,000	1945	10,890,000
1943	15,870,000	1946	10,774,000
1944	12,020,000		

Table 99.—Silver Production in Canada According to Nature of Ores, by Provinces, 1946

Province	Crude placer gold	Auriferous quartz ores	Copper-gold-silver ores	Nickel-copper ores	Silver-lead-zinc ores	Silver-cobalt and other ores	**Total**
	ounces	ounces	ounces	ounces	ounces	ounces	ounces
Nova Scotia		146					**146**
Quebec		95,944	806,597		1,013,912		**1,916,453**
Ontario		850,991		1,205,664		428,560	**2,485,215**
Manitoba		6,621	521,396				**528,017**
Saskatchewan			1,498,496				**1,498,496**
Alberta	12						**12**
British Columbia	2,372	58,402	99,414		(†) 5,918,231		**6,078,419**
Northwest Territories		6,112					**6,112**
Yukon	9,416				21,814		**31,230**
Canada	**11,800**	**1,018,216**	**2,925,903**	**1,205,664**	**6,953,957**	**428,560**	**12,544,100**

(†) Contains a relatively small quantity recovered from gold ores.

Table 100.—Production of Silver in Canada, by Provinces, and Method of Computation 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	ounces	$	ounces	$
NOVA SCOTIA—				
In gold bullion	112	53	146	122
QUEBEC—				
In anode copper	1,149,089	540,072	806,597	674,718
In gold bullion made and in concentrates exported	1,000,481	470,226	1,109,856	928,395
Total	2,149,570	1,010,298	1,916,453	1,603,113
ONTARIO—				
In silver recovered in Canada from cobalt ores	476,335	223,877	383,428	320,737
In gold bullion	288,204	135,450	340,300	284,661
In blister copper	1,627,984	765,152	1,153,108	964,575
In ores, concentrates, residues, matte, etc., exported	792,846	372,638	608,379	508,909
Total	3,185,369	1,497,123	2,485,215	2,078,882
MANITOBA—				
In blister copper	527,847	248,088	521,396	436,148
In gold bullion (gold mines) and ores exported	6,036	2,837	6,621	5,538
Total	533,883	250,925	528,017	441,686
SASKATCHEWAN—				
In blister copper	1,426,457	670,435	1,498,496	1,253,492
In gold bullion and in crude alluvial gold	.....	.....	.....	.....
Total	1,426,457	670,435	1,498,496	1,253,492
ALBERTA—				
In alluvial gold	1	.....	12	10
BRITISH COLUMBIA—				
In alluvial gold	2,266	1,065	2,372	1,984
In gold bullion	18,628	8,755	13,918	11,642
In base bullion and in ores, etc., exported	5,599,429	2,631,732	6,062,129	5,070,971
Total	5,620,323	2,641,552	6,078,419	5,084,597
YUKON—				
In alluvial gold	6,282	2,952	9,416	7,876
In silver-lead ores exported	18,876	8,872	21,814	18,748
Total	25,158	11,824	31,230	26,124
NORTHWEST TERRITORIES—				
In pitchblende-silver ores shipped to smelters (*) and in gold bullion	2,033	956	6,112	5,113
Canada—Total	**12,942,906**	**6,083,166**	**12,541,100**	**10,493,139**

(*) Complete data relating to recovery of silver from pitchblende ores are not available since 1942.

NOTE.—For 1946 silver was valued at 83·6 cents per fine ounce, the average price of domestic sales and sales on the New York market adjusted and expressed in Canadian funds; for 1945, the corresponding price was 47 cents.

Table 101.—Source of Silver Production in Canada by Percentages, 1942-1946

Source	1942	1943	1944	1945	1946
In silver-cobalt ores	4·13	0·81	5·05	3·68	3·05
In base bullion (a)	46·16	45·58	35·52	39·51	46·72
In gold ores (bullion and placer)	3·71	3·07	3·21	3·38	3·79
In blister and anode copper (b)	34·28	37·28	39·07	36·56	31·72
In matte, copper ores and silver-lead ores, etc., exported (other than silver-cobalt ores)	11·72	13·26	17·15	16·87	14·72
	100·0	100·0	100·0	100·0	100·0

(a) Chiefly from silver-lead ores.

(b) Made from copper-gold-silver and nickel-copper ores.

Table 102.—Estimated Consumption of Fine Silver in Canada for Industrial Purposes, 1937-1946

—	In anodes for plating	In making sterling silver and other silver alloys (except lead-silver alloys)	In making silver nitrate	In lead-silver alloys	Miscellaneous	Total
	ounces	ounces	ounces	ounces	ounces	ounces
1937	600,000	450,000	690,000		150,000	**1,890,000**
1938	580,000	660,000	750,000	Not	150,000	**2,140,000**
1939	750,000	470,000	615,000		250,000	**2,085,000**
1940	600,000	600,000	665,000	available	200,000	**2,065,000**
1941	720,000	1,200,000	790,000		250,000	**2,960,000**
1942	800,000	1,600,000	840,000	240,000	250,000	**3,730,000**
1943	800,000	1,620,000	890,000	350,000	300,000	**3,960,000**
1944	900,000	2,650,000	890,000	180,000	360,000	**4,980,000**
1945	960,000	3,740,000	1,040,000	130,000	410,000	**6,280,000**
1946	1,310,000	3,490,000	937,000	40,000	404,000	**6,181,000**

NOTE.—Amounts used for coinage not included in above figures.

Table 103.—Imports into Canada and Exports of Silver and Silver Products, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	ounces	$	ounces	$
IMPORTS—				
Silver, unmanufactured	1,796	1,407	1,927,922	1,586,092
Silver, manufactures of, n.o.p.	.....	57,423	.....	484,757
Toilet articles of which the most important component, in value, is sterling silver	.....	4,427	.....	23,841
Total	.....	**63,357**	.....	**2,094,690**
EXPORTS—				
Silver contained in ore, concentrates, etc.	2,232,405	1,153,196	1,863,817	1,429,083
Silver bullion (Canadian)	2,723,698	1,443,814	2,316,689	2,061,338
Silver manufactures	.....	284,639	.....	691,812
Total	.....	**2,881,649**	.....	**4,182,233**

Table 104.—Silver Production of the World (American Bureau of Metal Statistics)—Fine Troy Ounces

—	1940	1945	1946
NORTH AMERICA—			
United States (including Philippine Islands)	67,013,000	29,332,000	21,677,000
Canada	23,833,752	12,778,000	12,870,000
Mexico	82,638,167	60,000,000	48,297,659
Newfoundland	1,494,077	1,076,000	1,107,827
Total North America	**174,978,996**	**103,186,000**	**83,952,486**
CENTRAL AMERICA AND WEST INDIES	4,600,000	3,600,000	3,600,000
SOUTH AMERICA—			
Argentina	2,873,000	2,760,300	3,090,000
Bolivia	5,626,250	6,687,200	6,400,000
Chile	1,506,314	825,419	532,722
Colombia	260,310	168,699	146,000
Ecuador	105,000	314,000	270,000
Peru	19,366,251	15,000,000	14,467,500
Other South America	50,000	50,000	50,000
Total South America	**29,787,425**	**25,805,318**	**24,956,222**
EUROPE—			
Czechoslovakia	870,000	(*)	(*)
France	393,870	(*)	(*)
Great Britain	81,496	26,808	25,000
Norway	302,210	131,815	215,400
Romania	500,204	189,689	(*)
Spain	1,050,341	497,800	600,000
Sweden	1,115,316	1,135,152	1,000,000
Australia	15,412,581	8,076,740	7,000,000
New Guinea	199,084	.....	.....
New Zealand	415,330	244,544	250,000
ASIA—			
India and Burma	6,080,000	(*)	(*)
Netherlands Indies	1,499,544	(*)	(*)
Turkey	575,000	(*)	(*)
AFRICA—			
Algeria	47,614	(*)	(*)
Rhodesia	266,216	96,000	95,168
Transvaal, Cape Colony and Natal	1,292,284	1,236,190	1,203,978
Belgian Congo	2,256,930	2,500,000	2,000,000
French Morocco	294,108	(*)	(*)
Southwest Africa	381,500	.....	.....
Tunis	41,056	(*)	(*)

(*) Not available.

NOTE.—World totals are not shown, as production from Russia, Siberia, Japan, Korea and some other countries is not known.

LEAD

Output of new lead totalled 353,973,776 pounds in 1946 compared with 346,994,472 pounds in 1945, these figures representing the lead in base bullion produced in Canada plus the lead content in ores exported. The production of new refined lead was 331,488,000 pounds in 1946 and 326,206,000 pounds in 1945.

Lead production in Canada comes from the silver-lead-zinc mines in British Columbia and from the zinc-lead mines in Quebec and Ontario. The Sullivan mine at Kimberley, British Columbia, operated by the Consolidated Mining and Smelting Company of Canada, is the principal source of production. Concentrates from the mine are treated in the Company's smelter at Trail, British Columbia. All concentrates produced in eastern Canada are exported for further treatment.

The Consolidated Mining & Smelting Company of Canada Ltd., Trail, British Columbia, is the only producer of new refined lead.

Table 105.—Production* of New Lead in Canada, 1932-1946

Year	Tons	$	Average price per pound (Canadian funds)
			cents
1932	127,974	5,409,704	2·114
1933	133,238	6,372,998	2·392
1934	173,138	8,436,658	2·436
1935	169,553	10,624,772	3·133
1936	191,590	14,993,869	3·913
1937	206,000	21,053,173	5·110
1938	209,464	14,008,941	3·344
1939	194,285	12,313,768	3·169
1940	235,925	15,863,605	3·362
1941	230,084	15,470,815	3·362
1942	256,071	17,218,233	3·362
1943	222,030	16,670,041	3·754
1944	152,291	13,706,199	4·500
1945	173,497	17,349,723	5·00
1946	176,987	23,893,230	6·75

(*) Primary lead in base bullion produced plus lead in ores exported.

Table 106.—Production of Lead in Canada, by Months, 1946 and 1947

Month	Lead (All Forms)		Refined Lead	
	1946	1947(*)	1946	1947(*)
	tons	tons	tons	tons
January	16,869	12,576	15,827	13,385
February	15,090	12,636	13,447	13,252
March	15,491	14,425	15,139	14,857
April	15,282	12,925	14,708	14,014
May	14,879	12,836	15,362	14,837
June	15,313	14,348	14,627	14,470
July	15,676	14,052	12,820	12,470
August	14,901	13,612	13,126	9,140
September	14,380	13,261	12,490	13,899
October	14,728	12,787	12,700	14,139
November	11,229	14,651	12,416	13,726
December	13,149	10,943	13,082	13,806
Total	**176,987**	**159,052**	**165,744**	**162,000**

(*) Subject to revision.

Table 107.—Production of New Refined Lead in Canada, 1932-1946

Year	Tons	Year	Tons
1932	126,568	1940	220,088
1933	127,283	1941	228,027
1934	157,229	1942	243,306
1935	163,758	1943	223,871
1936	181,725	1944	242,581
1937	199,697	1945	163,103
1938	200,382	1946	165,744
1939	190,569		

Table 108.—Production in Canada, Imports and Exports of Lead, 1945 and 1946

	1945		1946	
	Pounds	Value	Pounds	Value
		$		$
PRODUCTION—				
Quebec	9,229,726	461,486	7,359,708	496,780
Ontario	668,762	33,438	699,244	47,199
British Columbia	336,976,468	16,848,823	345,862,680	23,345,731
Yukon	119,516	5,976	52,144	3,520
Total	**346,994,472**	**17,349,723**	**353,973,776**	**23,893,230**
IMPORTS—				
Pig and block	17,117	3,325	12,580	2,349
Old and scrap	36,871	1,045	66,835	1,593
Bars and sheets	29,586	3,927	16,057	2,279
Litharge for storage batteries	3,526,100	315,553	2,357,100	239,617
Acetate of lead	134,521	14,428	120,280	15,200
Nitrate of lead	146,362	15,244	277,907	34,818
Other manufactures	.....	326,102	.....	138,592
Shots and bullets	1,393	298	4,225	734
Lead tetraethyl, compounds of	12,030,857	4,056,553	12,671,041	4,075,721
Lead capsules for bottles	.....	126	.....	457
Lead pigments—				
Dry white lead	128,080	11,757	97,065	10,745
White lead, ground in oil	2,112	150	850	132
Dry red lead and orange mineral	64,289	7,497	69,977	8,946
Total	.....	**4,756,005**	.....	**4,531,183**
EXPORTS—				
Lead, contained in ore	15,668,200	573,690	12,013,700	736,933
Pig lead	214,583,600	8,603,049	208,218,100	15,977,709
White lead	785,800	82,215	819,800	93,718
Lead, manufactures	.....	.....	.....	130,877
Total	.....	**9,258,954**	.....	**16,939,237**

Table 109.—Production, Imports, Exports and Domestic Consumption of Refined Ledar 1937-1946

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks (*) at end of period
	(Tons of 2,000 pounds)				
1937	199,697	24,976	176,570	33	Not available
1938	200,381	25,791	154,932	28	
1939	190,568	27,095	180,736	6	
1940	220,087	37,621	151,546	121	62,653
1941	228,027	58,403	184,289	148	42,371
1942	243,306	58,203	210,782	9	32,975
1943	223,871	53,090	154,473	10	34,131
1944	142,581	51,671	102,879	10	26,325
1945	162,537	62,263	107,291	8	19,900
1946	176,987	62,784	102,000	6	21,230

(*) Producers' and consumers'.

Table 110.—Consumption of Refined Lead in Canada by Principal End Uses, 1945 and 1946

Uses	1945	1946
	tons	tons
Solders and alloys	14,611	18,329
White lead, red lead and litharge	10,821	11,965
Storage batteries	18,275	17,472
Foil and collapsible tubes	3,324	1,708
Ammunition	2,634	686
Iron and steel	1,292	1,137
Cable covering	5,994	9,267
Miscellaneous	5,312	2,220
Total	**62,263**	**62,784**

Table 111.—Lead Production of the World on Mine Basis, 1940, 1945 and 1946 (From the Annual Report of the American Bureau of Metal Statistics)

—	1940	1945	1946
	(Tons of 2,000 pounds)		
United States	457,392	390,831	332,478
Canada	235,925	173,497	178,726
Newfoundland	26,235	27,900	27,793
Mexico	216,330	225,875	186,592
Total North America	**935,882**	**818,103**	**725,589**
Argentina	32,738	20,200	20,000
Bolivia	12,855	19,481	9,300
Peru	55,599	59,154	46,000
Total South America	**101,192**	**89,835**	**75,300**
Czechoslovakia	3,400	(a)	(a)
France	2,695	8,297	12,[illegible]
Germany	101,266	(a)	(a)
Great Britain	14,771	3,209	2,[illegible]
Greece	.....	.....	520
Italy	48,900	2,778	14,964
Poland	(c)	6,600	9,865
Romania	(a)	(a)	1,400
Spain	30,000	28,853	42,[illegible]
Sweden	11,049	22,153	(d)
Yugoslavia	75,838	(a)	(a)
Burma	88,967	.....	.....
China, including Hong Kong	5,512	(b)	(b)
Turkey	900	.....	.....
Australia	314,491	180,179	185,[illegible]
Algeria	2,600	1,058	950
French Morocco	25,519	11,800	2,700
French Equatorial Africa	.....	3,200	(a)
Tunis	13,536	11,000	2,[illegible]00
Rhodesia	321	1,926	2,[illegible]

(a) Unknown.
(b) Unknown, but probably small.
(c) Included with Germany.
(d) Unknown; smelters' production was [illegible],[illegible]0 tons in 1945 and 9,500 tons in 1946, probably accounting for the major part of the domestic mine production.
NOTE.—Omitted are Russia, Japan, Manchuria and Korea.

ZINC

Production of primary zinc in all forms totalled 470,520,360 pounds in 1946, a decline of 9 per cent from the 1945 total of 517,213,604 pounds. Over 50 per cent of the output in 1946 came from the Sullivan mine of the Consolidated Mining and Smelting Company of Canada Limited, near Kimberley, British Columbia. Several mines in British Columbia exported zinc in concentrates and many shipped the ores to the Trail smelter. The zinc recovered at the

Hudson Bay Mining and Smelting Company's refinery originated in the copper-gold-silver ores at Flin Flon and Sherritt-Gordon. Zinc concentrates from the mines of Ontario and Quebec were exported. Producers in Quebec include, Waite Amulet and Normetal which have copper-gold-silver ores, also Golden-Manitou and New Calumet whose ores are classified as lead-zinc.

Output of new refined zinc totalled 185,683 tons in 1946 as compared with 183,317 tons in 1945.

Table 112.—Production (b) of Zinc from all Types of Canadian Ores, 1932-1946

Year	Tons	$	Average price per pound (Canadian funds)
			cents
1932	86,142	4,144,454	2·41
1933	99,566	6,393,132	3·21
1934	149,290	9,087,571	3·04
1935	160,325	9,936,908	3·10
1936	166,591	11,045,007	3·31
1937	185,169	18,153,949	4·90
1938	190,753	11,723,698	3·07
1939	197,267	12,108,244	3·07
1940	212,014	14,463,624	3·411
1941	156,191	17,477,337	3·411
1942	290,129	19,792,579	3·411
1943 (a)	305,377	24,430,174	4·00
1944	225,412	23,685,405	4·30
1945	258,607	33,308,556	6·44
1946	235,310	36,755,450	7·81

(a) Year of maximum Canadian zinc production.
(b) Comprises refined zinc made in Canada plus zinc in ores, etc., exported.

The total value of Canadian zinc production since the first recording of Canadian zinc statistics in 1898, and inclusive of 1943 totalled $350,597,787.

Table 113.—Production of Zinc in Canada, by Months, 1945 and 1946

	Primary Zinc in All Forms		Refined Zinc	
	1945	1946	1945	1946
	tons	tons	tons	tons
January	24,674	20,700	16,789	15,068
February	22,189	19,733	15,330	14,340
March	23,773	21,306	15,841	15,804
April	21,624	20,630	14,402	15,935
May	22,641	20,288	15,940	16,305
June	21,665	19,473	15,202	15,779
July	22,527	19,617	15,657	15,965
August	20,695	19,424	15,089	15,973
September	19,168	19,127	14,720	14,970
October	19,368	18,268	14,863	15,002
November	20,240	18,357	15,010	15,014
December	20,043	18,387	14,474	15,528
Total	**258,607**	**235,310**	**183,317**	**185,683**

Table 114.—Refined New Zinc Produced in Canada, 1937-1946

Year	Average price (*) per pound	Short tons	Year	Average price (*) per pound	Short tons
1937	4·90	158,542	1942	3·411	215,795
1938	3·07	171,932	1943	4·00	206,510
1939	3·07	175,641	1944	4·30	168,518
1940	3·411	185,722	1945	6·44	183,317
1941	3·411	213,608	1946	7·81	185,683

(*) In Canadian funds.

Table 115.—Canadian Zinc Production (Recoverable) According to Nature of Ores, by Provinces, 1942-1946

Year and Province	Recovered from copper-gold-silver ores	Recovered from silver-lead-zinc and other ores	Total
	pounds	pounds	pounds
1942—Quebec	67,064,536	6,876,275	73,940,811
Ontario	.....	4,710,394	4,710,394
Manitoba	29,908,179	.....	29,908,179
Saskatchewan	84,461,520	.....	84,461,520
British Columbia	.....	387,236,469	387,236,469
Total Canada	**181,434,235**	**398,823,138**	**580,257,373**
1943—Quebec	80,401,837	47,767,973	128,169,810
Ontario	.....	3,299,812	3,299,812
Manitoba	46,783,873	.....	46,783,873
Saskatchewan	96,350,404	.....	96,350,404
British Columbia	461,776	335,688,679	336,150,455
Total Canada	**223,997,890**	**386,756,464**	**610,754,354**
1944—Quebec	78,069,636	59,308,803	137,378,439
Ontario	.....	2,429,176	2,429,176
Manitoba	45,822,278	.....	45,822,278
Saskatchewan	87,130,087	.....	87,130,087
British Columbia	1,953,077	276,110,296	278,063,373
Total Canada	**212,975,078**	**337,848,275**	**550,823,353**
1945—Quebec	64,798,734	47,110,831	111,909,565
Ontario	.....	237,799	237,799
Manitoba	34,860,754	.....	34,860,754
Saskatchewan	75,413,851	.....	75,413,851
British Columbia	.....	294,791,635	294,791,635
Total Canada	**175,073,339**	**342,140,265**	**517,213,604**
1946—Quebec	49,881,428	39,768,701	89,650,129
Ontario	.....	42,628	42,628
Manitoba	35,580,537	.....	35,580,537
Saskatchewan	71,077,110	.....	71,077,110
British Columbia	.....	274,269,956	274,269,956
Total Canada	**156,539,075**	**314,081,285**	**470,620,360**

Table 116.—Production in Canada, Imports and Exports of Zinc, 1945 and 1946

—	1945		1946	
	Pounds	Value	Pounds	Value
		$		$
PRODUCTION—				
Quebec	111,909,565	7,206,976	89,650,129	7,001,675
Ontario	237,799	15,314	42,628	3,329
Manitoba	34,860,754	2,245,033	35,580,537	2,778,840
Saskatchewan	75,413,851	4,856,652	71,077,110	5,551,122
British Columbia	294,791,635	18,984,581	274,269,956	21,420,484
Total	**517,213,604**	**33,308,556**	**470,620,360**	**36,755,450**
IMPORTS—				
Zinc dust	45,800	3,872	35,000	3,986
Zinc in blocks, pigs, bars and rods, and zinc plates, n.o.p.	195,400	30,921	30,000	5,512
Zinc in sheets and strips, and zinc plates for marine boilers	3,749,400	488,983	4,300,600	585,010
Zinc slugs for dry batteries	.....	.....	.....	146,272
Zinc white (zinc oxide)	2,336,587	180,261	1,850,764	150,928
Zinc sulphate	825,141	49,854	685,810	26,713
Zinc chloride	270,925	16,532	543,183	29,761
Zinc, manufactures of, n.o.p.	.....	466,842	.....	1,043,212
Lithopone	20,334,132	1,017,275	17,716,626	878,781
Total	.....	**2,254,540**	.....	**2,870,128**
EXPORTS—				
Zinc, manufactures of	.....	132,405	.....	109,721
Zinc, contained in ore	183,559,700	5,540,384	116,400,500	3,181,120
Zinc, scrap, dross and ashes	13,771,900	577,679	7,495,200	303,626
Zinc, spelter	243,920,400	14,122,706	289,792,900	24,174,704
Total	.....	20,373,174	.....	27,769,171

Table 117.—Consumption of Refined Zinc in Canada, by Industries, 1942-1946

Industry	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
In brass foundries	38,494	42,158	28,189	16,520	16,687
In white metal foundries	13,290	8,898	5,229	5,566	5,406
In iron and steel (chiefly galvanizing)	22,762	16,336	19,400	19,000	16,310
In chemicals (zinc oxide, etc.)	8,022	10,344	10,960	12,006	13,566
In electrical apparatus	1,906	1,614	1,747	1,571	2,670
In non-ferrous smelters	181	194	206	200	160
In ammunition	181	917	1,478	600	.....
In miscellaneous industries	55	138	150	200	170
Total	**84,891**	**80,599**	**67,359**	**55,663**	**54,959**

Table 118.—Production in Canada, Imports, Exports and Domestic Consumption of Refined Zinc, 1937-1946

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks (*) at end of period
	(Tons of 2,000 pounds)				
1937	158,542	23,119	134,189	.....	Not available
1938	171,932	18,692	132,212	.....	
1939	175,641	22,981	155,995	.....	
1940	185,722	36,913	167,073	1	10,028
1941	213,608	56,708	141,086	.....	14,903
1942	215,795	84,891	152,159	58	9,080
1943	206,510	80,599	129,315	13	26,100
1944	168,518	67,359	95,985	4	33,220
1945	183,317	55,663	121,969	.....	37,700
1946	185,683	54,969	151,885	.....	23,265

(*) Producers' and consumers' stocks.

Table 119.—World's Production of Zinc Spelter (a) 1940, 1945 and 1946 (American Bureau of Metal Statistics)

Country	1940	1945	1946
	(Tons of 2,000 pounds)		
United States (b)	675,275	764,561	729,407
United States (c)	48,917	49,242	43,900
Mexico	36,817	53,901	53,311
Canada	185,809	183,589	185,692
Total North America	**946,818**	**1,051,293**	**1,012,310**
Belgium	41,654	12,000	89,231
Czechoslovakia	(d)	(f)	(f)
France	45,093	8,889	32,764
Germany (e)	350,090	.....	18,000
Great Britain	66,167	69,483	73,199
Italy	43,362	1,669	17,202
Netherlands	5,566	.....	2,217
Norway	18,992	12,120	34,204
Poland	(d)	39,700	63,529
Spain	13,583	19,082	19,042
Peru	196	1,571	1,446
Australia	81,425	93,826	85,474
French Indo-China	5,900	.....	.....
Rhodesia	14,773	17,067	19,250

(a) The statistics in this table are the summaries of production as made by the metallurgical works in the several countries.

(b) Production from ores, foreign and domestic.

(c) Production from secondary material.

(d) Included with Germany.

(e) Germany includes production of Czechoslovakia and Poland.

(f) Not available.

CHAPTER FOUR

THE NICKEL-COPPER INDUSTRY IN CANADA

Statistics relating to the nickel-copper mining, smelting and refining industry, as shown in this chapter, include those pertaining to the mining of copper-nickel ores, the smelting of these ores in Canada and the production in the Dominion of refined copper, nickel, etc., by the firms constituting this industry.

In addition to production of nickel, copper and the platinum metals, there is an important recovery from these ores of the associated metals—silver, gold, selenium and tellurium; sulphur for the manufacture of sulphuric acid is also salvaged in the gaseous state from waste smelter gases. The total gross value of the various primary products of this industry, considered as a whole, was estimated at $88,444,103 in 1946 compared with $112,780,854 in 1945.

Two companies operated both mines and metallurgical plants in the Sudbury area in 1946. The International Nickel Company of Canada, Limited, conducts smelting operations at Copper Cliff and Coniston, Ontario, while the Falconbridge Nickel Mines, Ltd., smelt their ores at the Falconbridge mine located a few miles east of the town of Sudbury. This last-named company treats its matte in a refinery located at Kristiansand, Norway. Matte produced by the Falconbridge Nickel Mines Ltd. was treated during the war in the Canadian plants of the International Nickel Company of Canada, Limited, but shipments to Norway were resumed in July of 1945.

The relatively small amount of nickel oxide sometimes produced at Deloro, Ontario, is recovered from silver-cobalt-nickel-arsenic ores mined in northern Ontario. Smelter matter made by the International Nickel Company of Canada, Limited, is treated in plants located at Clydach, Wales; Huntington, West Virginia; and at Port Colborne and Copper Cliff, Ontario. Converter copper made by the International Nickel Company is electrolytically refined at Copper Cliff, and refined nickel is produced by the company at Port Colborne. In 1946 the International Nickel Company of Canada, Limited, shipped ore from the Garson, Creighton, Levack, Frood, Stobie and Murray mines.

In 1946 the industry, as a whole, provided employment for 10,181 persons and distributed $22,240,671 in salaries and wages. Fuel and electricity cost $8,552,300 and process supplies cost $11,065,124. The industry reported that $849,596 were spent on prospecting for new mineral deposits in 1946.

Copper recovered from the nickel-copper ores of Ontario totalled 89,711 tons in 1946 compared with 119,725 tons in 1945. Production in 1946 of nickel in all forms from these same ores amounted to 96,062 tons against the previous year's production of 122,537 tons.

In 1946 a considerable tonnage of blister copper produced in Manitoba was treated at the Copper Cliff refinery of the International Nickel Company of Canada, Limited; some scrap copper was also refined at Copper Cliff.

The annual financial report of the International Nickel Company of Canada, Limited, carries the following information:

"This report for 1946 covers our first fiscal year of operations after the end of World War II. Deliveries of nickel were curtailed early in the year by strikes in the major nickel-consuming plants. After these disputes were settled the demand for nickel resumed, with the result that total sales of nickel in all forms closely paralleled those for 1945.

"Mining and smelting operations were about 50 per cent of capacity during the first half-year. Beginning in September they were progressively stepped up and by the year end the rate of production was 75 per cent of the maximum wartime figure.

"Ore mined in 1946 was 7,736,334 short tons and compares with an average annual tonnage of 11,453,154 for the three preceding years. The average annual tonnage of ore mined during the three pre-war years, 1936, 1937 and 1938, was 5,321,634.

"Proven ore reserves at the year-end stood at 217,142,000 short tons containing 6,861,000 tons of nickel-copper, compared with 217,373,000 short tons containing 6,866,000 tons of nickel-copper at the end of 1945, and 212,368,000 short tons at the end of 1938 containing 6,806,000 tons of nickel-copper".

The following quotation is from the annual financial report of the Falconbridge Nickel Mines Ltd.:

"Throughout most of 1946, operations were carried on at a rate of approximately one-half that established as a peak in 1944. On January 9, 1946, production was reduced by one-third from the rate prevailing during the last half of 1945 and was continued at this reduced rate until December 18, 1946, when production was increased to about 75 per cent of the 1944 rate.

"This variation in production rate was determined by conditions at the refinery and in world markets and not by the production capacity of the mine or smelter. However, the reduced production rate afforded an opportunity for accelerated development underground and heretofore postponed experimental work in the surface plants.

"Lower level development in the Falconbridge mine increased the reserves in that area by some 830,000 tons of ore having a grade substantially above mine average. After taking into account stope and development ore hoisted and treated and the usual revision of established reserves, based on information obtained by mining them during the year, there was a net gain in ore reserves of 361,000 tons."

"Smelter production was limited to the output of our smaller blast furnace from January 9th to December 18th with the larger furnace operating alone before and after that period. Both the concentrator and smelter operated over 99 per cent of their possible working time. Total ore treated, 486,516 tons, matte produced, 12,780 tons."

Table 120.—Principal Statistics of the Nickel-Copper Mining, Smelting and Refining Industry in Canada, 1944-1946 (a)

—	1944	1945	1946
Number of firms	5	4	5
Number of mines	9	8	14
Number of smelters	3	3	3
Number of copper refineries	1	1	2
Number of nickel refineries	1	1	1
Number of employees—Administrative	1,282	1,254	1,172
Workmen	14,175	11,502	9,009
Total ... No.	**15,457**	**12,756**	**10,181**
Salaries and wages—Salaries ... $	3,661,427	3,603,371	3,671,894
Wages ... $	25,556,018	22,889,025	18,568,777
Total ... $	**29,217,445**	**26,492,396**	**22,240,671**
Fuel and purchased electricity used ... $	12,795,637	11,329,125	8,552,300
Process supplies used ... $	18,449,774	15,621,975	11,065,124
Estimated gross value of matte exported and Canadian refinery products (b) $	121,493,774	112,780,854	88,444,103
Value of production (net) ... $	90,130,255	85,791,717	68,826,679

(a) Does not include data for mines, power plants, etc. operated by subsidiary companies.
(b) Includes value of customs material.

Table 121.—Output from Ontario Nickel-Copper Mines and Smelters, 1944-1946

—	1944	1945	1946
	(Tons of 2,000 pounds)		
Ore shipped from mines	12,955,208	10,854,735	8,224,751
Ore treated (*)	12,966,679	10,865,722	8,214,834
Converter copper produced in Ontario from Ontario ores (a)	133,879	114,246	81,423
Nickel produced in Ontario (b)	104,677	94,832	66,074
Matte and residues exported (c)	48,287	41,319	46,239
Nickel content of matte exported	32,618	27,706	29,642
Copper content of matte exported (a)	6,516	5,479	8,283

(*) Represents the tonnage of crude ore smelted together with the tonnage of ore milled.
(a) Copper content, including copper content of Ontario ores purchased, less reverts.
(b) Includes nickel content of salts and oxides produced from nickel-copper ores only.
(c) Less a relatively small tonnage of matte returned to Canada for retreatment.

Table 122.—Total Employees and Salaries and Wages Paid by Nickel-Copper Mines, Smelters and Refineries, 1946

—	Administrative and office employees				Workmen			
	Male	Female	Total	Total salaries	Male	Female	Total	Total wages
	Number	Number	Number	$	Number	Number	Number	$
Mines	380	21	401	1,322,680	4,035	3	4,038	8,844,000
Smelters and refineries	648	123	771	2,349,214	4,970	1	4,971	9,724,777
Total	**1,028**	**144**	**1,172**	**3,671,894**	**9,005**	**4**	**9,009**	**18,568,777**

Table 123.—Wage-Earners, by Sex and Months, Entire Industry, 1944-1946

Month	1944		1945		1946	
	Male	Female	Male	Female	Male	Female
January	14,006	770	13,152	715	8,343	.....
February	14,048	779	13,032	712	8,388	.....
March	13,843	754	12,508	702	8,389	.....
April	13,447	740	11,975	689	8,436	.....
May	13,171	782	11,865	665	8,703	.....
June	13,186	791	11,850	636	8,782	.....
July	13,095	814	11,623	598	8,871	6
August	13,012	828	10,395	543	9,007	4
September	12,731	835	9,231	364	9,183	3
October	12,771	822	9,308	367	9,511	6
November	13,319	799	8,270	298	10,055	4
December	13,543	788	8,502	1	10,388	4
Average	**13,383**	**792**	**10,977**	**525**	**9,005**	**4**

Table 124.—Workmen, by Months, in Nickel-Copper Mines Only, 1946 (*)

Month	Mine			Mill	
	Surface		Underground	Male	Female
	Male	Female			
January	1,071	.....	2,450	150	.....
February	1,133	.....	2,392	158	.....
March	1,106	.....	2,378	162	.....
April	1,199	.....	2,368	169	.....
May	1,232	.....	2,466	178	.....
June	1,259	.....	2,463	169	.....
July	1,256	6	2,516	172	.....
August	1,276	4	2,641	174	.....
September	1,270	3	2,705	169	.....
October	1,271	4	2,907	175	.....
November	1,252	2	3,162	187	.....
December	1,282	2	3,312	191	.....
Average	**1,218**	**3**	**2,647**	**170**	.....

(*) Included in Table 123.

Table 125.—Workmen, by Months, in Nickel-Copper Smelters and Refineries Only, 1946 (*)

Month	Male	Female	Month	Male	Female
January	4,672	.....	August	4,916	.....
February	4,705	.....	September	5,039	.....
March	4,743	.....	October	5,158	2
April	4,700	.....	November	5,454	2
May	4,827	.....	December	5,603	2
June	4,891	.....			
July	4,927	.....	**Average**	**4,970**	**1**

(*) Included in Table 123.

Table 126.—Specified Taxes Paid by the Nickel-Copper Mining, Smelting and Refining Industry, 1945 and 1946 (*)

—	1945	1946
	$	$
Dominion income tax, including tax on non-operating revenue	4,629,005	3,889,893
Dominion excess profits tax	5,725,099	4,813,071
Total provincial taxes	763,989	761,769
Total municipal taxes	296,412	314,068
Grand Total Taxes Paid	**11,414,505**	**9,778,801**

(*) Includes data relating only to companies which conducted both mining and smelting operations.

Table 127.—Miscellaneous Expenditures by the Nickel-Copper Mining, Smelting and Refining Industry, 1944-1946 (*)

—	1944	1945	1946
	$	$	$
Workmen's compensation	377,501	337,219	319,020
Silicosis assessment	69,878	71,740	61,708
Unemployment insurance	182,478	157,917	127,657
Aggregate cost of all supplies purchased	28,378,357	24,639,521	17,557,372
Aggregate cost of plant and equipment purchased	4,017,231	2,497,049	2,904,456

(*) Includes data relating only to companies which conducted both mining and smelting operations.

NICKEL

Production figures include nickel in matte exported from the Canadian smelters valued at 18 cents per pound; refined and electrolytic nickel produced in Canada, valued at the average price received for sales of nickel metal from the refinery during the year, and the nickel equivalent in oxides or salts produced, valued in the aggregate at the price obtained from the sales of oxides or salts.

Table 128.—Production of Nickel (*) from Canadian Ores, 1926-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1926	32,857	14,374,163	1937	112,453	59,507,176
1927	33,399	15,262,171	1938	105,286	53,914,494
1928	48,378	22,318,907	1939	113,053	50,920,305
1929	55,133	27,115,461	1940	122,779	59,822,591
1930	51,884	24,455,133	1941	141,129	68,656,795
1931	32,833	15,267,453	1942	142,806	69,998,427
1932	15,164	7,179,862	1943	144,009	71,675,322
1933	41,632	20,130,480	1944	137,299	69,204,152
1934	64,344	32,139,425	1945	122,565	61,982,133
1935	69,258	35,345,103	1946	96,062	45,385,155
1936	84,870	43,876,525			

(*) Usually includes a relatively small quantity of nickel recovered annually from silver-cobalt ores; Canadian nickel production comes entirely from Ontario ores with the exception of 1937 when a relatively small tonnage of nickel ore was exported from a property in British Columbia.

Table 129.—Production of New Nickel (*) in Canada, by Months, 1945-1947

Month	1945	1946	1947†
	(Tons of 2,000 pounds)		
January	11,834	7,001	9,724
February	10,318	6,306	8,572
March	11,706	7,940	10,014
April	10,784	9,360	10,021
May	11,691	7,462	9,885
June	11,273	7,693	9,835
July	11,895	8,226	9,789
August	10,948	7,819	9,918
September	8,217	8,084	7,577
October	8,585	8,721	11,487
November	7,709	8,847	9,871
December	7,605	8,604	11,423
Total	**122,565**	**96,063**	**118,116**

(*) Refined nickel plus recoverable nickel in matte, etc., exported.
(†) Subject to revision.

Table 130.—Imports into Canada and Exports of Nickel, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	lb.	$	lb.	$
IMPORTS—				
Nickel and nickel silver in ingots	25,277	7,342	12,000	3,123
Nickel rods for wire (90% nickel)	12,558	8,978	4,427	3,141
Nickel in bars and rods, strips and sheets	1,357,478	697,664	2,478,109	1,276,569
Nickel silver bars, rods and strips	49,813	14,397	584,371	183,742
Nickel chromium in bars	79,403	72,865	125,284	114,439
Nickel, manufactures of, not plated	.....	27,101	.....	99,410
Nickel-plated household hollow-ware } Nickel household hollow-ware }	.....	661	.....	2,334
Nickel-plated ware, n.o.p.	.....	652,275	.....	1,844,725
Total Nickel and Its Products	.....	**1,481,283**	.....	**3,527,483**
EXPORTS—				
Total Metal in All Forms	**216,443,300**	**54,778,226**	**223,877,200**	**55,204,632**

Table 131.—Production in Canada, Consumption and Exports of Nickel, 1935-1946

Year	Production in Canada (All forms, including content in oxide and in matte exported	Consumption of refined nickel in Canada	Exports		
			Nickel contained in matte or speiss	Nickel in oxide	Refined nickel
	(Tons of 2,000 pounds)				
1935	69,258	500	29,233	1,317	40,814
1936	84,870	500	30,812	2,661	53,346
1937	112,453	900	40,404	2,554	68,427
1938	105,286	657	44,324	1,842	52,686
1939	113,053	635	47,051	2,425	67,914
1940	122,779	1,509	38,484	3,864	82,168
1941	141,129	3,464	42,616	7,240	87,739
1942	142,606	4,509	41,263	9,224	88,308
1943	144,009	3,440	36,415	3,892	95,240
1944	137,299	2,350	33,848	1,242	97,509
1945	122,565	2,410	28,295	1,758	78,168
1946	96,062	1,820	30,625	517	80,797

Table 132.—Nickel Production by Principal Countries, 1942-1946 (From the "Annual Report of The American Bureau of Metal Statistics")

—	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
Canada (a)	142,606	144,009	137,299	122,565	96,062
New Caledonia (b)	6,982	7,110	7,411	5,400	.....
Norway	1,004	636	583	.....	.....
United States (c)	600	640	990	1,155	352
Cuba (d)	.....	2,700	5,100	12,000	12,391
Germany	705	1,049	.....	.....	.....

(a) Production in all forms from Canadian ores, as reported by the Dominion Bureau of Statistics.
(b) Estimated content of ore and matte exported.
(c) By-product in electrolytic refining of copper.
(d) Nickel content of oxide.

COPPER

The production of 183,968 tons of copper in Canada in 1946 was the lowest annual output since 1934. The principal producers were the nickel-copper mines in Ontario, Noranda, Waite Amulet, and Normetal mines in Quebec, Sherritt Gordon in Manitoba, Hudson Bay mine on the Manitoba-Saskatchewan border, and Britannia and Granby in British Columbia.

Table 133.—Total Production of New Copper in Canada, by Provinces and Method of Computation, 1945 and 1946

—	1945		1946	
	Tons	Value	Tons	Value
		$		$
By Provinces—				
Quebec	51,343	12,886,976	34,899	8,934,105
Ontario	110,725	29,771,633	89,712	22,502,528
Manitoba	20,563	5,101,332	19,251	4,928,134
Saskatchewan	32,950	8,270,538	31,356	8,027,258
British Columbia	12,876	3,231,782	8,750	2,240,068
Total	**237,457**	**59,322,261**	**183,968**	**46,632,093**
By Sources(†)—				
In blister and anode copper produced	218,730	54,901,192	166,928	42,733,624
In ores, concentrates and copper matte exported(*)	13,248	3,325,177	8,758	2,241,946
In nickel-copper matte exported	5,479	1,095,892	8,282	1,656,523
Total	**237,457**	**59,322,161**	**183,968**	**46,632,093**

(†) Where computed.
(*) Contains a relatively small quantity of copper contained in gold and silver ores shipped to Canadian smelters.

Table 134.—Production of Primary (*) Copper in Canada, by Months, 1945-1947

Month	1945	1946	1947†
	(Tons of 2,000 pounds)		
January	22,040	15,734	14,446
February	19,825	13,559	15,129
March	22,819	15,950	21,451
April	21,340	15,725	19,974
May	20,452	15,284	20,689
June	22,049	14,992	19,396
July	21,060	15,292	19,725
August	19,614	14,768	18,035
September	17,308	14,225	17,582
October	17,477	15,046	22,664
November	16,018	17,471	19,043
December	17,356	15,022	19,075
Total	**237,457**	**183,968**	**227,209**

(*) Blister copper plus recoverable copper in concentrates, matte, etc., exported—From all types of ores.
(†) Subject to revision.

Table 135.—Production of Copper from Ontario Ores Only, 1927-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1927	22,671	4,946,353	1937	161,020	41,716,364
1928	33,304	8,770,149	1938	154,515	30,405,500
1929	44,440	14,622,572	1939	164,215	32,637,305
1930	63,859	15,187,259	1940	173,966	34,742,229
1931	56,441	9,096,463	1941	166,915	33,192,644
1932	38,528	4,407,928	1942	154,141	30,625,404
1933	72,752	10,118,847	1943	138,920	32,232,027
1934	102,530	14,822,704	1944	142,654	33,845,632
1935	126,014	19,295,965	1945	119,725	29,771,633
1936	143,907	26,898,920	1946	89,712	22,502,528

NOTE.—Almost entirely from nickel ores.

Table 136.—Production of Copper in Canada, According to Origin of Ores and by Provinces, 1945 and 1946

Province	From copper-gold-silver ores	From nickel-copper ores	From gold and other ores	**Total**
1945	pounds	pounds	pounds	**pounds**
Quebec	101,940,882		744,187	**102,685,069**
Ontario		239,450,083	792	**239,450,875**
Manitoba	41,126,155			**41,126,155**
Saskatchewan	65,900,701			**65,900,701**
British Columbia	25,613,355		137,897	**25,751,252**
Canada	**234,581,093**	**239,450,083**	**882,876**	**474,914,052**
1946				
Quebec	68,939,908		857,789	**69,797,697**
Ontario		179,421,176	3,463	**179,421,639**
Manitoba	38,501,047			**38,501,047**
Saskatchewan	62,712,954			**62,712,954**
British Columbia	17,430,549		69,989	**17,500,538**
Canada	**187,584,458**	**179,421,176**	**931,241**	**367,936,875**

Table 137.— Production (*) of Refined Copper in Canada for Years Specified

Year	Tons	Year	Tons
1915		1939	231,684
1916(†)	483	1940	261,878
1917	3,901	1941	278,224
1918	3,809	1942	268,447
1919	3,467	1943	251,495
1935	173,290	1944	256,244
1936	191,595	1945	228,861
1937	215,080	1946	167,221
1938	227,240		

(*) From all sources.
(†) First electrolytic copper produced commercially in Canada.

Table 138.—Production of Refined Copper in Canada, by Months, 1945-1947

Month	1945	1946	1947*
	tons	tons	tons
January	20,707	14,191	13,396
February	18,692	13,041	11,562
March	20,621	13,242	13,936
April	19,339	15,260	16,888
May	20,436	14,316	18,871
June	21,265	13,125	18,764
July	19,591	14,189	19,958
August	19,318	13,844	18,110
September	18,229	14,393	17,890
October	19,734	14,702	18,440
November	15,529	14,237	18,101
December	15,409	12,681	17,244
Total	**228,861**	**167,221**	**203,160**

(*) Subject to revision.

Table 139.—Imports and Exports of Copper, 1945 and 1946

—	1945		1946	
	Pounds	$	Pounds	$
IMPORTS—				
Copper in blocks, pigs and ingots	100	23	200	55
Copper, scrap	98,900	8,957	82,500	9,358
Copper in bars or rods for the manufacture of trolley, telegraph and telephone wires, electric wires and electric cables	2,526,700	383,611	2,532,500	399,162
Copper bars or rods, n.o.p.	202,400	43,625	215,100	63,897
Copper in strips, sheets or plates	163,100	43,883	1,227,300	345,497
Copper tubing, not manufactured	605,163	201,857	1,245,300	435,188
Copper rollers	.....	45,320	.....	68,702
Copper wire, n.o.p.	275,902	119,181	383,947	185,164
Copper wire cloth, woven	.....	1,274	.....	14,913
Copper manufactures, n.o.p.	.....	346,990	.....	615,095
Copper sub-acetate	400	124	1,142	336
Copper sulphate (blue vitriol)	6,518,854	417,808	1,352,750	108,965
Total	.....	**1,603,653**	.....	**2,246,332**
EXPORTS—				
Copper, fine, contained in ore, matte, regulus, etc.	38,589,200	2,701,244	35,255,800	2,467,906
Copper, old and scrap	2,875,700	231,505	2,462,000	182,823
Copper in ingots, bars, cakes, slabs and billets	258,098,600	32,098,264	202,829,400	27,463,366
Copper in rods, strips, sheets, plates and tubing	14,561,700	1,956,339	31,836,300	4,940,721
Copper wire and cable, insulated	.....	3,067,192	.....	1,147,454
Copper wire, bare	.....	740,220	.....	624,708
Copper wire, screen	.....	10,912	.....	131,851
Copper manufactures, n.o.p.	.....	53,948	.....	45,962
Total	.....	**40,859,624**	.....	**37,004,791**

Table 140.—Production of Primary Copper in Canada, Exports and Imports, 1935-1946

Year	Production in Canada	Exports			Imports
		Copper in ore, matte, etc.	Blister copper	Refined copper	Refined copper
	(Tons of 2,000 pounds)				
1935	209,499	19,351	36,678	121,768	19
1936	210,514	22,760	.....	155,430	95
1937	265,014	36,934	5,442	148,071	8
1938	285,625	54,903	15,264	181,764	6
1939	304,413	60,750	15,556	165,819	3
1940	327,797	52,601	15,874	154,502	6
1941	321,658	47,769	11,962	126,424	.....
1942	301,831	34,047	6,455	98,617	.....
1943	287,595	36,210	4,274	64,333	.....
1944	273,535	27,989	.....	135,233	2
1945	237,457	19,295	.....	129,349	.....
1946	183,968	17,628	.....	101,414	.....

NOTE.—Primary copper represents blister copper produced in Canada plus recoverable copper in ores exported.

Table 141.—Production of Refined Copper in Canada, Consumption, Imports and Exports, 1935-1946

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks at end of period
	(Tons of 2,000 pounds)				
1935	173,290	43,000	121,768	19	
1936	191,595	52,000	155,430	95	Not
1937	215,080	58,000	148,071	8	available
1938	227,240	54,000	181,764	6	
1939	231,684	57,000	165,819	3	(Oct. 31) 15,418
1940	261,878	107,000	154,502	6	17,572
1941	278,224	142,000	126,424	.....	18,312
1942	268,447	183,000	98,617	.....	21,446
1943	251,495	176,000	64,333	.....	27,710
1944	256,244	122,000	135,233	2	26,600
1945	228,861	90,000	129,349	.....	16,760
1946	167,221	80,500	91,600	.....	19,390

Table 142.—World Production of Copper, 1944, 1945 and 1946, by Countries According to Origin of the Ore (From the "Annual Report of The American Bureau of Metal Statistics")

Country	1944	1945	1946
	(Tons of 2,000 pounds)		
United States	1,006,653	805,174	603,868
Mexico	47,589	67,784	64,693
Canada	273,535	237,457	185,543
Cuba	6,256	9,053	12,340
Newfoundland	5,500	5,200	4,900
Bolivia	6,800	6,721	7,250
Chile	549,517	518,304	398,500
Peru	35,703	35,181	26,000
Ecuador	4,065	4,216	2,886
Total America	**1,935,618**	**1,689,090**	**1,305,980**
Finland	17,462	16,510	19,400
Italy	.....	.....	.....
Germany	23,148	.....	16,500
Norway	15,900	5,735	13,500
Spain	12,100	9,100	9,500
Sweden	17,770	16,453	18,000
India, including Burma	6,418	6,720	7,068
Turkey	12,076	10,800	10,979
Belgian Congo	182,413	176,600	158,400
Rhodesia	246,498	215,572	204,922
Other Africa	25,935	27,211	30,000
Total Africa	**454,846**	**419,383**	**393,322**
Australia	31,500	27,500	21,100

METALS OF THE PLATINUM GROUP

(From the Annual Review of the Bureau of Mines, Ottawa)

The platinum metals are by-products from the nickel-copper ore of the Sudbury district, Ontario, and thus production in 1946 was reduced in accord with the lessened demand for nickel at the end of the war. The volume of sales was appreciably lower than in 1945, but the value was higher, resulting from the lifting of price control in April, 1946.

Though no information is available on platinum production in Russia, Canada is apparently still the principal source of supply, followed by Russia and South Africa, and with smaller amounts from Colombia and the United States. The United States is still by far the largest consumer of the platinum metals.

Principal Canadian Sources of Supply

The five mines of The International Nickel Company of Canada, Limited, and the mine of Falconbridge Nickel Mines, Limited, all in the Sudbury district, furnished the ore from which the Canadian output of the platinum metals was produced in 1946. The ores of these mines differ considerably in their content of these precious metals. Ore from certain mines with a low content of these metals is smelted separately to make matte for the production of Monel metal, as this

natural alloy of nickel and copper does not go through the refining process from which the precious metal concentrates are derived, and the minute amounts of precious metals in the ore thus remain in the Monel metal. By far the larger part of the Sudbury ores, however, is converted into crude nickel and copper which is refined in the electrolytic refineries at Port Colborne and Copper Cliff respectively. By this means the platinum metals, along with gold, silver, selenium and tellurium, are recovered as anode residues and are treated in a separate refinery at Acton, near London in Great Britain. In the same refinery is treated a precious metals residue from the plant of International Nickel at Clydach, Wales, which employs the Mond process of refining nickel. The nickel-copper matte from Falconbridge is treated by the Company's own process at Kristiansand in Norway, and the precious metals are recovered similarly from the anode residues. There is no published record of the recovery of the platinum metals in Falconbridge's refinery in Norway. During the three years 1944-46, International Nickel smelted approximately 30 million tons or ore and its sales of platinum metals during this period was about a million ounces. Thus the ore contained about 0·033 ounce of platinum metals to the ton. This minute amount in a ton of ore can be extracted profitably, of course, only because it is concentrated automatically, and without extra cost in the refinery sludges.

There has been no production of platinum during recent years from the placers of the Tulameen River in British Columbia, and the nickel-copper-platinum deposits near Hope have remained undeveloped. Nor have the nickel-copper deposits at Shebandowan Lake, 75 miles west of Port Arthur, Ontario, which contain palladium and platinum, been exploited.

Table 143.—Production of Metals of the Platinum Group from Ontario Copper-Nickel Ores, 1939-1946 (c)

Year	Platinum (a)		Palladium (b)	
	Fine ounces	$	Fine ounces	$
1939	148,877	5,221,712	135,402	4,199,622
1940	108,464	4,239,424	91,522	3,520,746
1941	124,257	4,747,860	97,432	3,396,304
1942	285,188	10,897,033	222,573	8,279,221
1943	219,706	8,458,681	126,004	5,233,068
1944	157,523	6,064,635	42,929	1,960,085
1945	208,234	8,017,010	458,674	18,671,074
1946	124,771	7,672,791	117,566	5,162,801

(a) In addition, a relatively small quantity of alluvial platinum is usually recovered annually in British Columbia; such recovery in 1943 totalled 7 ounces valued at $270; nil in 1944.
(b) Includes other platinum metals, except platinum, and represents the entire Canadian production.
(c) Prior to 1945 the figures reported were the refined metals recovered and the contents of concentrates sold each year The figures for 1945 represent the metal content of platinum metals concentrates produced, together with adjustment of previous figures to this basis for the years 1938 through 1944.

Table 144.—Production of Selenium and Tellurium from Nickel-Copper Ores, 1939-1946

Year	Selenium		Tellurium	
	Pounds	Value	Pounds	Value
		$		$
1939	126,930	224,539	.....	.....
1940	136,350	260,429	3,401	5,607
1941	142,498	272,171	11,453	18,394
1942	76,000	145,920	9,500	15,200
1943	82,000	143,500	8,600	15,050
1944	65,000	117,000	9,900	17,325
1945	168,000	322,560	.....	.....
1946	270,606	492,593	14,200	21,868

Table 145.—Production of Gold and Silver from Nickel-Copper Ores, 1939-1946

Year	Gold		Silver	
	Fine ounces	Value	Fine ounces	Value(*)
		$		$
1939	77,094	2,786,177	2,496,632	1,010,886
1940	96,863	3,498,225	2,803,052	1,072,167
1941	77,960	3,001,460	2,633,815	1,007,698
1942	70,861	2,728,148	2,238,177	943,839
1943	55,776	2,147,376	1,648,888	746,122
1944	55,286	2,128,472	1,828,978	786,461
1945(†)	91,369	3,528,102	1,735,143	815,417
1946	51,490	1,892,257	1,205,664	1,008,538

(*) Estimated.
(†) Includes 26,589 oz. of gold and 84,614 oz. of silver recovered from platinum metals concentrates in foreign plants in previous years and not previously recorded.

CHAPTER FIVE

MISCELLANEOUS METAL MINING INDUSTRIES IN CANADA

Including General Statistics Relating to the Industries in this Group and Commodity Statistics Showing any Production by Provinces and Prices on:

Aluminum	Manganese
Antimony	Mercury
Beryllium	Molybdenum
Bismuth	Pitchblende
Boron	Selenium
Cadmium	Tantalum-Columbium
Calcium	Tellurium
Cerium	Thallium
Chromium	Tin
Iron and steel	Titanium (ilmenite)
Indium	Tungsten
Magnesium	Vanadium

General Review

The mining of certain metal-bearing ores, other than those commonly classified as gold, silver, copper, nickel, cobalt, lead and zinc, have been grouped, for statistical purposes, as a single industry by the Dominion Bureau of Statistics. Their production in some instances is confined to a relatively few operators and the annual extraction of certain types often fluctuates in an erratic manner according to demand and supply. Included in this report, with the finally-revised statistics relating to the Canadian production of these ores or metals, are notes and statistical data pertaining to various rare or semi-rare metals or metalliferous ores produced in other countries. Metals and metal-bearing ores produced in Canada during 1946 and classified as miscellaneous include antimony, bismuth, cadmium, chromite, iron ore, magnesium, manganese ore, mercury, molybdenite, pitchblende, selenium, tellurium, titanium ore, tin and tungsten concentrates. In addition to particulars relating to these metals or minerals, the bulletin contains notes of a summary nature on aluminum, beryllium, lithium, vanadium and a few of the rarer metals.

It is to be noted that the majority of the metals listed above as Canadian products and including bismuth, cadmium, selenium and tellurium, represent by-products recovered in the refining of lead, zinc or copper and, for this reason, such statistics as relate to their production in Canada are included with those of either the silver-lead-zinc mining industry, the copper-gold-silver mining industry, or the non-ferrous smelting and refining industry.

There were 21 active firms in the miscellaneous metal mining industries in 1946; employees numbered 1,037 to whom $2,238,442 was paid in salaries and wages; fuel, electricity, supplies, freight and ore treatment cost $3,479,336. The gross value of production was $7,187,445 in 1946 compared with $4,276,130 in 1945.

Table 146.—Principal Statistics(*) of the Miscellaneous Metal Mining Industry in Canada, 1945 and 1946

—		1945	1946
Number of firms		24	21
Number of plants		23	21
Number of employees—Administrative and office		178	102
Workmen		807	935
Total		**985**	**1,037**
Salaries and wages—Salaries	$	324,594	291,452
Wages	$	1,716,755	2,046,990
Total	$	**2,041,349**	**2,338,442**
Value of production (gross)	$	4,276,130	7,187,445
Cost of fuel and electricity	$	753,184	739,531
Process supplies used	$	356,248	670,648
Smelter charges	$	35,875	.....
Freight	$	1,374,264	2,069,157
Value of production (net)	$	1,756,559	3,708,109

(*) Does not include data relating to smelters and refineries or to mining in the Northwest Territories. Data for 1945 and 1946 cover only chromium, iron, molybdenum and titanium.

Table 147.—Average Number of Workmen, by Months, 1945 and 1946

Month	1945					1946				
	Surface		Underground	Mill		Surface		Underground	Mill	
	Male	Female		Male	Female	Male	Female		Male	Female
January	527	19	99	85	1	607	9	139	100	1
February	554	20	94	95	1	630	9	152	111	1
March	543	20	93	95	1	595	10	142	118	1
April	582	22	95	98	19	595	10	141	129	1
May	592	21	90	106	22	644	11	132	123	1
June	622	21	87	118	22	732	11	143	128	1
July	648	25	144	135	23	770	10	130	129	1
August	629	22	92	118	18	730	10	142	158	1
September	518	22	90	115	18	799	10	139	160	1
October	528	22	90	124	9	748	6	72	136	.....
November	530	9	96	139	7	689	5	70	121	.....
December	515	9	91	125	1	600	5	80	115	.....
Average	**566**	**19**	**97**	**113**	**12**	**675**	**9**	**123**	**127**	**1**

ALUMINUM

Although Canada has no bauxite, the principal ore of aluminum, the Canadian aluminum smelting industry is the second largest in the world, being exceeded only by that of the United States. The principal factor favouring the establishment of the industry in Canada is abundant and low-cost hydro-electric power at points where necessary raw materials can be cheaply and conveniently assembled.

Production is entirely by the Aluminum Company of Canada, Limited, which has an ore treatment plant at Arvida, Quebec, and reduction works at Arvida, Ile Maligne, Shawinigan Falls, La Tuque and Beauharnois, all in the province of Quebec. These reduction plants had a total rated yearly capacity of 550,000 tons of aluminum or over 20 per cent of the estimated productive capacity of the world. In 1946 operations were concentrated at Arvida and Ile Maligne.

Fabricating plants are located at Kingston, Toronto and Etobicoke in Ontario, and at Shawinigan Falls in Quebec. These secondary plants consume only a small part of the primary ingot production, from 80 to 90 per cent being exported to all parts of the world.

The demand for aluminum was good in 1946. Increased facilities for the production of aluminum sheet and foil were installed. In pre-war years, Germany controlled the greater part of the trade in foil and Canada is now taking a large part of that market.

The principal imported raw materials used in the Canadian aluminum industry are bauxite from British Guinea, coal and coke from the United States, fluorspar from Newfoundland, and cryolite from Greenland and the United States.

No bauxite occurs in Canada, but clay, shale, nepheline syenite, and anarthosite, containing from 20 to 30 percent alumina, are found in many parts of the country. The utilization of these low-grade materials has been the object of much research and various processes have been developed. The economic success of any of these processes will depend in large part upon local conditions, but it has yet to be proved that any of them can compete on an even basis with the Bayer process, the standard method for producing alumina, and which utilizes bauxite containing less than 7 per cent silica and from 55 to 60 per cent alumina.

Aluminum metal being only one-third as heavy as steel, untarnishable, and also a good conductor of electricity, is finding an increasingly wide field of usefulness. It is available from fabricating plants in many forms as sheets, foil, castings, forgings, rolled and extruded shapes, tubes, rods, wire, powder and paste. Because of its light weight and strength when alloyed, it is widely used in the making of aircraft and for many other purposes where lightness of structural metal is particularly desirable. Large tonnages are used for making cable for transmission of electricity, and for cooking utensils and containers for food and beverages. It is finding increasing use in architecture and in construction of transportation equipment such as railway cars, automobiles, and boats.

The price of aluminum ingot throughout 1945 was 15 cents per pound f.o.b. plant, but early in 1946 the price was reduced to 13¼ cents per pound.

Table 148.—Production in Canada, Domestic Consumption, Imports and Exports of Aluminum Ingots, 1937-1946

Year	Production	Domestic Consumption	Exports	Imports
	(Tons of 2,000 pounds)			
1937	46,906	10,903	48,500	40
1938	71,203	9,396	64,724	69
1939	82,840	10,544	70,578	189
1940	109,144	18,197	86,536	133
1941	213,873	19,717	192,757	3
1942	340,596	32,700	314,483	.....
1943	495,749	40,100	375,383	1
1944	462,065	38,400	295,226	66
1945	215,712	40,800	382,286	51
1946	194,117	48,000	137,336	246

Table 149.—Imports of Aluminum and Bauxite into Canada, 1945 and 1946

Item	1945		1946	
	Cwt.	Value	Cwt.	Value
		$		$
Alumina	6,384	99,975	3,620	58,732
Bauxite ore	18,794,253	7,262,766	25,663,512	8,524,873
Cryolite	99,658	424,486	56,720	490,349
Aluminum—Pigs, ingots and blocks	1,013	19,383	4,924	83,970
Scrap	6,408	47,118	11,651	108,640
Angels, channels and beams	307	14,692	872	72,024
Bars, rods and wire	5,264	131,791	4,980	57,280
Leaf	.....	69,437	.....	97,861
Pipes and tubes	120	9,384	481	25,969
Plates, sheets and strips	16,332	476,162	83,361	2,314,616
Powder	46	4,435	228	19,449
Wire and cable	27	1,334	38	720
Household hollow ware	.....	98,186	.....	676,530
Manufactures n.o.p.	.....	951,138	.....	2,161,739

Cwt. = 100 pounds.

Table 150.—Exports of Aluminum from Canada, 1945 and 1946

Item	1945		1946	
	Cwt.	Value	Cwt.	Value
		$		$
Aluminum—Scrap	130,335	770,825	129,155	935,670
Wire and cable	.....	1,049,797	.....	1,219,416
Manufactures, n.o.p.	.....	8,810,816	.....	2,757,112
In bars, blocks, ingots and blooms	7,645,729	121,778,512	3,746,717	49,146,887
In rods, sheets and circles	37,821	1,070,281	48,977	1,307,178
Kitchen utensils and hollow ware	.....	86,763	.....	663,776

Table 151.—World Production of Aluminum, 1939, 1945 and 1946 (From the Annual Report of the American Bureau of Metal Statistics)

Country	1939	1945	1946
	(Metric tons)		
United States	148,367	450,403	371,614
Canada	75,152	195,694	175,500
Total America	**223,519**	**646,097**	**547,114**
Austria	4,283	.....	1,039
France	52,500	37,225	50,500
Germany(*)	195,145	.....	.....
Great Britain	25,000	32,407	32,050
Italy	34,200	.....	.....
Norway	31,130	4,608	.....
Spain	1,080	592	.....
Sweden	1,966	.....	.....
Switzerland	28,000	.....	.....
Total Europe(*)	**376,704**	.....	.....
Japan	30,000	.....	.....
India	.....	1,500	.....
Russia	73,000	.....	Not available

(*) Including estimates for uncertain productions in Hungary and Yugoslavia.

ANTIMONY

Antimony continued in short world supply in 1946 largely due to decline in production from Bolivia. Production from China, which prior to the war was the chief producer, has not been fully resumed, although at the close of the year shipments of Chinese antimony said to be from current production were being offered. As a result of shortage antimony remained under Government control both as to price and use.

No metallic antimony has been produced in Canada since 1944 in which year Consolidated Mining and Smelting Company of Canada discontinued the production of electrolytic antimony. However the company continued the production of an antimonial lead (25 per cent antimony) from antimonial fume residues which are a by-product of its lead-zinc smelting operations at Trail, British Columbia.

Certain occurrences of antimony in Canada have been explored and developed to some extent, but results generally have not been favourable to prolonged mining operations. The following is a summary of the more important known occurrences of antimony.

In Nova Scotia, the West Gore deposit at West Gore, in Hants county, is the best known. For many years prior to 1917, some antimony was produced in the form of a concentrate containing gold.

In New Brunswick, stibnite occurs in quartz veins at Lake George in a deposit that appears to have some promise. Mining operations had been carried on intermittently over a number of years, the latest production being in the period 1929-31 when high-grade ore was shipped. Ore dumps on the property are understood to contain a substantial amount of antimony and the various quartz veins have not been thoroughly explored. At the end of 1946, negotiations were under way with a Canadian metal firm to exploit this deposit.

In British Columbia, there are several occurrences, a few of which have been developed to some degree. Test shipments were made from Bridge River area in 1941; and from the Fort St. James area in 1940 after the sinking of a test shaft.

Antimony is chiefly used in the manufacture of hard lead for storage batteries, and cable covering. It is alloyed with tin in the manufacture of babbitt bearings, and with lead and tin in solders and type metal. Its property of expansion on cooling when alloyed makes it particularly useful in the manufacture of type metal. During the war it was used to harden the lead used in bullets and to flame proof canvas goods used by the armed forces.

Sulphides of antimony are used as a pigment in paint manufacture, and in the making of india-rubber. The oxides of antimony are used in the ceramic enamel trade as an opacifier. Compounds of the metal are used in the medicinal trade.

Administrator's Order No. A-2245 which came into force on January 22, 1947, sets the maximum prices of antimony, according to the Wartime Prices and Trade Board, as "The maximum price at which antimony of Chinese grade or higher grade may be sold or purchased by any person shall, according to the quantity, be sold as follows:

Quantity	Montreal, Toronto and Hamilton (cents per pound)
10,000 lb and over	29·50
2,000 lb and less than 10,000 lb	30·25
1,000 lb and less than 2,000 lb	32·25
less than 1,000 lb	32·75

The said maximum prices are exclusive of sales tax."

E & M J Metal and Mineral Market average price for domestic antimony at New York was 17·306 cents in 1946, compared with 15·839 cents in 1945.

Table 152.—Production of Antimony in Canada, 1937-1946

Year	In Ores Exported		Metal Produced in Canada		Total	
	Pounds	$	Pounds	$	Pounds	$
1937	48,163	7,394	.....	.....	48,163	7,394
1938	24,560	2,200	.....	.....	24,560	2,200
1939	25,405	3,139	1,200,180	148,330	1,225,585	151,469
1940	44,700	3,800	2,549,792	392,668	2,594,492	396,168
1941	15,292	2,141	3,169,785	443,770	3,185,077	445,911
1942	78	13	3,041,030	516,975	3,041,108	516,988
1943	.....	.....	1,114,166	189,408	1,114,166	189,408
1944	.....	.....	1,937,933	281,000	1,937,933	281,000
1945(*)	.....	.....	1,667,951	290,557	1,667,951	290,557
1946(*)	.....	.....	642,145	96,322	642,145	96,322

(*) No refined metal in 1945 or 1946; figures represent antimony content of antimonial lead.

Table 153.—Production of Antimony Metal in Canada, Consumption, Imports and Exports, 1937-1946

Year	Production in Canada	Consumption in Canada	Imports	Exports(*)
	(Tons of 2,000 pounds)			
1937	.....	430	588	.....
1938	.....	385	428	.....
1939	600	426	119	275
1940	1,275	558	118	359
1941	1,585	955	1	676
1942	1,521	1,187	.....	166
1943	557	1,303	120	6
1944	968	1,515	779	.....
1945	.....	778	517	.....
1946	.....	876	455	.....

(*) Shipped for export—data not available from Customs' Records.

Table 154.—Consumption of Antimony Metal, by Industries, 1942-1946

Industry	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
Steel foundries	1	.....	.....	.....	.....
White metal foundries	909	907	1,191	614	743
Electrical apparatus plants	117	165	183	114	78
Brass foundries	13	14	10	9	21
Non-ferrous smelters	44	134	76	1	.....
Silverware factories	7	8	8	9	29
Ammunition plants	91	71	41	26	.....
Miscellaneous	5	4	6	5	5
Total	**1,187**	**1,303**	**1,515**	**778**	**876**

BERYLLIUM

Beryl, a silicate of aluminum and beryllium, is the commonest beryllium mineral, and is the only present commercial source of the element. It generally contains from 10 to 12 per cent of beryllium oxide, corresponding to from 4 to 4·5 per cent of beryllium. The occurrence of beryl is restricted to pegmatite dykes, in which it is usually found as disseminated crystals, sometimes of very large size. Only rarely, however, is the beryl content of pegmatites sufficient to enable the deposits to be worked for this mineral alone, and a large part of the comparatively small world production has been obtained as a by-product from the mining of feldspar, mica, or lithium minerals.

Canada produces no beryl and very little beryl is used or required by domestic industries. Most of the world supply in recent years has come from Brazil, Argentina, India, the United States, and South Africa.

The most noteworthy occurrences of beryl in Canada are in Ontario, southeastern Manitoba, and the Northwest Territories.

In Ontario, intermittent work was done prior to 1941 on a beryl pegmatite in Lyndoch township, Renfrew county. A few tons of clean cobbed crystals were obtained, and about 200 tons of milling grade rock was stockpiled. Most of the work on the property was done by the present owners, Canadian Beryllium Mines and Alloys, Limited, 901 Royal Bank Building, Toronto, who, however, have reported no sales. A detailed examination of the main, easterly workings, made in 1943 by the Bureau of Mines, Ottawa, and the Metals Controller's Office, indicated an average content of 0·188 per cent beryl in the total rock excavated, with a maximum for the richest quarry sections of 1·24 per cent. Grade of selected clean beryl crystals was 10·41 per cent BeO.

In Manitoba a little work was done several years ago on beryl showings in pegmatites opened originally for feldspar and lithium minerals in the Winnipeg River and Oiseau (Bird) River areas, but no shipments were reported.

In the Northwest Territories, exploration in the area north and east of the Yellowknife gold camp has disclosed numerous occurrences of beryl in pegmatites which also contain lithium minerals and tantalite-columbite. Some of these are considered to be of possible economic interest.

In Quebec, scattered occurrences of beryl are known in La Corne and Preissac townships, Abitibi county, often associated with molybdenite. None of these, however, is believed to be of economic importance.

Beryllium is used chiefly in the form of beryllium-copper alloys, the most important of which contains about 2 per cent beryllium. A beryllium-aluminum alloy containing 5 per cent beryllium is used as a deoxidizer in making aluminum-magnesium products. Straight beryllium metal has only limited applications, notably for the windows of X-ray tubes, where it is used for its transparency to the rays.

Various beryllium salts, principally the oxide and carbonate, are used in industry. A growing demand has developed for the oxide for the preparation of zinc-beryllium silicate, used as a coating for fluorescent lighting tubes and lamps, and for fluorescent screens. The oxide and carbonate, activated by uranium salts or rare earths, act as "phosphors" and are utilized in luminescent paints. The oxide is a super-refractory, with a melting-point of 2,570°C., or 520 degrees above that of alundum, and is used in crucibles, insulators, electrodes, furnace linings, and as a filament coating in lamps. Beryllium acetate is used as a coagulating, hardening bath for sodium alginate, a new English textile made from seaweed.

Ground beryl is used as a batch ingredient in sparkplugs and other ceramic specialties, to which it imparts high electrical and impact resistance and transverse strength. Some is also used in cooking utensil enamels. Consumption for such uses in the United States is estimated at about 100 tons a year.

Most of the present world production of beryl is marketed in the United States, where the following companies, engaged in the primary production of beryllium metal, alloys and compounds are the chief purchasers: Beryllium Corporation of Pennsylvania, Temple (Reading), Pennsylvania; Brush Beryllium Company, 3714 Chester Avenue, Cleveland, Ohio; and Clifton Products Incorporated, Painesville, Ohio.

The New York price quotations remained steady throughout the year—Beryllium ore, per unit of BeO, 8 to 12 per cent, f.o.b. mine $8–$10—Beryllium-copper master alloy, 4 per cent beryllium, remainder copper, in lots 1 pound or more of beryllium, $14.75 per pound of contained Be.

BISMUTH

Bismuth is produced in Canada by The Consolidated Mining and Smelting Company of Canada, Limited at Trail, B.C. from the residues resulting from the electrolytic refining of lead bullion. The plant has been operated intermittently since 1928. The capacity is 60 tons per year.

A recent producer is the La Corne mine, Quebec, operated by the Molybdenite Corporation of Canada which commenced the production of a 30 per cent bismuth concentrate in May, 1946. Prior to 1946 molybdenum concentrate produced by the La Corne mine contained undesirable amounts of bismuth and copper. During the war the concentrate was refined solely for its molybdenum content. A process was worked out in the Bureau of Mines Laboratory, Ottawa early in 1946 whereby the bismuth could be removed and sold at a relatively high price, and which improved the saleability of the molybdenite concentrate. The mine produced about 45 tons of bismuth concentrate before the end of the year.

The known deposits or occurrences of bismuth ore in Canada are few in number. It is possible, however, that the metal may occur with other molybdenite deposits of Canada as in the case of the La Corne mine.

Some bismuth ore was removed from the Glacier Gulch Group near Smithers, British Columbia on the Canadian National Railway. The bismuth associated with a gold ore was shipped to the smelter at Tacoma, Washington.

The greatest use of bismuth is in medicinal and cosmetic preparations. Bismuth is too brittle to be used alone, but its alloys find many uses in industry. Alloys are used in the manufacture of sprinkler plugs and other fire protection devices, electrical fuses, low melting solders, dental amalgams, and tempering baths for small tools. As does antimony, bismuth expands on solidification and retains this property in a number of alloys, and is used in type-metal. Salts of bismuth are used in the X-ray examination of the digestive tract due to the absorptive powers of bismuth for X-rays. A certain amount is used in optical glass manufacture.

E & M J Metal and Mineral Market prices for bismuth during 1946 was $1.60 per pound in ton lots until December 2nd when the price was raised to $1.80 to effect December, 1946, and later shipments.

Table 155.—Production of Primary Bismuth in All Forms(*) in Canada, 1937-1946

Year	Pounds	$	Year	Pounds	$
1937	5,711	5,654	1942	347,556	479,627
1938	9,516	9,754	1943	407,597	562,484
1939	409,449	466,362	1944	123,875	154,844
1940	58,529	81,004	1945	189,815	260,047
1941	7,511	10,396	1946	240,504	336,706

(*) Refined metal plus bismuth content of bullion exported.

Table 156.—Production of Bismuth Metal in Canada, Consumption, Imports and Exports, 1937-1946

Year	Production	Domestic Consumption	Exports(*)	Imports
	(Tons of 2,000 pounds)			
1937	.....	14	37	.....
1938	.....	18	40	.....
1939	205	14	64	5
1940	20	12	77	.....
1941	.....	16	51	.....
1942	159	36	199	.....
1943	204	65	73	.....
1944	62	46	25	.....
1945	95	35	41	.....
1946	120	40	95	.....

(*) Shipped for export by Canadian producers.

Table 157.—Consumption of Bismuth Metal in Canada, by Industries, 1942-1946

Industries	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
Medicinals and pharmaceuticals	13	28	23	15	11
White metal foundries	13	28	20	16	23
Miscellaneous	10	9	3	4	6
Total	**36**	**65**	**46**	**35**	**40**

BORON

According to the United States Bureau of Mines, boron alloys are supplied by United States manufacturers, small quantities being used in the non-ferrous metals industries and in steel making. In cast iron, boron opposes graphitization on solidification and exerts an energetic whitening effect, producing a hard strong iron but reducing malleability. Recently boron has been found to be one of the so called minor elements that stimulate plant growth and inhibit the development of certain plant diseases.

The most interesting use of boron was in the production of "atomic bomb" constituents. It has a strong tendency to absorb neutrons, and as the net number available for a self-sustaining uranium fission reaction is very small, boron was not suitable as a "moderator"—that is, a mechanism for slowing neutron speeds to the range where they would be effective in disintegrating the U235 uranium isotope. How serious neutron loss was considered is indicated by the statement that high-purity graphite containing only about 2 parts per million of boron was undesirable as a moderator. However, the same characteristic makes boron useful in controlling the operating rate of the uranium-graphite piles used to produce the new element, plutonium. Boron or boron steel was so used. Boron trifluoride (BF_3) also was used in instruments employed for measuring neutron intensity in the piles.

Boron carbide, boron carbide shapes and calcium boride are now produced in Canada.

World reserves of boron minerals are abundant, but known sources are confined to a few countries chiefly the United States, Chile, Argentina, Peru, Italy and Turkey, although Borax also has been reported in Tibet, Persia, India and Ceylon.

Imports of Borax into Canada during 1946, in packages of 25 pounds or over, totalled 14,512,114 pounds valued at $395,431. Borax was quoted in the United States in 1946 at $41.50 per ton, granular technical.

CADMIUM

Cadmium occurs as a minor constituent in most zinc ores and in some lead ores. In Canada its production is limited to the by-product recovery from the manufacture of electrolytic zinc. Some important uses have been developed during the past fifteen years and indications are that a strong demand will continue for the metal.

Cadmium metal is produced by The Consolidated Mining and Smelting Company of Canada, Limited, at Trail, British Columbia, and by Hudson Bay Mining and Smelting Co. Limited at Flin Flon, Manitoba. The cadmium produced at Trail originates largely in the silver-lead-zinc ores of the Sullivan mine at Kimberley, B.C. A small amount is contained in zinc concentrate shipped to Trail from Zincton Mines Limited in the Slocan district. At Flin Flon it is contained in the copper-gold-zinc ores of the Flin Flon deposit on the Saskatchewan-Manitoba boundary. At Trail and Flin Flon cadmium is recovered from the residue resulting from the refining of zinc.

Cadmium is used mainly in electroplating and in the manufacture of alloys and compounds, the most common use being as a protective coating for steel. To a much lesser extent it is used in copper alloys. The use of cadmium alloys in motor vehicle bearings and for solders has created a strong demand for the metal. Cadmium is used also in the arts, paints, ceramics, and dyeing, etc.

Cadmium sulphide and cadmium sulphoselenide are standard agents for imparting bright resistant yellow and red colors respectively to paints, ceramics, inks, rubber, leather and other products. Paper coated with cadmium sulphide acts as a mustard-gas detector. Cadmium nitrate is used in white fluorescent lamp coatings. The oxide, hydrate and chloride are used in electro-plating solution; the carbonate in ceramics; and the halides in photography.

Cadmium is marketed in metallic form, 99·5 per cent pure and better, and as a sulphide. The principal compounds are cadmium sulphide, cadmium oxide, cadmium lithopone, and cadmium selenite.

The price of cadmium metal, E & M J Metal Markets, was 90 cents per pound at the beginning of 1946. The price rose to $1.25 July 8th and a further rise to $1.50 per pound was effective on December 2.

Table 158.—Production of Cadmium, in Canada, 1937-1946

—	British Columbia		Manitoba		Saskatchewan	
	Pounds	$	Pounds	$	Pounds	$
1937	436,431	715,747	164,223	269,326	144,553	237,067
1938	510,342	410,090	115,166	92,543	73,630	59,166
1939	799,253	563,241	73,830	52,029	66,608	46,939
1940	778,791	905,734	57,742	67,154	71,594	83,264
1941	1,081,374	1,269,533	61,085	71,714	108,832	127,769
1942	972,413	1,147,447	29,236	34,498	147,314	173,831
1943	598,673	688,474	20,985	24,130	166,955	191,998
1944	386,410	425,051	20,921	23,013	119,639	131,603
1945	510,432	505,328	27,891	27,612	107,741	106,663
1946	636,315	770,304	63,410	77,360	102,923	125,566

Table 159.—Consumption of Cadmium Metal in Canada, Consumption and Exports, 1937-1946

Year	Production	Domestic Consumption	Exports
	(Tons of 2,000 pounds)		
1937	372	33	283
1938	349	23	233
1939	470	41	525
1940	454	75	399
1941	625	149	455
1942	574	207	400
1943	393	168	286
1944	263	108	192
1945	319	87	175
1946	401	96	296

Note.—Statistics on imports are not available.

CALCIUM

The commercial production of calcium in Canada started in 1945 when the metal was recovered from lime by Dominion Magnesium Limited at its plant located at Haley, Ontario.

Calcium has found increasing use as a deoxidizer in ferrous metallurgy and as an alloy constituent with non-ferrous metals. It has been employed in the reduction of difficultly reducible metals, such as chromium, thorium, uranium, and zirconium. During the war an important calcium use was to make hydride, which is a convenient and portable source of hydrogen for inflating weather balloons. Uranium metal had been made by reaction of calcium with chloride or oxide and by reducing the oxide with calcium hydride; the latter was perhaps the first-applied (1941) relatively large scale production method. The uranium was, however, in the form of highly impure pyrophoric powder and was not usable in the atomic bomb project. However, by the end of 1942 acceptable metal was being turned out.

New York quotations for calcium, 97-98 per cent as cast, was $1.85 per pound. The Canadian producer is able to sell an exceptionally high purity product for two-thirds of the quoted price.

Table 160.—Production of Calcium in Canada, 1945 and 1946

Year	Pounds	$
1945	22,720	19,312
1946	53,548	68,720

CERIUM

Cerium is obtained from monazite, a monoclinic phosphate of cerium metals containing about 32 per cent cerium oxide (Ce_2O_3) and up to 18 per cent thoria (ThO_2). Monazite is distributed widely in igneous rocks throughout the world, especially in gneisses that have been intruded by pegmatites, but usually it forms only a small fraction of one per cent of the containing rock and only the natural concentrations in stream gravels and beach sands have paid for exploration. The chief commercial sources of monazite sand are beach deposits in Brazil and India. There are a few occurrences of monazite in Nova Scotia, Quebec and British Columbia, none of which is of commercial interest. It is usually found as small crystals in granites and pegmatites in the Canadian Shield and small quantities occur in association with the black sands of the Quesnel river, Lillooet district, British Columbia. In the United States there are commercial deposits in Carolina, Florida, and Idaho, and known occurrences in many other States.

Cerium is usually regarded as belonging to the general group of "rare earths", as it invariably occurs in nature associated with the other fourteen members of the group and is very similar to the other rare-earth elements in many of its chemical properties.

In Canada, Shawinigan Chemicals, Limited, Shawinigan Falls, Quebec, has been producing cerium products from cerium chloride since 1940. The output is sold to the Belgo Canadian Manufacturing Company, Limited, of Montreal, for the manufacture of sparking flints.

Prior to the war leading producers of rare-earth products for the European market were located in Berlin, London and Paris, and those for the American market, in Chicago. In the United States the present supply of cerium products is provided by Cerium Metals Corporation, Niagara Falls, N.Y.

World production of monazite is approximately 5,000 tons a year.

Thoria, which was used in gas mantles, was formerly the only commercial constituent of monazite, and monazite is still marketed on the basis of its thoria content, although its content of ceria (Ce_2O_3) and of other rare-earth oxides is of chief interest at present. Probably 50 per cent of monazite derivates are consumed, chiefly as fluorides, in the cores of arc carbons to increase lighting intensity in searchlights, motion-picture projectors, and therapeutic lamps. About 25 per cent of the consumption of monazite derivates is used in pyrophoric (sparking) alloys or in ferroceriums for use in sparking flints for lighters. The remainder is used for a variety of purposes, but principally for making optical glassware. Cerium metal is used in the evacuation of radio tubes.

Imports of salts of cerium or of thorium, for the manufacture of gas mantles, was appraised at $33,074 in 1946 compared with $12,428 in the preceding year.

CHROMITE

Pure chromite (FeO, Cr_2O_3) contains 68 per cent chromic oxide, but in nature it always contains besides iron, varying amounts of magnesia and alumina. It is a heavy, almost black, lustrous and brittle mineral, and the ore usually occurs in dunite bands in serpentine rocks. Chromite is distinguished in the field from other black minerals of similar appearance by its chocolate brown powder or streak when struck, or scratched with a hammer.

Most of the Canadian deposits from which production has been obtained are between Quebec City and Sherbrooke in the Eastern Townships of Quebec.

Chromite Limited obtained its output from the old Sterrett mine in Cleveland township, Quebec. The chromite occurs as fairly uniformly disseminated zones, scattered through which are plums of the massive mineral. The ore zone, which varies in width from 5 to 20 feet, has been traced on the surface for about 2,000 feet. The mine has been developed at 5 levels to a maximum length of 1,800 feet and to a depth of 550 feet. The ore, which averaged 18 per cent Cr_2O_3, was treated in a 150 ton mill.

The old Montreal pit was operated over 50 years ago and was re-opened by Union Carbide Company in 1941, since when production has been continuous.

The Chromeraine mine, also in the Black Lake area, was operated in 1943 by Wartime Metals Corporation, but was closed in August, 1944. The ore is chiefly low-grade, banded and disseminated chromite, averaging 8 per cent Cr_2O_3, with a small amount of the massive mineral. The zone has been traced intermittently for 2,000 feet, has an average width of 33 feet, and in places is 60 feet wide. A small amount of drilling has indicated that the ore extends to a depth of at least 440 feet.

Chromite Association did some prospecting in the Black Lake district in 1945.

In Manitoba, little prospecting was done on the large bodies of low-grade chromite deposits that were discovered early in 1942, north of Oiseau (Bird) River in the southeastern part of the province. Various zones have been traced for lengths of several thousand feet. The ore is high in iron and an economical method of bringing the chrome-iron ratio to within market requirements has not been devised.

The uses of chromite are divided into three groups, namely, metallurgical (by far the most important), refractory and chemical.

In the metallurgical field, chromium is one of the principal alloying elements in a great variety of steels, chief of which in the amount of chromium used are the stainless and the corrosion-resistant steels. It is the vital ingredient with nickel and molybdenum in the making of armour

plate, armour-piercing projectiles, and high-speed tool steels, and is used as a hard, toughening element in tank axles and frames, in aeroplane parts, and in other essential war materials.

Chrome ore is used for making refractory bricks or materials used in basic open hearth furnaces, in arches of furnaces, in parts of combustion chambers, chambers of high pressure steam boilers, etc. It is used with magnesia to make chrome-magnesia refractories, an important use in Canada being in the manufacture of brucite magnesia bricks that contain up to 30 per cent Cr_2O_3.

In the chemical industry, chromite is mainly fundamental salts such as sodium and potassium-bichromates that are used in electroplating, tanning, dyeing, glass making, pigments, photography, bleaching, safety matches, antiseptics, some aniline dyes used in printing, etc. Finely powdered chrome oxide is used as a buffing compound for polishing stainless steels. During the war a large amount of chrome chemicals was used for military purposes.

The principal Canadian buyers of chromite for metallurgical use are: Chromium Mining and Smelting Corporation, Sault Ste. Marie, Ontario, and Electro-Metallurgical Company of Canada, Welland, Ontario. The only important purchaser of refractory ore is Canadian Refractories, Limited, Canada Cement Building, Montreal.

At the end of 1946 United States price of domestic and imported ores of 48 per cent Cr_2O_3 and 3 to 1 ratio was $39.00; ores of lower grade and ratio vary down to a minimum of $27.00 a long, dry ton at seaboard. Canadian prices of 47 to 48 per cent Cr_2O_3 concentrates are $25 to $40 and crude ore $15 to $20 a long ton, f.o.b. mines, depending upon the chrome-iron ratio and upon the percentages of certain impurities.

Table 161.—Production of Chromite in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	(*)	43,250	1942	11,456	343,568
1938			1943	29,595	919,878
1939			1944	27,054	748,494
1940	335	5,780	1945	5,755	160,752
1941	2,372	42,679	1946	3,110	61,123

(*) Quantity not published.

Table 162.—Principal Statistics for the Chromite Mining Industry(*) in Canada 1944-1946

—		1944	1945	1946
Active firms	No.	7	4	2
Employees—Salaried	No.	42	7	6
Wage-earners	No.	202	23	16
Total	**No.**	**244**	**30**	**22**
Salaries and wages—Salaries	$	80,065	12,599	13,000
Wages	$	293,529	22,699	17,056
Total	**$**	**373,594**	**35,289**	**30,056**
Gross value of production	$	748,494	160,752	61,123
Fuel and electricity used	$	60,009	8,224	8,299
Process supplies used	$	83,828	15,023	10,000
Freight	$	45,373	.....	.....
Net Value	**$**	**559,284**	**137,505**	**42,824**

(*) All in the province of Quebec.

Table 163.—Imports of Chrome Ores into Canada, 1938-1946

Year	Tons	$	Year	Tons	$
1938(*)	9,103	142,399	1943	103,471	2,121,228
1939	16,584	232,851	1944	39,089	618,231
1940	29,938	554,413	1945	60,691	1,154,985
1941	92,952	1,460,209	1946	15,836	269,248
1942	87,628	1,271,482			

(*) Nine months only—not shown separately prior to April 1938.

Table 164.—Imports of Chrome Ores into Canada, by Principal Countries of Supply, 1945 and 1946

Imported from	1945		1946	
	Tons	$	Tons	$
British South Africa	2,420	76,197	11,040	118,556
Southern Rhodesia	31,590	458,176	.....	.....
British India	14,660	223,918	.....	.....
Cuba	71	1,956	159	4,394
Turkey	828	35,711	2,023	64,685
United States	11,122	359,027	2,614	81,613
Total	**60,691**	**1,154,985**	**15,836**	**269,248**

INDIUM

Indium was commercially recovered in Canada only in 1942 when 470 troy ounces valued at $4,710 were produced at Trail, British Columbia by the Consolidated Mining and Smelting Company of Canada, Limited. The metal was obtained in the treatment of zinc refinery residues. The United States produces a considerable quantity of indium but data relating to entire world production are not available.

The major use has been in heavy-duty composite metal bearings employed extensively in aeroplanes, tanks and other mobile equipment. A zinc-indium alloy was used in applying a non-corrosive plating to hollow-steel aeroplane propellers. Minor uses have been in solder and brazing alloys and alloyed with gold and silver for jewelry and plated articles. The first commercial use about 1927 was as a nontarnish coating on silverware. Low-melting-paint alloys also have been manufactured recently. Indium foil was used as a neutron indicator in the atomic bomb project uranium-graphite piles. Low-energy neutrons, about 1·5 electron-volt, are particularly effective in inducing artificial radioactivity in indium.

Quoting from E & M J Metal and Mineral Markets—June 28, 1945—"The price situation in indium remains unsettled. During the last week producers lowered the quotation to $3 an ounce troy, a reduction of $1. Supplies are ample, reflecting increased recovery of this by-product of zinc operations that has occurred in recent years. Use of indium has expanded but not at a rate to keep pace with production. At the beginning of the year indium was quoted at $7.50 an ounce troy and a year prior to that at $10."

At the close of 1945 the quoted price of indium was $2.25 per ounce troy. The price remained at this level through 1946.

IRON ORE

Only two of the many known iron-bearing districts in Canada produced ore in 1946, namely Michipicoten, northeast of Lake Superior, and Steep Rock, 150 miles west of Port Arthur. No work was done on the magnetite deposits of eastern Ontario. Plans for the use of the magnetite ore of the Pacific coast did not mature.

ALGOMA ORE PROPERTIES, LIMITED—HELEN MINE—The large body of siderite at the Helen mine extends several thousand feet eastward from the original hematite deposit from which 2,520,865 long tons of ore was shipped between 1900 and 1918. The siderite has been drilled beneath the former hematite deposit and eastward beneath the siderite outcrop, to outline 100,000,000 tons of siderite ore.

During 1946 ore was extracted from two open-pits, the New Helen pit adjacent on the east of the former hematite deposit, and the Victoria pit, about ¾ mile to the east of the New Helen pit. The crude ore from the Victoria pit was treated by the sink and float process to reduce the silica content.

The New Helen and Victoria pits furnished 843,420 long tons of siderite to the sintering plant on the Algoma Central Railway at Wawa. The Josephine mine, 8 miles northeast of the Helen mine shipped 97,480 long tons of hematite concentrate to Wawa. From this siderite and hematite there was made 552,056 long tons of sinter. Somewhat more than half this sinter was used in the furnaces of Algoma Steel Corporation at Sault Ste. Marie, Ontario, owners of the mine, and the remainder was exported to the United States. Algoma Ore Properties is the sales agent.

MICHIPICOTEN IRON MINES, LIMITED—JOSEPHINE MINE—On September 15, 1946 caving commenced above one of the stopes and continued through the surface, which is the bottom of a small lake that had been drained to facilitate mining. This let into the mine an estimated 80,000 cubic yards of mud and slime which flooded the lower levels. As the mine had been operated as a loss up to this time, Sherritt Gordon Mines Limited, (which controls Michipicoten Iron Mines Limited) decided not to pump it out.

STEEP ROCK IRON MINES, LIMITED—STEEP ROCK MINE—Preparations were commenced to open the "A" orebody, 1½ miles north of "B". This involves some preliminary drilling, pumping out the remainder of the Middle Bay of Steep Rock Lake, and removing the overburden. The surface of "B" orebody lies 170 feet, and "A", 333 feet below the former surface of the lake. From the preliminary drilling, it appears that "A" orebody will be capable of providing an annual output somewhat larger than that from "B", after it has been fully prepared for mining. It is estimated that two or three years will be required to complete the preparations, though a limited output may be attained in the meantime.

Steep Rock crude ore is separated by screening into three shipping grades.

Shipments in 1946 were all made through the ore dock of Canadian National Railways at Port Arthur. Most of the ore was sold in the United States, Cleveland-Cliffs Iron Company being the sales agent.

LABRADOR AND QUEBEC—Prospecting of this extensive iron range, astride the Labrador-Quebec boundary in the central part of the Ungava peninsula, has indicated high-grade hematite deposits for a length of 100 miles. The width of the iron-bearing formation varies from 20 to 40 miles. It has been impossible up to present to cover the whole of this large area of 3,000 square miles or more of favourable ground with more than rather cursory and wide-spaced traverses. Work has been concentrated on the central section about 50 miles in length and 5 miles in width within which are located most of the large and high-grade deposits so far discovered. Within and beyond this central area, large deposits of medium grade ore (40 to 50 per cent iron in the outcrops) have been found, as well as very large areas of the siliceous iron formation. On none of these deposits has enough work been done to determine the full dimensions. Hollinger North Shore Exploration Company, a subsidiary of Hollinger Consolidated Gold Mines Limited, holds the concession on the Quebec side of the border, and Labrador Mining and Exploration Company Limited, controlled by Hollinger Consolidated, the concession on the Labrador side. M. A. Hanna Company of Cleveland has a minority interest.

Development work during the brief field season of 1946 consisted mainly of drilling on some of the larger outcrops in the central section astride the height-of-land which constitutes the Quebec-Labrador boundary. This drilling showed that, in some deposits at least, the hard, dense hematite of the surface outcrops constitutes a covering or crust on top of softer ore that resembles fairly closely the characteristic high-grade ore of the Mesabi range in Minnesota. Several of the outcrops are thousands of feet in length and hundreds of feet in width. A satisfactory depth has been determined in several places. There is thus some definite evidence that large open-pit operations can be established in due course.

Table 165.—Principal Statistics for the Iron Ore Mining Industry in Canada, 1944-1946

—		1944	1945	1946
Active firms	No	8	10	11
Employees—On salary	No	99	145	72
Wage-earners	No	580	657	751
Total	**No**	**679**	**802**	**823**
Salaries and Wages—Salaries	$	242,271	272,716	224,505
Wages	$	1,220,182	1,481,956	1,719,931
Total	**$**	**1,462,453**	**1,754,672**	**1,944,436**
Gross value of production	$	1,909,608	3,635,095	6,822,947
Fuel and electricity used	$	642,761	709,398	687,011
Process supplies used	$	200,438	304,666	604,081
Freight and treatment charges	$	276,653	1,367,526	2,065,095
Net Value	**$**	**789,756**	**1,253,505**	**3,166,760**

Table 166.—Production of Iron Ore(*) in Canada, 1939-1946

Year	Short tons	Value	Year	Short tons	Value
		$			$
1939	123,598	341,594	1943	641,294	2,032,240
1940	414,603	1,211,305	1944	553,252	1,909,608
1941	516,037	1,426,057	1945	1,135,444	3,635,095
1942	545,306	1,517,077	1946	1,549,523	6,822,947

(*) Exclusive of titanium-bearing ores. All iron ore was from mines in Ontario, except 187 tons from Quebec in 1942 and 143,062 tons from New Brunswick in 1943.

Table 167.—Imports into Canada and Exports of Iron Ore, 1937-1946

Year	Imports		Total(*)	Exports
	From United States	From Newfoundland		
	(Tons of 2,000 pounds)			
1937	1,416,015	1,188,771	2,124,972	4,644
1938	631,031	607,025	1,302,430	209
1939	1,205,261	1,606,775	1,764,844	10,540
1940	524,849	716,317	2,418,237	251,626
1941	2,212,437	962,259	3,254,655	282,068
1942	2,033,961	610,871	2,701,968	295,960
1943	2,978,388	911,450	3,906,425	374,677
1944	2,501,737	624,890	3,126,649	308,424
1945	2,988,484	736,665	3,739,867	771,495
1946	1,686,236	518,566	2,281,677	1,145,256

(*) Includes some ore from other countries, principally Brazil.

Table 168.—Iron Ore Charged to Iron Blast Furnaces in Canada, 1937-1946

Year	Canadian	Imported	Total
	(Tons of 2,000 pounds)		
1937	.....	1,796,562	1,796,562
1938	.....	1,382,565	1,382,565
1939	50,570	1,425,536	1,476,106
1940	154,643	2,188,074	2,342,717
1941	166,263	2,542,826	2,709,089
1942	229,253	3,383,439	3,612,69[illegible]
1943	302,780	2,955,671	3,258,4[illegible]
1944	266,150	3,227,039	3,493,189
1945	235,757	2,797,697	3,033,454
1946	358,173	2,167,900	2,526,073

The Primary Iron and Steel Industry

Table 169.—Provincial Distribution of Active Plants in the Primary Iron and Steel Industry, 1946

Province	Number of firms	Pig Iron		Steel Ingots and Castings		Rolling and drawing mills	Ferro-alloys (a)
		Number of plants	Number of blast furnaces	Number of plants	Number of steel furnaces		
Nova Scotia	3	1	4	2	17	2	.....
Quebec	13	.....	.....	10	22	3	1
Ontario	17	3	10	11	74	10	3
Manitoba	3	.....	.....	3	5	1	.....
Alberta	2	.....	.....	2	2	.....	.....
British Columbia	7	.....	.....	7	11	.....	.....
Canada(b)	**45**	**4**	**14**	**35**	**131**	**16**	**4**

(a) Not including artificial abrasive plants which made ferrosilicon as a by-product.
(b) Some firms operate in more than one province.

Table 170.—Principal Statistics of the Primary Iron and Steel Industry, 1946

Province	Number of plants	Average number of employees	Salaries and wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
			$	$	$	$
Nova Scotia	5	4,377	7,752,182	1,711,984	9,176,713	14,942,738
Quebec	14	3,691	6,978,934	1,477,899	5,217,082	19,097,206
Ontario	27	15,078	34,064,990	9,415,101	52,829,743	114,303,838
Manitoba	4	788	1,257,032	365,680	1,068,935	3,696,512
Alberta, British Columbia	2, 7	262	462,759	61,459	175,960	1,042,322
Canada	**59**	**24,196**	**50,515,897**	**13,032,123**	**68,468,433**	**153,082,616**
Per cent change 1946 from 1945	.....	−17·6	−12·7	−18·6	−20·8	−20·4

NOTE.—Profits or losses cannot be calculated from above figures as data are not available for general expense items such as interest, rent, depreciation, taxes, insurance, advertising, etc.

Table 171.—Materials Charged to Iron Blast Furnaces, 1945 and 1946

Material	1945		1946	
	Quantity	Cost at furnace	Quantity	Cost at furnace
	Net tons	$	Net tons	$
Iron ore—Canadian (crude)	56,082	245,636	82,461	368,506
Imported (crude)	2,228,075	9,707,841	1,644,113	6,764,781
Canadian (beneficiated)	179,075	759,447	275,712	1,208,210
Imported (beneficiated)	569,622	2,484,705	523,787	2,141,401
Mill cinder, roll scale, flue dust, etc	281,189	1,255,914	161,679	643,321
Scrap (net charge)	37,067	374,158	23,070	271,000
Limestone—				
From Canadian quarries	240,247	346,000	189,794	280,911
From foreign sources	516,931	699,477	433,153	559,384
Dolomite	39,418	56,520	20,955	27,056
Coke	1,631,852	15,447,205	1,320,620	13,422,208
Other materials	.....	269,277	.....	309,841
Total	.....	**31,616,180**	.....	**25,996,619**

Table 172.—Production of Pig Iron and Sales by Producers, 1945 and 1946

Grade	Delivered in molten condition	Machine cast	Total tonnage made	Sales	
				Quantity	Income from sales
	Net tons	Net tons	Net tons	Net tons	$
1945					
Basic	1,292,264	127,941	1,420,205	82,329	1,676,071
Foundry	.....	198,244	198,244	195,371	4,195,823
Malleable	.....	159,500	159,500	151,202	3,655,132
Total	**1,292,264**	**485,685**	**1,777,949**	**428,902**	**9,527,026**
1946					
Basic	1,012,842	95,953	1,108,795	26,202	617,806
Foundry	.....	151,223	151,223	148,119	3,565,819
Malleable	.....	146,234	146,234	146,204	3,903,778
Total	**1,012,842**	**393,410**	**1,406,252**	**320,525**	**8,087,403**

NOTE.—Silvery pig iron has been included with ferro-alloys.

Table 173.—Imports into Canada and Exports of Pig Iron, 1936-1946

—	Imports		Exports	
	Net tons	$	Net tons	$
1936	4,435	74,589	15,572	304,682
1937	7,135	144,354	43,138	851,701
1938	2,377	62,494	11,811	224,261
1939	657	15,176	12,015	221,787
1940	29,703	672,489	4,113	101,126
1941	4,729	131,112	380	10,090
1942	1,536	42,718	427	12,175
1943	7,118	173,598	438	11,163
1944	8,516	235,066	5,698	123,681
1945	7,589	231,062	21,854	493,159
1946	12,125	344,529	939	23,673

Table 174.—Consumption of Pig Iron in Canada, by Industries and by Provinces, 1943-1946 (as reported by consumers)

—	1943	1944	1945	1946
	Net tons	Net tons	Net tons	Net tons
(a) BY INDUSTRIES				
Steel ingots and castings	1,518,548	1,513,586	1,416,844	1,085,005
Iron castings	169,272	171,397	173,185	173,567
Boilers, tanks and platework	27,593	27,897	36,476	36,602
Agriculture implements	17,483	17,511	26,521	27,[illegible]
Machinery	21,011	21,170	22,149	25,734
Automobiles	.....	5,197	5,197	7,[illegible]
Automobile parts	12,785	35,540	10,641	9,[illegible]
Railway rolling stock	24,518	31,638	28,234	21,[illegible]
Brass and copper products	1,461	1,104	2,170	3,[illegible]
Shipbuilding	1,233	1,749	3,488	[illegible]
Hardware and tools	1,966	2,205	3,223	3,[illegible]
Miscellaneous iron and steel	713	673	775	1,[illegible]
Heating and cooking apparatus	24,601	23,087	26,321	22,[illegible]
Electrical apparatus and supplies	2,150	2,954	4,426	2,[illegible]
Total	**1,823,334**	**1,855,708**	**1,759,650**	**1,420,886**
(b) BY PROVINCES				
Prince Edward Island	65	80	97	45
Nova Scotia	384,528	393,008	393,291	295,705
New Brunswick	3,723	3,450	4,413	3,786
Quebec	73,992	73,022	101,107	74,961
Ontario	1,350,304	1,378,233	1,245,198	1,031,843
Manitoba	4,948	2,770	7,679	11,347
Saskatchewan	.....	115	58	70
Alberta	120	76	164	221
British Columbia	5,654	4,954	7,643	2,908
Canada	1,823,334	1,855,708	1,759,650	1,420,886

Table 175.—Production of Ferro-Alloys, 1936-1946

Year	Net tons	Year	Net tons
1936	85,438	1941	204,354
1937	91,921	1942	209,017
1938	62,637	1943	197,094
1939	85,540	1944	171,323
1940	149,394	1945	178,109
		1946	145,022

Table 176.—Production of Steel Ingots and Steel Castings and Sales by the Producers, 1945 and 1946

—	1945			1946		
	Total tonnage of steel made (all kinds) including alloys	Sales		Total tonnage of steel made (all kinds) including alloys	Sales	
		Quantity	Income from sales		Quantity	Income from sales
	Net tons	Net tons	$	Net tons	Net tons	$
STEEL INGOTS—						
Basic open hearth	2,399,858	23,488	882,918	1,897,960	38,903	1,496,658
Electric	357,291	21,784	2,490,922	353,781	3,685	815,617
Total Steel Ingots	**2,757,149**	**45,272**	**3,373,840**	**2,251,741**	**42,588**	**2,312,275**
STEEL CASTINGS—						
Basic open hearth	31,216	31,365	6,532,300	24,566	23,482	5,153,218
Converter	942	974	276,265	600	620	197,491
Electric	88,620	70,636	17,939,318	50,378	51,173	13,306,597
Total Steel Castings	**120,778**	**102,975**	**24,747,883**	**75,544**	**75,275**	**18,657,306**
Total Steel Ingots and Castings	**2,877,927**	**148,247**	**28,121,723**	**2,327,285**	**117,863**	**20,969,581**
Any other products	.....	23,033	3,242,415	.....	.....	893
Total All Products	.....	**171,280**	**31,364,138**	.....	.....	**20,970,474**
Alloy steel included in above—						
Ingots	305,542	4,569	702,610	100,016	533	80,000
Castings	14,022	10,563	3,369,705	10,697	10,335	2,855,062
Total	**319,564**	**15,132**	**4,072,315**	**110,713**	**10,868**	**2,935,062**

Table 177.—Summary of Steel Furnace Capacity, December 31, 1946

—	Number of furnaces	Total annual capacity
		Net tons
Basic open hearth	49	2,796,876
Electric	79	751,941
Converter	3	10,100
Total	**131**	**2,558,917**
Steel ingots—Basic open hearth	.....	2,745,500
Electric	.....	470,799
Total	.....	**3,216,299**
Steel castings	.....	342,627
Total Ingots and Castings	.....	**3,558,917**

Table 178.—Materials Used in Steel Furnaces, 1945 and 1946

Material	1945		1946	
	Quantity	Cost of purchased materials	Quantity	Cost of purchased materials
	Net tons	$	Net tons	$
Pigiron—Own make	1,363,495	.....	1,062,013	.....
Purchased	53,349	1,243,241	22,992	587,308
Scrap iron or steel—Own make	876,275	.....	723,365	.....
Purchased	865,620	15,370,285	793,649	14,701,571
Spiegeleisen	3,404	171,614	3,319	166,156
Silicospiegeleisen	176	14,670	130	11,019
Ferromanganese—High carbon	5,585	656,257	4,088	495,606
Medium carbon	14,046	1,726,290	9,285	1,185,983
Low carbon	565	96,335	450	80,393
Silicomanganese	7,967	899,689	5,131	580,570
Ferrosilicon—15%	2,319	124,723	2,225	103,669
25%	1,049	63,059	95	5,500
50%	6,426	427,822	4,845	311,148
75%	202	24,897	94	11,215
85-90%	212	30,815	153	24,459
Ferrochrome (including chrom-x)—High carbon	1,582	323,694	752	137,701
Low carbon	1,173	436,469	879	316,225
Ferromolybdenum	71	110,897	166	186,271
Ferrophosphorus	423	37,101	310	26,717
Ferroselenium	1	2,277	2	3,196
Ferrotitanium	656	123,975	416	73,485
Ferrotungsten	138	455,317	260	402,174
Ferrovanadium	57	188,661	46	139,197
Ferrozirconium	5	836	34	2,617
Calcium silicon	206	67,130	22	6,431
Calcium manganese silicon	589	193,020	299	95,986
Other ferro-alloys	.....	943	.....	40,476
Aluminum ingot and shot	828	197,132	678	160,925
Copper ingots, cakes, shot, etc.	131	30,023	264	59,054
Nickel	1,523	916,645	577	340,552
Other metals	.....	75,189	.....	28,824
Ore, iron, crude	106,614	1,068,504	132,613	1,094,071
Ore, manganese	.....	.....	2	125
Ore, chrome	745	35,998	424	22,591
Ore, tungsten	197	395,674	1	278
Bentonite	3,161	83,424	2,786	64,912
Coal, anthracite	309	4,005	340	4,428
Coal, bituminous	323	3,655	437	4,332
Coke	4,512	53,032	6,919	82,029
Charcoal	145	6,713	111	4,634
Dolomite—Crude	71,060	209,716	66,262	203,328
Calcined	6,146	111,581	3,788	66,473
Fluorspar	19,462	669,813	13,805	456,443
Ganister	5,568	17,948	3,783	13,179
Graphite	526	53,955	811	80,312
Lime	64,294	436,239	50,936	344,619
Limestone—Canadian	94,010	158,008	79,863	136,054
Imported	123,489	159,971	101,577	126,376
Magnesite	17,016	680,588	12,311	503,298
Electrodes	.....	929,529	.....	735,375
Silica sand—For moulds	75,619	512,848	53,967	358,899
For sand blasting	5,260	51,508	3,906	41,593
Other foundry sands	.....	80,691	.....	32,722
Firebrick, fireclay and other refractories	.....	2,287,145	.....	1,433,935
Calcium molybdate	115	116,753	17	26,352
Molybdenum trioxide (molybdic oxide) briquettes	314	517,138	37	52,347
All other materials	.....	2,936,078	.....	1,154,431
Total value of metals, ores and other materials used	.....	**35,589,520**	.....	**27,347,564**

MAGNESIUM

Production of magnesium in Canada in 1946 was confined to a small tonnage made in a pilot plant operated by Aluminum Company of Canada at Arvida, Quebec. Based on data obtained from this work, the company is building an electrolytic magnesium plant having an initial rated capacity of 1,000 tons a year. The raw material will be magnesia obtained from brucitic limestone at the company's Wakefield, Quebec, plant.

Dominion Magnesium Limited, Haley, Ontario, shipped a considerable tonnage of magnesium from stock and also made and shipped various magnesium alloys, but there was no production of the metal.

Progress was made in developing and furthering the use of magnesium and its alloys and prospects are good for the greater utilization of this light metal in the near future.

Light Alloys Limited, Renfrew, Ontario, enlarged the capacity of its magnesium foundry and installed die-casting equipment. Magnesium foundries were also operated by Robert Mitchell Company, Limited, Montreal, and by Western Magnesium Limited, Vancouver.

Dolomite, the double carbonate of calcium and magnesium, and which contains 13 per cent of magnesium, is found in all provinces of Canada except Prince Edward Island. It is particularly abundant in Ontario and Manitoba.

Magnesite, the carbonate of magnesium, containing 28·7 per cent magnesium, and hydromagnesite, containing 26·5 per cent of magnesium, are available in British Columbia. Deposits of magnesitic dolomite consisting of an intimate mixture of magnesite and dolomite occur in Argenteuil county, Quebec, where they are being worked for the production of basic refractories. The magnesite deposits in British Columbia are undeveloped, but magnesium has been made from them on an experimental scale. Magnesitic dolomite possesses no advantages over dolomite or magnesite as a source of magnesium.

Brucite, in the form of granules 1 to 4 mm. in diameter thickly disseminated throughout crystalline limestone and forming 20 to 35 per cent of the volume of the rock, occurs in large deposits in Ontario and Quebec. Brucite is the hydroxide of magnesium and contains 41·6 per cent of magnesium. The Canadian deposits are the largest known in the world. The brucite is being recovered in the form of granules of magnesia from one of these deposits near Wakefield, Quebec, and though the granular magnesia so obtained is being used principally for the manufacture of basic refractories and as an ingredient in chemical fertilizers, it is a very suitable raw material for the production of magnesium metal.

Serpentine, the silicate of magnesium, contains 25·8 per cent of magnesium, and occurs in many deposits throughout Canada. It is also available in huge waste dumps aggregating probably 100,000,000 tons in the asbestos-producing region of Quebec. The average magnesium content of these dumps is about 23 per cent. A process has been worked out for the recovery of magnesium from serpentine.

Sea-water, although it contains only 0·13 per cent magnesium, is a source of the metal in England and the United States. Dolomitic lime is used to precipitate the magnesia from the sea-water in the form of hydroxide, and the magnesia from both is recovered in the process.

Underground brines containing $MgCl_2$ and residual brines from salt-making operations, containing $MgCl_2$, are used in the United States as sources of magnesia and magnesium, but brines containing sufficient $MgCl_2$ to render them of value are not available in Canada.

Processes for the production of the metal from the various raw materials may be divided into two groups, namely, electrolytic, and thermal. The electrolytic process provides most of the magnesium made, except in Canada where a thermal reduction process is used. The three thermal reduction processes in use throughout the world involve reduction of magnesia with carbon (in use in the United States); reduction of magnesia with calcium carbide (in use in the United Kingdom); and reduction of calcined dolomite with ferrosilicon (in use in Canada, the United States, and Italy).

The field of usefulness of magnesium is steadily expanding. Magnesium was formerly used almost exclusively in pyrotechnics, but it is used also as a structural metal, particularly in the form of castings and extruded shapes. For structural use it is alloyed with various portions of other elements. It is used as a constituent in many aluminum-base alloys.

The price quoted by Engineering and Mining Journal for magnesium in ingot form in carload lots during 1945 was 20½ cents per pound, U.S. currency, f.o.b. New York.

Table 179.—Production of Primary Magnesium Metal in Canada, 1916-1918 and 1941-1946

Year	Quebec		Ontario		British Columbia		**Canada**	
	Pounds	$	Pounds	$	Pounds	$	**Pounds**	**$**
1916-1918	(a)	(a)	.....	.....	(b) 200,000	(b)	.....	.....
1941	.....	.....	.....	.....	(c) 10,905	2,944	**10,905**	**2,944**
1942	141,081	62,076	473,910	208,520	193,727	85,240	**808,718**	**355,836**
1943	.....	.....	7,153,974	2,074,652	.....	.....	**7,153,974**	**2,074,652**
1944	.....	.....	10,579,778	2,575,695	.....	.....	**10,579,778**	**2,575,695**
1945	.....	.....	7,358,545	1,607,264	.....	.....	**7,358,545**	**1,607,264**
1946	.....	.....	320,677	75,538	.....	.....	**320,677**	**75,538**

(a) Magnesium metal produced in 1918 at Shawinigan Falls, Quebec by Shawinigan Electro Metals Company Limited from imported magnesium chloride but data not available.
(b) Approximately 200,000 pounds produced at Trail from imported magnesium chloride; complete data not available.
(c) Powder.

Table 180.—Consumption of Magnesium Ingots in Canada, 1943-1946

—	1943	1944	1945	1946
	Pounds	Pounds	Pounds	Pounds
In non-ferrous smelters	1,298,650	1,480,528	487,773	441,000
In white metal alloy foundries	16,821	55,496	37,740	142,145
In brass and bronze foundries	132,465	51,040	66,116	17,256
In aluminum products	89,523	34,930	45,452	15,061
Total accounted for	**1,537,459**	**1,621,994**	**637,081**	**615,772**

MANGANESE

All manganese properties in Canada have been inactive since 1943. The small Canadian production in the past came mainly from deposits in the Maritime Provinces. Known deposits of high-grade manganese in Canada are small and are almost exhausted. No commercial grade deposits have been found and future production appears to be unlikely unless sufficient manganese is disclosed during the operation of the iron deposits of Steep Rock Iron Mines, Limited, west of Port Arthur, Ontario, to warrant its recovery as a by-product. Consumption is steadily increasing, however, as adequate supplies of high quality ore can now be obtained from foreign deposits, the output from which was restricted during the war.

World production of manganese ore is estimated to be between five and six million tons annually, the leading producing countries being Russia, British India, Gold Coast, United States, Union of South Africa, Brazil, and Cuba. Prior to the last war, Russia was the source of nearly half the world production, the principal deposits being in the Republic of Georgia and Ukraine. During the last quarter of 1945 Russia was the largest individual shipper of manganese ore to the United States.

Price quotations in New York, December 1946, show manganese ore at 70 cents per long ton unit of contained Mn, basis 48 per cent. Chemical grades, coarse or fine, minimum 80 per cent MnO_2 were quoted at $60 to $65 per ton. Manganese metal, electrolytic, 99·9 per cent Mn had a nominal price of 32 cents per pound.

Table 181.—Production of Manganese Ore in Canada, 1937-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1937	85	817	1942	435	8,932
1938	.....	.....	1943	48	985
1939	396	3,688	1944	.....	.....
1940	152	4,315	1945	.....	.....
1941	(x)	(x)	1946	.....	.....

(x) 7,500 pounds manganese metal produced at the mine from Nova Scotia manganese ore.

Table 182.—Imports of Manganese Ore into Canada, 1937-1946

Year	Tons	$	Year	Tons	$
1937	77,226	892,269	1942	57,389	860,248
1938	21,050	463,673	1943	51,234	1,445,252
1939	29,787	621,931	1944	85,795	2,370,109
1940	70,460	777,416	1945	198,277	4,571,592
1941	104,473	1,170,768	1946	144,023	2,484,707

Table 183.—Imports of Manganese Ore into Canada, by Principal Countries of Supply, 1944-1946

—	1944	1945	1946
	Tons	Tons	Tons
From—Gold Coast	42,442	182,779	130,907
British India	33,832	11,927	.....
Chile	2,493	.....	.....
South Africa	.....	.....	345
United States	7,024	3,569	12,768
United Kingdom	4	2	3
Total imports	**85,795**	**198,277**	**144,023**

MERCURY

No mercury has been produced in Canada since the summer of 1944, all shipments in 1945 being from stock. All of the Canadian production has come from the Pinchi mine of the Consolidated Mining and Smelting Company of Canada, Limited, and from the Takla property of Bralorne Mines Limited, both of these mines being in the Omineca Mining Division, British Columbia. The Pinchi mine was the largest single producer of mercury in the western hemisphere.

In contrast with the shortages of most other metals mercury was in abundant world supply in 1946, and prices for the metal continued to decline appreciably. Chief contributing factor to this decline was the excess of supplies in Europe, the principal source of output, in relation to the demand. Other factors of importance were the discovery of large stockpiles of mercury in the American zone of Germany and in Japan. Operation of the Mercurio Europeo Cartel also had a depressing effect on the market. During the latter part of 1946 this Italo-Spanish combine appointed London and Scandinavian Metallurgical Company as the agent for the United States, and Elder, Smith and Company for the British Empire.

In the United States, the development for military use, of the small mercury cell of "tropical dry battery" accounted for a substantial increase in the consumption of mercury late in the war. Production of the cells for several types of military batteries and for hearing-aid use is under way. Work has been concentrated on the development of new designs and on more economical manufacture. The battery is not being made in Canada.

A comparatively recent development is the use of a mercury clutch for fire engine pumps, helicopters, for the electric motors of refrigerator equipment, washing machines, etc. A water repellent mercury fungicide is said to afford efficient protection against mildew and to destroy microbes that attack a large variety of articles, such as textiles, paints, wood, and leather. In Germany, a considerable amount of mercury was consumed in a small cathode cell for the electrolytic production of chlorine and caustic soda. This cell has been introduced with considerable advantage in a number of alkali-chlorine plants in the United States.

The average United States price quotation at the beginning of 1946 was $105 a flask, but prices dropped to $88 in December, the year's average being $98.24, compared with nearly $135.00 in 1945. Late in 1946 the price of £30, pegged by the British Government, was lowered to £25 per flask, but in private hands the price was £20. In January, 1947, the Mercurio Europeo Cartel was asking $67.50 in bond New York or $86.50 with the U.S. import duty of $19.00 per flask.

Table 184.—Production of Mercury in Canada, 1938-1946

Year	Pounds	$	Year	Pounds	$
1938	760	760	1943	1,690,240	4,559,200
1939	436	1,226	1944	735,908	1,210,375
1940	153,830	369,317	1945	.....	.....
1941	536,304	1,335,697	1946	.....	.....
1942	1,035,914	2,943,807			

Table 185.—Production of Mercury in Canada, Consumption, Imports and Exports, 1939-1946

Year	Production in Canada	Consumption in Canada	Imports	Exports
	Pounds	Pounds	Pounds	Pounds
1939	436	89,617	109,232	.....
1940	153,830	75,643	78,597	108,000
1941	536,304	151,351	8,599	360,164
1942	1,035,196	185,118	1,971	692,753
1943	1,690,240	201,982	2,047	1,304,692
1944	735,908	130,515	35,428	362,670
1945	.....	100,700	27,101	261,720
1946	.....	102,320	152,719	57,005

Table 186.—Consumption of Mercury in Canada by Principal Uses, 1942-1946

Industries	1942	1943	1944	1945	1946
	Pounds	Pounds	Pounds	Pounds	Pounds
Pharmaceuticals and fine chemicals	78,362	79,786	24,307	20,652	26,183
Heavy chemicals	50,968	72,531	78,300	53,701	45,005
Electrical apparatus	42,313	30,065	4,652	(*) 4,500	12,192
Gold mines	(*) 10,000	(*) 10,000	(*) 10,000	(*) 10,000	6,450
Miscellaneous	3,475	9,600	13,256	11,847	12,490
Total	**185,118**	**201,982**	**130,515**	**100,700**	**102,320**

(*) Estimated.

MOLYBDENUM

Molybdenite Corporation of Canada, Limited, the only Canadian producer of molybdenum ore in 1946, has maintained a continuous output from the La Corne mine in La Corne township, Quebec, since July, 1945, when it took over the property from Wartime Metals Corporation. As there are no plants in Canada to convert the concentrate into addition agents, there is no sale for the concentrate in Canada. Sales to the United States are barred because of tariffs and the large productive capacity in that country, consequently all shipments go to Europe. The La Corne ore contains bismuth which until recently was a disadvantage as it remained in the concentrate and a concentrate containing more then 0·5 per cent bismuth is not acceptable. During 1946, however, a process was developed by the Bureau of Mines, Ottawa, which not only freed the concentrate of this metal, but also raised the molybdenum content of the concentrate and this content is probably higher than that of any other concentrate produced in the world. The bismuth is saved as a by-product, for which purpose a unit was installed.

Molybdenite, the chief ore of molybdenum, is a soft and shiny steel-blue-grey sulphide containing 60 per cent of the metal. In eastern Canada it is usually found in pegmatite dykes or along the contacts of limestone and gneiss, commonly associated with greenish grey pyroxenites in which other metallic minerals such as pyrite and pyrrhotite often occur. In northern and western Ontario, Quebec, and in British Columbia, molybdenite usually occurs in quartz or in quartz veins, along the contacts of, or intruded into granites, or diorites. It generally occurs in the form

of soft, pliable flakes or leaves, but it is sometimes semi-amorphous, filling cracks and smearing the rock surface. It can be readily distinguished in the field by the olive-grey-green smear it leaves when rubbed on glazed white porcelain or enamel. Graphite, for which it is often mistaken leaves a grey-black smear.

Molybdenite concentrate is converted into an addition agent that is introduced into steel as molybdenum trioxide, ferromolybdenum, or to a small extent as calcium molybdate. The oxide is usually moulded into briquettes which weight 5 pounds each, and contain 2½ pounds of molybdenum.

Molybdenum has a widening range of uses, but by far the greater part of the output is used in steel to intensify the effect of other alloying metals, particularly nickel, chromium, and vanadium. These steels usually contain from 0·15 to 0·4 per cent molybdenum, but in some instances the percentage is considerably higher. For high-speed tool-steels as much as 9 per cent is added.

Molybdenum alloys are used widely for the hard-wearing and other important parts of aeroplanes. They are used in the automobile industry, in high-grade structural die and stainless steels; and to some extent in high-speed tool-steels. Molybdenum is used in cast iron and in permanent magnets. Much molybdenum wire and sheet is used in the radio industry; and new alloys suitable for electrical resistance and contacts and for heating elements contain molybdenum.

The chemical used continue to increase, and the salts are used in pigments, in vitreous enamels for coating steels and sheet iron, in welding rod coatings, and for analytical work.

United States specifications for concentrate dried at 212°F. are: MoS_2, minimum 85 per cent; copper, maximum 0·6 per cent; iron, maximum 3·0 per cent; combined phosphorus antimony and tin, maxima 0·2 per cent.

There is no Canadian market for concentrates as there are no conversion plants, and since July, 1945 the only shipments have been to Europe at a price of 42½ cents per pound.

The price per pound of contained molybdenum, f.o.b. Toronto, in Canadian funds, for the following imported compounds is approximately: calcium molybdate (42 per cent Mo), 90 cents; ferromolybdenum (60 per cent Mo), $1.13 and molybdic oxide (52 per cent Mo), 90 cents. Calcium molybdate is sold in bags of about 12½ pounds containing exactly 5 pounds of molybdenum.

Table 187.—Molybdenite Mining in Canada, 1944-1946

—		1944	1945	1946
Active firms	No.	4	3	(*)
Employees—On salary	No.	31	21	.....
Wage-earners	No.	148	98	.....
Total	No.	**179**	**119**	.....
Salaries and wages—Salaries	$	62,954	34,295	.....
Wages	$	332,512	189,729	.....
Total	$	**395,466**	**224,024**	.....
Gross value of production	$	1,079,698	411,663	295,640
Fuel and electricity used	$	54,614	34,991	
Process and supplies used	$	103,774	35,736	100,594
Freight and treatment charges	$	72,681	42,613	
Net value of production	$	**848,629**	**113,340**	**195,046**

(*) Only one firm in 1946.

Table 188.—Production of Molybdenite in Canada, 1937-1946

Year	Ores milled	Ores and concentrates shipped or used		Total MoS_2 content of shipments
	Tons	Tons	Value (a)	Pounds
			$	
1937	5,307	8·25	8,147	(b)
1938	(b)	6·5	4,500	(b)
1939	1,492	1·3	816	(b)
1940	3,936	11·1	10,280	(b)
1941	28,100	98·3	88,470	173,991
1942	39,708	113·7	134,063	158,780
1943	120,576	392·4	549,515	653,200
1944	187,130	1,064·0	1,079,698	1,870,132
1945	80,575	489·1	411,663	839,419
1946	84,280	318·2	295,640	676,844

(a) Value as given by the operators 1937 to 1939; 1940 to 1945 value estimated using market or Government prices.
(b) Not known.

PITCHBLENDE

Pitchblende, the ore of radium and uranium, is mined in Canada only in the Great Bear district of the Northwest Territories. Prospecting reports indicate that radioactive minerals have been found at Contact Lake, Northwest Territories, Lake Athabaska, Saskatchewan and Haliburton county, Ontario.

Statistics on pitchblende ores and products have not been available since 1940.

Table 189.—Canadian Refinery Production of Pitchblende Products

Year	$	Year	$
1933 (a)	247,900	1938	1,045,458
1934	159,400	1939	1,121,553
1935	413,700	1940	410,176
1936	605,500	1941-1946	(b)
1937	876,540		

(a) First production.
(b) Not available.

SELENIUM

Selenium is fairly widely distributed, but in no case does it occur in quantity large enough to be mined for itself alone. It is not widely used in industry though new uses are being steadily developed. Canada and the United States are the principal sources of supply.

In Canada selenium is recovered during the refining of blister copper produced in Manitoba, Ontario, and Quebec, and was first produced in the Dominion in 1931 in the copper refinery of International Nickel Company of Canada at Copper Cliff, Ontario. The only other producer is Canadian Copper Refiners, Limited, with refinery at Montreal East, Quebec, where production was commenced in November, 1934. The Copper Cliff product is derived from the treatment of the copper-nickel ore of the Sudbury district, and at Montreal East the selenium by-product is obtained from the treatment of the gold-copper ore of Noranda, Quebec, and the gold-copper zinc ore of the Flin-Flon mine on the boundary line between Manitoba and Saskatchewan. The plant at Montreal East is the largest producer of selenium in the world.

A plant for the manufacture of selenium compounds was erected in 1944 at Montreal East by Canadian Copper Refiners, Limited. The compounds being made in addition to refined selenium are double distilled selenium, C.P. selenium, commercial selenium dioxide, sodium selenite, and sodium selenate.

Selenium is marketed as a black to steel-grey amorphous powder, but cakes and sticks are also obtainable. Among the other products are ferroselenium, sodium selenite, selenious acid, and selenium dioxide. The most important outlets for selenium prior to the war were in glass, rubber,

and paint industries. The greatest single development in the utilization of selenium since 1939 has been in its use in electrical rectifiers that played such an important role in connection with radar and with generators for aeroplanes and army field equipment. Considerable quantities are being used as accelerators in the vulcanization of synthetic rubber. Selenium is used to develop free machining qualities in stainless metal and as an ingredient of austenitic chromium steels. For the latter purpose it is supplied in bars of selenium-bearing stainless metal.

Selenium is useful in producing good ruby glass; is a quality-improver in lubricating oil; and is a potent ingredient of anti-fouling paints for ship bottoms.

Since 1938, the nominal price for selenium, black powdered, 99·5 per cent pure, at New York has been $1.75 per pound.

Table 190.—Production of Selenium in Canada, 1937-1946

Year	Pounds	$	Year	Pounds	$
1937	397,227	687,203	1942	495,369	951,108
1938	358,929	622,742	1943	374,013	654,523
1939	150,771	266,714	1944	298,592	537,466
1940	179,860	343,533	1945	379,187	728,039
1941	406,930	777,236	1946	521,867	949,798

TANTALUM-COLUMBIUM

Canada produces no tantalite or columbite and according to the Bureau of Mines, Ottawa, the known Canadian occurrences of these minerals are scarce and of undetermined economic interest. The minerals tantalite and columbite are the tantalate and columbate, respectively, of iron and manganese, with the general formula $(Fe,Mn)(Ta,Cb)_2O_6$. They grade one into the other according as whether tantalum or columbium predominates. Both tantalite and columbite were of increasing importance in the war effort and tantalite was placed in the group of "strategic" minerals having the highest priority rating. The occurrence of all tantalum-columbian minerals is restricted to granite-pegmatites, or to residual or alluvial deposits derived from such rock. The chief world sources of tantalite proper have been Western Australia, Belgian Congo, Southern Rhodesia, Uganda, United States and Brazil. The supply of columbite has come mainly from Nigeria, Belgian Congo, Southwest Africa, Argentina and Brazil. The annual world output of tantalite-columbite is small and complete data on same are not available at present. Tantalum metal is highly resistant to corrosion and possesses remarkable conductivity for heat; one of its important uses is in equipment, such as stills, condensers, tubes and heaters in chemical plants and laboratories; it is being used to an increasing extent in the field of electronics. Columbium is employed chiefly as an alloying component in various special-purpose steels, and also in copper, aluminum and other metals.

There are no users of tantalum or columbium ores in Canada, the chief world market being in the United States. The principal American consumer-buyer of tantalite is Fansteel Metallurgical Corporation, North Chicago, Illinois, and of columbite, Electro-Metallurgical Company, 30 East 42nd Street, New York City. These companies have been pioneers in the fields of industrial applications for tantalum and columbium metals, alloys, and products, respectively, and are the leading companies engaged in treating the ores.

United States quotations for tantalum ore, December, 1946, were, per pound Ta_2O_5, $3, to $3.50 for 60 per cent concentrate, the price depending on the source. Columbium metal, per kilo, base prices: rod $560; sheet $500. Tantalum metal, per kilo, base prices, $160.60 for C.P. rod; sheet $143; discounts on volume business.

TELLURIUM

Tellurium was first produced in Canada in 1934 at Copper Cliff, Ontario by International Nickel Company of Canada, Limited. The only other producer, Canadian Copper Refiners, Limited, started production in 1935 at its plant in Montreal East, Quebec. The former plant

treats the slime from the refining of the blister copper produced by International Nickel Company at Copper Cliff; and the latter, the slime from the refining of anode copper of Noranda Mines, Limited, Noranda, Quebec and the blister copper of Hudson Bay Mining and Smelting Company, Flin Flon, Manitoba.

Very finely powdered tellurium is used as rubber-compounding material, this being the most important use of tellurium at present. Small quantities are used as a colouring agent in the ceramic industry. When alloyed with lead the tensile strength and toughness of the lead are increased greatly. Lead alloys containing from 0·1 to 0·5 per cent tellurium have been in use for some time in applications requiring resistance to vibration and corrosion. Tellurium is used for improving the machining qualities of certain steel.

Table 191.—Production of Tellurium in Canada, 1937-1946

Year	Pounds	$	Year	Pounds	$
1937	41,490	71,777	1942	11,084	17,735
1938	48,237	82,967	1943	8,600	15,050
1939	2,940	4,769	1944	10,661	18,657
1940	3,491	5,607	1945	484	929
1941	11,453	18,394	1946	15,848	24,405

Table 192.—Consumption of Tellurium Metal in Steel and White Metal Foundries, 1940-1946

Year	Steel Foundries	White Metal Foundries
	Pounds	Pounds
1940	400	629
1941	185	492
1942	50	612
1943	135	453
1944	398	531
1945	.....	308
1946	.....	1,372

THALLIUM

There has been no production of thallium since 1944 in Canada. The first commercial production of this element in this country was in 1944 when 128 pounds valued at $1,690 was contained in residues produced by Hudson Bay Mining and Smelting Company, Limited at the Flin Flon smelter, Manitoba. These residues were exported for treatment in foreign plants. Thallium metal was quoted in the United States at $17.50 per pound nominal, December 1946. The element has an atomic weight of 204 and has been used in alloys and glass-making.

Thallium sulphate is used as a rodenticide. Lead-thallium alloys are said to be very highly resistant to corrosion and use in bearing metals has been proposed. Patents on copper-thallium bearing metals were issued in 1945 in the United States.

TIN

Tin ore, of which cassiterite (SnO_2) is the most important mineral, has so far not been found in Canada in deposits of economic importance. In many of the placer creeks of Yukon, especially the Mayo district, some crystalline cassiterite is found. Similar small occurrences have been reported from the gold-bearing placers of British Columbia. Considerable prospecting was done during the war, and although no deposits of economic value were disclosed, the geological conditions in these areas warrant further investigation.

A very small cassiterite content is found in the lead-zinc-silver ore of the Sullivan mine of The Consolidated Mining and Smelting Company of Canada, Limited, at Kimberley, British

Columbia. In view of the acute shortage of tin which developed in the early stages of the war, consideration was given to its recovery from this source. On March 1, 1941, a concentration plant treating the tailings fron the zinc flotation commenced operations, and in April 1942, the commercial production of refined tin by electric smelting was commenced.

The recovery of tin from the Sullivan ore constitutes a particularly interesting metallurgical operation. The tailings from the zinc flotation cells, amounting to around 6,000 tons per day, contain about 1·2 pounds of tin per ton. The first operation consists in removing the iron sulphides by flotation. The tailings, containing the tin, are then treated in a series of gravity concentrations which finally result in a concentrate carrying from 63 to 68 per cent tin. This product is smelted in a three-phase 400 kilowatt electric furnace of 5 tons capacity to yield high grade refined tin. Three months operation of the smelter is sufficient to handle the year's accumulation of tin concentrate.

Tin is used chiefly in the manufacture of tin plate, mainly for use in making tin cans and containers of all kinds. To conserve supplies, the use of tin in solders and in babbitt metal has been restricted in recent years and there has been wide use of low-tin or virtually tin free solders. Smaller quantities of tin are used in foil, terneplate, type metal, bronze and galvanizing.

The price of tin in New York was fixed at 52 cents a pound in August 1941, and this price was changed in 1946; and the quotation at end of December, 1946, was 69 cents per pound.

Table 193.—Production of New Tin in Canada, Domestic Consumption, Imports and Exports, 1937-1946

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks at end of period
	(Tons of 2,000 pounds)				
1937	.....	2,503	.....	2,939	Not available
1938	.....	2,305	.....	2,637	
1939	.....	2,787	.....	2,913	
1940	.....	3,868	.....	5,918	2,655
1941	32	6,436	.....	8,719	4,821
1942	619	3,571	.....	3,601	5,120
1943	390	2,865	.....	1,311	3,920
1944	258	3,383	.....	1,341	2,622
1945	425	4,108	.....	3,597	2,565
1946	437	4,152	.....	3,514	2,430

Table 194.—Production of New Tin in Canada, 1941-1946

Year	Pounds	$	Year	Pounds	$
1941(*)	64,744	33,667	1944	516,626	299,643
1942	1,237,863	643,689	1945	849,983	492,990
1943	776,937	450,623	1946	874,186	507,028

(*) First commercial production.

Table 195.—Consumption of Tin (Ingots or Bars) in Canada, by Principal Industries, 1942-1946

	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
In white metal foundries (solder, babbitt, etc.)	1,530	1,264	1,200	1,320	1,321
In steel plants (chiefly for tinplate)	1,428	1,148	1,517	2,010	2,518
In brass and bronze foundries	247	200	406	532	208
In other industries	366	253	260	246	105
Total accounted for	**3,571**	**2,865**	**3,383**	**4,108**	**4,152**

TITANIUM

Titanium-bearing ores found in Canada are of two classes. Ilmenite, containing 30 to 40 per cent TiO_2 occurs in three localities in Quebec. In the St. Urbain district on the St. Lawrence, 60 miles below Quebec City, a part of the ore contains free TiO_2 as rutile mixed with the ilmenite, and its content of TiO_2 reaches 50 per cent and more. The other two deposits are at Ivry, 65 miles north of Montreal, and Allard Lake, 12 miles north of Havre St. Pierre on the Gulf of St. Lawrence.

Titaniferous magnetite, the second class of titanium-bearing ore, is composed of the two minerals, ilmenite and magnetite, mixed intimately in varying proportions, with a content of 5 per cent or more TiO_2. This ore is more abundant and occurs more widely in Canada than does ilmenite. It is not used in this country at present as a source of titanium. Large deposits occur at Mine Centre in North-western Ontario; in the southern part of Hastings county north of Belleville, Ontario; at Desgrosbois 65 miles north of Montreal; and on the Saguenay River near Arvida, Quebec.

Deposits of magnetic beach sands containing titanium occur at a number of places on the north shore of the Gulf of St. Lawrence. An interesting bed of such sand that has been consolidated into solid ore occurs at Burmis, Alberta, just east of the Crowsnest Pass.

Small shipments of ilmenite were made formerly from the Ivry deposit, but during recent years the only production has been from the St. Urbain deposits. The largest potential source of ilmenite is the recently discovered Allard Lake ilmenite deposits from which only experimental shipments have been made. These deposits are very large, though their full extent is not yet known. The ore as exposed in hills and ridges contains several million tons above ground level. It averages about 35 per cent TiO_2, 37 per cent iron, and 3 per cent silica. Its convenient location near ocean port will permit large-scale development when there are sufficient market outlets.

The two principal uses for ilmenite are as an alloying agent in steels, and as a pigment. At Niagara Falls, N.Y., ferro-titanium and ferro-carbon-titanium alloys are made from it for use in improving the quality of steel. By far the larger part of the ilmenite consumed in the world, however, is used to make the pigment, titanium white. New uses for this pigment are being found constantly and the demand continues to increase rapidly. There were reports during the year of a Canadian plant to make titanium white, but no definite action was taken.

To the present the substantial amounts of titanium white used in Canada have been imported from the United States. A part of the ore for the United States plants is produced in the southern states. Normally much of the ore for these plants was Tranvancore sand from India, which is particularly well suited to the process at present in use. When this became unobtainable during the war the McIntyre titaniferous magnetite deposit in New York state was opened and operated on a large scale, but this property has been closed.

Prices f.o.b. Atlantic ports were: Ilmenite, 60% TiO_2—January \$28-\$30; 57-60% TiO_2—June \$24-\$26, November \$22-\$24. Rutile, 94% TiO_2—nominally 8-10 cents per pound (probably averaged around 6 cents).

Table 196.—Production of Titanium Ore in Canada(*), 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	4,229	26,432	1942	10,031	50,906
1938	207	1,449	1943	69,437	308,290
1939	3,694	21,267	1944	33,973	165,195
1940	4,535	24,510	1945	14,147	67,575
1941	12,651	49,110	1946	1,406	7,735

(*) All from Quebec.

Table 197.—Imports into Canada of "Antimony Oxide, Titanium Oxide and White Pigments Containing not Less than 14 Per Cent by Weight of Titanium"

Year	From the United Kingdom		From the United States		Total Imports	
	lb.	$	lb.	$	lb.	$
1937	2,220,330	262,060	3,410,121	264,085	5,630,451	4,710,481
1938	1,599,659	199,814	4,110,672	312,384	526,745	512,219
1939	1,689,329	227,805	7,302,923	574,193	9,003,693	803,198
1940	477,912	65,747	8,292,103	717,210	8,700,015	782,957
1941	418,962	64,302	12,801,017	1,257,065	13,219,979	1,321,367
1942	115,360	27,697	14,527,348	1,395,345	14,642,708	1,423,042
1943	33,700	8,094	16,855,800	1,525,368	16,889,500	1,533,462
1944	.....	.....	20,174,795	1,871,434	20,174,795	1,871,434
1945	79,440	16,752	21,279,636	2,029,137	21,359,076	2,045,889
1946	76,800	11,678	23,854,188	2,182,007	23,930,988	2,193,685

Table 198.—Consumption of Titanium Oxide in Canada, by Industries, 1945 and 1946

Industry	1945		1946	
	Pounds	Cost at works	Pounds	Cost at works
		$		$
Paints—				
Extended titanium dioxide pigments	12,120,296	901,144	12,884,744	912,340
Titanium dioxide	6,306,213	1,192,404	6,832,585	1,160,696
Polishes and dressings	242,834	33,185	280,450	36,858
Pulp and paper	770,000	141,028	728,000	120,842
Total accounted for	**19,439,343**	**2,267,761**	**20,725,779**	**2,230,736**

Table 199.—Consumption of Ferrotitanium in Manufacture of Steel in Canada, 1939-1946

Year	Tons	$	Year	Tons	$
1939	118	23,498	1943	614	118,416
1940	118	24,233	1944	786	149,527
1941	181	52,128	1945	656	123,975
1942	439	66,555	1946	416	73,485

TUNGSTEN

Stimulated by a critical shortage during the war up to the fall of 1943, Canada produced tungsten concentrates from a number of deposits throughout the Dominion, but production ceased in November, 1943, owing to excess of supplies. Stocks on hand at mines have all been shipped. Late in 1946 the Emerald mine near Salmo in southern British Columbia was taken over by Canadian Explorations Limited, and production of concentrate in the 300-ton mill was expected to start late in the spring of 1947. Canada's requirements can be adequately supplied by this mine.

Wolframite, (Fe,Mn) WO_4, is the principal ore tungsten, the next in importance being scheelite ($CaWO_4$), a calcium tungstate. The former is a dark brown to black, heavy mineral, which contains 76·4 per cent WO_3 (tungstic oxide) when pure, and is not common in Canada. Scheelite, the chief Canadian ore of tungsten, is a heavy, fairly soft, usually buff, but sometimes white mineral with a dull lustre, which contains 80·6 per cent WO_3 when pure. It is commonly associated with quartz and frequently occurs in gold-bearing veins and in certain contact metamorphic deposits. It can be detected readily in the dark by its brilliant, pale bluish-white fluorescence under ultra-violet light and purple filter.

As an alloying metal in steel, tungsten (usually as ferrotungsten, but sometimes as calcium tungstate or scheelite concentrate) is used essentially to impart hardness and toughness, which

are maintained even when the steel is heated to a high temperature. Almost 80 per cent of the consumption of tungsten in the United States is used for the production of high-speed steels for cutting tools, in which the tungsten content is 15 to 20 per cent. Alloy steels containing tungsten have been used extensively in making armour plate, armour piercing projectiles, and other military equipment. The use of tungsten in hard facing compounds is increasing. Fused powdered tungsten is used for the diamond set bits for rock drilling. Minor amounts of tungsten are used in steels for dies, valves, and valve seats for internal combustion engines, and for permanent magnets. Stellite, the best known non-ferrous alloy, contains 10 to 15 per cent tungsten with higher percentages of chromium and cobalt. Tungsten carbide is widely used as an extra hard cutting tool. Pure tungsten is used in lamp filaments, in radio tubes, contact points, etc. In the United States there has been an increase in the consumption of tungsten as metal powder, in chemicals, and in high porosity alloys in gas turbines and other high temperature uses.

Until production ceased late in 1943, all sales of Canadian concentrate were made through the Metals Controller, Ottawa, at a price of $26.50 a short unit (20 pounds) of WO_3 for scheelite concentrate containing 70 per cent WO_3 (within specifications), delivered at Welland, Ontario. Since then prices have fluctuated downward, but for the past year there have been no Canadian-made concentrates for sale. Foreign ores entering the United States in 1946 were $21 to $25 per short ton unit (20 pounds) of contained WO_3, duty paid. Domestic ore was $25 in car lots delivered to plants. Ferrotungsten of 75 to 80 per cent tungsten was $1.90 per pound of contained tungsten.

Table 200.—Production (Commercial Shipments) of Crude Tungsten Concentrates in Canada, 1939-1946

Year	Pounds	$	Average per cent WO_3
1939	8,825	4,917	(a)
1940	12,002	7,303	70-75
1941	(b) 82,846	38,712	51·1
1942	520,981	406,275	61·8
1943	1,508,621	1,083,538	54·2
1944	886,745	245,780	31·9
1945	1,153	1,045	68·7
1946	.....	.....	.....

(a) Not recorded.
(b) Includes export of considerable low-grade material to United States.

Table 201.—Consumption of Ferrotungsten in Steel Furnaces in Canada, 1938-1946

Year	Short tons	Cost at works	Year	Short tons	Cost at works
		$			$
1938	34	69,806	1943	550	1,721,966
1939	106	173,250	1944	86	287,116
1940	376	829,859	1945	138	455,317
1941	482	1,003,314	1946	260	402,174
1942	203	524,007			

VANADIUM

Some of the magnetites of the Rainy River district in Ontario are known to contain relatively small quantities of vanadium and some research has been conducted as to its economic recovery. There is no production of either the metal or its ores in Canada at the present time.

The principal occurrences of vanadium are in Arizona, Colorado and Utah in the United States; Minasragra in Peru; Broken Hill in Northern Rhodesia; and Grootfontein district in South West Africa.

The metal is employed chiefly in the manufacture of alloy steels and irons. It is also used in the form of ammonia meta-vanadate as a catalyst in the manufacture of sulphuric acid and in the non-ferrous, glass, ceramic and color industries.

The United States Bureau of Mines reports that vanadium has been and is now being obtained by some countries from other than vanadium ores, including petroleum, bauxite, phosphate rock and titaniferous magnetites; the ever-increasing demand for vanadium directs attention to all possible vanadium sources, as well as to efforts to extend known deposits. In the United States the principal ores are roscoelite and carnotite in sandstones, disseminated or in spots, bunches, lenses and seams.

Data relating to possible imports of vanadium ores or vanadium compounds or alloys are not shown separately in Canadian trade reports. In 1944 there were 257 tons of ferrovanadium valued at $188,661 consumed in Canada in the manufacture of steel.

Vanadium ore was quoted December, 1946; 27½ cents per pound contained V_2O_5, f.o.b. shipping point, by "E & M J Metal and Mineral Markets", New York.

CHAPTER SIX

THE NON-FERROUS SMELTING AND REFINING INDUSTRY IN CANADA

The Non-ferrous Smelting and Refining Industry, as defined for statistical purposes, includes only those firms engaged primarily in the smelting of non-ferrous ores or concentrates and the refining of metals recovered therefrom.

The net value added by the industry in the processing of crude or semi-crude material during 1946 totalled $69,565,922 compared with $89,898,878 in 1945. Refined products included gold, silver, nickel, copper, lead, zinc, aluminum, tin, magnesium, calcium, antimony, bismuth, cobalt, cadmium, selenium, tellurium and sulphur; other end products of individual plants or companies were copper-nickel matte, cobalt salts, cobalt oxide, nickel oxide, nickel salts, bauxite concentrates, arsenious oxide, sulphuric acid, platinum metals residues, zinc oxide, zinc dust, and blister and anode copper. Statistics relating to the production of pitchblende products at Port Hope, Ontario, are not included in this report.

It should be noted, in a study of these data, that firms operating both mines and smelters may vary from year to year the nominal values of crude ores, etc., shipped from their mines to their own smelters, with the result that in some years the mining industry proper is favoured economically at the expense of the non-ferrous smelting and refining industry and vice versa. The total annual net value of commodity production for the Dominion as a whole is, however, not affected by these arbitrary internal evaluations.

Fuels and electricity used by the industry in 1946 totalled $19,855,976 compared with $26,837,162 in 1945. The value of chemicals and other process supplies consumed during the year amounted to $16,000,964 as against $19,735,628 in the preceding year.

Employees during 1946 totalled 14,546 compared with 16,821 in 1945, and salaries and wages paid amounted to $30,648,361 compared with $33,853,120 in the previous year.

Aluminum Company of Canada Ltd.—Production of aluminum is entirely by this company, which has its alumina plant at Arvida and reduction plants at Arvida, Ile Maligne, Shawinigan Falls, La Tuque and Beauharnois, all in the province of Quebec. These reduction plants have a total rated capacity of about 550,000 tons of aluminum a year or over 20 per cent of the estimated productive capacity of the world.

Fabricating plants are located at Kingston, Toronto and Etobicoke in Ontario and at Shawinigan Falls in Quebec. These plants consume only a small part of the company's production and Aluminum Company of Canada is primarily a producer and exporter of aluminum ingot.

Developments in 1946 consisted mainly in adjusting production to meet the lesser peacetime demand. The reduction plants at Shawinigan Falls, La Tuque and Beauharnois were closed and operations were concentrated at Arvida and Ile Maligne.

The principal imported raw materials used in the Canadian aluminum industry are bauxite from British Guinea, coal and coke from the United States, fluorspar from Newfoundland, and cryolite from Greenland and the United States.

Noranda Mines Ltd.—(From the company's annual report)—During the period from January 1 to November 21, 1946 the smelter treated 752,518 tons of ore, concentrate, slag and scrap brass (shell cases), from which 74,065,031 pounds of anodes were produced. Included in the total material smelted were 250,226 tons of ore, concentrate and scrap which was smelted for other companies on a toll basis. After deducting the copper, gold and silver which was recovered from secondary products such as slag and scrap brass, the estimated recovery of new metals was 70,378,097 pounds of fine copper, 198,660 ounces of gold and 823,171 ounces of silver. The estimated recovery from Horne Mine ore and concentrate was 27,525,548 pounds of copper, 155,197 ounces of gold and 317,997 ounces of silver.

Canadian Copper Refiners ltd.—Copper production during the year totalled 78,000 tons compared with an operating capacity of 112,000 tons. "Noranda" Brand Copper Sulphate

was well established in the Canadian market in 1946 and an additionnal product, tribasic copper sulphate, will be produced in 1947. The demand for selenium and selenium compounds continued to improve.

INTERNATIONAL NICKEL COMPANY OF CANADA, LTD. (From the company's annual report)—Mining and smelting operations were about 50 per cent of capacity during the first half-year. Beginning in September they were progressively stepped up and by the year-end the rate of production was 75 per cent of the maximum war-time figure.

Construction at the Copper Cliff smelter, referred to in last year's Report, has been delayed by lack of materials. This situation is improving and it is expected that construction will be completed in 1947. The plant will furnish a new product, Nickel Oxide Sinter, for use in the manufacture of steels, and will also furnish intermediate sintered products for our nickel refineries.

FALCONBRIDGE NICKEL MINES LTD. (From the company's annual report)—Smelter production was limited to the output of the smaller blast furnace from January 9th to December 18th with the larger furnace operating alone before and after that period. Both the concentrator and smelter operated over 99 per cent of their possible working time. During the year considerable experimental work was carried on in the plants which, combined with changes in the furnace operations, affected metallurgical recovery to some degree.

Total ore treated	486,516 tons
Matte produced	12,780 tons

DELORO SMELTING AND REFINING CO. LTD.—The cobalt refinery at Deloro, the only one in Canada, treated cobalt residues, a by-product from Northern Rhodesian copper mines, for the British Government during the war. These residues are much higher grade than the Canadian material and are comparatively simple to treat, and were the chief source of cobalt for the United Kingdom. No cobalt has been produced at Deloro from Canadian concentrates since the summer of 1940. Large stocks of Canadian ore, held mainly for the United States Government, remain untreated at Deloro. The company operates its silver furnaces only when the accumulation of silver-cobalt ores is enough to make the run worthwhile. Most of the refined white arsenic (As_2O_3) and arsenical insecticides made in Canada are produced by Deloro Smelting and Refining Co. which obtains raw material from the O'Brien Mine in western Quebec and from the silver-cobalt arsenic mines of the Cobalt area.

DOMINION MAGNESIUM LTD.—This firm was the only Canadian producer of magnesium during the war. Production temporarily ceased when the stockpile of metal became large enough to meet the current demands of the market. Equipment previously used for magnesium recovery is now used to produce metallic calcium. Calcium is being used by the research project on nuclear fission.

HUDSON BAY MINING AND SMELTING CO. LTD. (From the company's annual report)—The copper smelter operated satisfactorily during the year, and all available material was smelted. The tonnage of pay charge was slightly higher than in the previous year and amounted to 434,194 tons. The tonnage and average assay values of Hudson Bay concentrates and ores smelted, and the tonnage of custom concentrates treated, were as follows:

Tons H.B. concentrates and ores	Assay values per ton			Tons custom concentrates
	Au-oz.	Ag-oz.	Cu. %	
387,477	0·336	4·54	11·11	45,565

After allowing for metals due on account of custom concentrates, the company shipped for its own account the following: Gold, 143,282 ounces; silver, 1,839,426 ounces; copper, 79,989,315 pounds; selenium, 121,729 pounds.

The tonnage of zinc concentrates treated during the year and the average zinc assay per ton of concentrates treated were both higher than in 1945. The tonnage of high-quality four-nines-plus grade zinc produced was the largest for any year.

The tonnage and assay values of the zinc concentrates treated were:

Tons treated	Assays			
	Au-oz.	Ag-oz.	Cu.%	Zn%
147,189	0·044	1·24	0·55	46·0

from which 102,656,828 pounds of slab zinc were produced.

The cadmium plant treated precipitates from the zinc purification plant and produced a total of 166,333 pounds of metallic cadmium, having an average purity of 99·9887 per cent. Production and purity were both higher than for the preceding year.

Consolidated Mining and Smelting Company of Canada, Ltd. (From the company's annual report)—Refined lead tonnage at 165,744 compares with 163,142 in 1945. Refined zinc tonnage was 134,393 and compares with 134,873 in the previous year. Refined silver production was substantially higher at 6,004,825 ounces and compares with 5,125,971 in 1945. There was a pronounced improvement in metal recoveries.

Conduct of our metallurgical operations was generally satisfactory. Zinc plant performance was unchanged from that of recent years. Our Lead Smelter operation was normal and many advances were made in development studies, which will lead to technological improvements in future years.

While there were some increases in tonnages of customs ores, the totals were relatively small. Increased tonnages are indicated for 1947.

Table 202.—Principal Statistics of the Non-Ferrous Metallurgical Industry in Canada, 1944-1946

—	1944 (b)	1945 (b)	1946 (b)
Number of companies	9	9	9
Number of plants	16	17	15
Number of administrative and office employees	3,371	2,749	2,238
Salaries $	7,816,181	6,812,501	6,277,577
Number of workmen	20,556	14,022	12,308
Wages $	36,720,810	27,040,619	24,370,784
Value of plant products (gross) (a) $	474,206,801	355,676,526	304,718,524
Estimated cost of ores, concentrates, etc., treated $	281,266,002	219,204,858	196,864,066
Cost of fuel and purchased electricity $	36,907,623	26,837,162	22,287,572
Process supplies (other than ores, fuel, etc.) $	32,730,138	19,735,628	16,000,964
Value added by smelting (net) (c) $	123,303,038	89,898,878	69,565,922

(a) The gross value of production should not be interpreted as the ultimate sale value of finished metal only, as it prereesents the combined values of all industry (smelting, refining, etc.) and products (blister, copper matte, etc.) and in this sense represents a duplication in values.

(b) Data in this report do not include those relating to Eldorado Mining and Refining Ltd. which mines and refines pitchblende products.

(c) See preceding text.

Table 203.—Number of Workmen, by Months, 1945 and 1946 (Administrative and Office Employees not Included)

Month	1945		1946	
	Male	Female	Male	Female
January	15,070	954	10,780	88
February	14,796	947	11,210	75
March	14,955	931	11,434	71
April	14,853	922	11,709	69
May	14,423	882	12,240	70
June	13,994	857	12,591	58
July	13,448	823	12,746	59
August	12,819	762	12,599	60
September	11,983	626	12,478	60
October	11,620	591	12,648	64
November	10,854	473	13,169	66
December	10,682	137	13,211	65
Average	**13,281**	**741**	**12,239**	**69**

Table 204.—Non-Ferrous Smelters and Refineries in Canada

ALUMINUM REDUCTION WORKS

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
			Tons	
Quebec				
Aluminum Company of Canada, Ltd.	Arvida.....	Smelting plant: The concentrated ore is reduced to metallic aluminum by the Hall-Héroult method. Hall-type electric furnaces with carbon linings and Soderberg pots are used for smelting, and brick-lined furnaces are used for blending and alloying.	70,000 (27,000/M)	Aluminum ingots (including alloys)
		Ore plant: Bauxite (aluminum hydrate with impurities) from mines in British Guiana is concentrated by the Bayer process. Operations include digestion with caustic soda; filtration; precipitation and roasting.	1,050,000	Alumina
		Carbon plant: Special petroleum or pitch coke is crushed, ground, calcined, mixed with coal-tar pitch; them formed into blocks and baked in electric furnaces.		
		Cryolite plant: Cryolite from mines in Greenland is crushed, ground and then purified by mechanical and magnetic treatment.		
Aluminum Company of Canada, Ltd.	Shawinigan Falls.	Smelting plant..... (See Smelting plant above)	65,000	Aluminum ingots (including alloys)
" " "	Beauharnois.....	Smelting plant.....	34,000	" "
" " "	La Tuque.....	"	34,000	" "
" " "	Isle Maligne.....	"	20,000	" "

ANTIMONIAL-LEAD REFINERY

			Tons	
Consolidated Mining and Smelting Co. of Canada, Ltd.	Tadanac (Trail)..	New plant replacing antimony refinery, started March, 1945 Equipment: Reduction and refining furnaces for treating antimonial flue dusts and refined lead drosses. Equipment with capacity equivalent to 600 tons of antimony per year.	600	Antimonial lead (25% antimony) (Intermittent operation)

BISMUTH REFINERY

			Tons	
Consolidated Mining and Smelting Co. of Canada, Ltd.	Tadanac (Trail)..	Reverberatory furnacefor the reduction of lead-bismuth-copper slags; Six crystallizing kettles for Pattinsonization of lead-bismuth alloys and for complete elimination of silver by Parksing; Anode casting for lead-bismuth alloy; Parks process for elimination of silver; electrolytic cells (16); capacity 8 tons of lead per day; Melting furnace for bismuth slimes; graphite crucibles for removing lead before last kettles. Two 5-ton kettles for refining bismutb metal for market.	180	Metallic bismuth (Intermittent operation)

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

CADMIUM REFINERY

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Manitoba			Tons	
Hudson Bay Mining and Smelting Co., Limited	Flin Flon.....	Pan grinder, mechanical agitators, shriver presses, sponge precipitation agitators, 10 electrolytic cells, 2 electric melting pots: treating cadmium residue from zinc refinery.	180	Metallic cadmium
British Columbia				
Consolidated Mining and Smelting Co. of Canada, Ltd.	Tadanac (Trail)..	Mechanical mixers; Pachuca tanks; Kelly filters; precipitating tanks; two electrolytic units; three small pot furnaces; melting plant; treating cadmium residues from the zinc refinery.	700	Metallic cadmium

CALCIUM REDUCTION WORKS

Ontario			Tons	
Dominion Magnesium Co., Ltd.	Haley (near Renfrew)	Reduction under high vacuum in electric furnaces.	.....	Metallic calcium

COPPER SMELTERS

Quebec			Tons	
Noranda Mines, Ltd.....	Noranda.....	Twenty-six (26) storage bins (18 used for sulphides, each with a capacity of 400 tons and 8 used for siliceous ore, each with a capacity of 140 tons); ten (10) Wedge-type roasters, 8 with inside diameter 25′ with seven internal hearths, each roaster with a capacity of 325 tons per day, and two roasters 25′ inside diameter with 9 internal hearths and a capacity of 400 tons per day, reducing the sulphur in feed from 28% to 14%; Two 2,100-tonr everberatory furnaces, 33′ x 111½′ inside dimensions, side feeding, and burning pulverized coal; Five Pierce-Smith converters, two 12′ x 30′, two 13′ x 30′, one 13′ x 28′. Two Cottrell precipitators, one of six units in parallel for roaster gases, and one of four units in parallel for converter gases and anode furnace gases; two stacks 422½′ high, measuring 31′ outside and 23′ inside diameter at the base, and 20′ outside and 18′ inside diameter at the top; Anode furnace, dimensions 14′ x 28′ 3″ at hearth, capacity 250 tons per day and burning pulverized coal; Walker casting wheel (22 moulds) for making 700 lb. anodes.	73,000	Anode copper
Ontario				
International Nickel Co. of Canada, Ltd.	Copper Cliff.....	(See Nickel-copper).....	.....	Blister copper

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

COPPER SMELTERS—Concluded

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Manitoba			Tons	
Hudson Bay Mining and Smelting Co., Limited	Flin Flon.....	Four bedding bins, each with a capacity of 2,500 tons; four Herreshoff 10-hearth roasting furnaces, 21′ 6″ in diameter, each with a roasting capacity of 375 tons of feed in 24 hours; One 1,500-ton reverberatory furnace, size: smelting zone 29′ 8″ wide, settling zone 22′ 6″ wide, length 101′ 6″, and fired by pulverized coal; Three 13′ x 30′ Pierce-Smith basic lined converters, served by two 30-ton electric cranes; Two Cottrell precipitators; Walker casting wheel, 34′ diameter; One 13′ x 20′ titling blister copper holding vessel fired by pulverized coal; One coal pulverizing plant with a capacity of 65 tons in 8 hours.	60,000	Blister copper

COPPER REFINERIES

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Quebec			Tons	
Canadian Copper Refiners, Ltd. (a)	Montreal East....	Receiving department: Two 7½-ton cranes; two cathode shears; two track scales. Charging aisle: Two 7½-ton overhead cranes; one Morgan charging machine, capacity 4 tons; one track scale. Furnace aisle: One 150-ton reverberatory anode furnace, oil-fired, hearth 26′ 9″ x 12′ 8″. One 300-ton reverberatory wire bar furnace, oil-fired, hearth 43′ 2″ x 14′ 9″. Casting aisle: One 33′ Walker wheel casting machine for making anodes, holding 22 anode moulds, capacity 48 tons of anodes per hour (commercial anodes 36″ x 36″ x 1¾″, weight 700 lb.; stripper anodes, 38″ x 38″ x 1¾″, weight 770 lb.); water cooling bosh, capacity of 44 anodes; One Walker wheel for casting wire bars and ingots, capacity 84 tons per hour; water cooling bosh and pan conveyer; one 10-ton crane. Copper storage and shipping aisle: Two 5-ton cranes; two track scales. Electrolytic tank house: 612 lead-lined concrete commercial cells arranged in 34 sections of 18 each (cell 16′ 7″ long, 3′ 7½″ wide, and 4′ 1½″ deep, inside dimensions); 54 lead-lined concrete stripper cells arranged in 3 sections of 18 each (cell 17′ 5″ long, 3′ 9½″ wide, and 4′ 2 5/16″ deep, inside dimensions); 8 sump tanks, 3 slime pits, two movable and one stationary washing machines for removing electrolyte from cathodes; two 7½-ton overhead cranes; 13 purification cells for liberating copper from discarded electrolyte and from slimes leach liquors.	112,000	Refined copper

(a) Canadian Copper Refiners, Ltd. Controlled by Noranda Mines, Ltd. Refining anode copper of the Noranda and blister copper of the Flin Flon smelters.

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

COPPER REFINERIES—Continued

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Ontario			Tons	
International Nickel Co. of Canada, Ltd. (Copper Refining Division)	Copper Cliff......	Pig storage building: Two 10-ton overhead cranes.	168,000	Refined copper
		Anode charging aisle: Two 4-ton suspended charging cranes; two 10-ton service cranes.		
		Anode furnace aisle: Three pulverized coal-fired reverberatory anode furnaces—each with a capacity of 300 tons.		
		Anode casting aisle: Five 36' Walker wheels, each having 22 anode moulds and a capacity of 50 tons of anodes per hour. (Anodes 36" x 36" x 1½"—weight 560 lb.) Cooling boshes—capacity 60 tons each; two 10-ton service cranes.		
		Anode storage building: Two 10-ton cranes: one cathode shear gap, 4' 6" x 18"—capacity ⅛" to ⅜" copper cathodes.		
		Electrolytic tank house: 1,350 lead-lined tanks (regular and stripper) arranged in 36 sections mostly of 38 tanks each (each tank 11' 3" long, 3' 6" wide, and 3' 9½" deep, inside dimensions). Pyne-Green segregating cells used to concentrate the nickel sulphate solutions.		
		Cathode storage aisle:		
		Wire bar charging aisle: Two 4-ton suspended charging cranes; one 10-ton and one 15-ton service crane.		
		Wire bar furnace aisle: Two pulverized coal-fired reverberatory furnaces, each of 300-ton capacity; two 30-ton, three-phase, direct arc furnaces.		
		Wire bar casting aisle: Three 40' Clarke casting wheels; four cooling boshes and conveyers; one 35' vertically cast shapes wheel.		
		Wire bar storage inspection and shipping building: Two 10-ton overhead cranes.		
		Acid plant: Two sections of liberator cells and auxiliary storage tanks; three vacuum evaporators; two 40" centrifuges; spray pond and cooling tanks for crude nickel sulphate residues.		
		Nickel salts plant: Two dissolving tanks; one precipitation tank; one wooden filter press; one open type evaporator; a 26" centrifuge and eight crystallising tanks.	....	Nickel sulphate

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

LEAD SMELTER

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
British Columbia			Tons	
Consolidated Mining and Smelting Co. of Canada, Ltd.	Tadanac (Trail)..	Ore roasters: Six standard Dwight-Lloyd machines each 264" x 42"; eight double-size Dwight-Lloyd machines each 600" x 42"; bed thickness 6½" on primaries and 11" on secondaries. Furnaces: Blast furnaces: one 48" x 180" (brick top, water cooled); two 60" x 180" and one 60" x 270" (all water cooled); one 70" x 270" (brick top, water cooled); all using vaporizers. Cottrell flue collectors (output 10 to 15 tons per day). Furnace capacity about 725 tons of lead bullion per day. Two coal-fired reverberatory dressing furnaces, 100-ton capacity; lead laundered into three 60-ton and two 100-ton kettles; one anode casting machine for lead; one retreatment furnace for dross.	255,000 (700 per day)	Lead bullion and copper-lead matte
		Slag treatment plant: One slag fuming furnace, 10' x 24' in section; coal dust fired. (Slag introduced in 50-to 60-ton batches and discharge is granulated.) One 1,750 h.p. B. & W. boiler (income gas 2000° F. and discharge 850° F.); Green economizer: Dracco bag filter (eight 10-compartment units, total of 1,440 bags); conveyer and oxide storage bin.	.....	Mixed lead and zinc oxides

LEAD REFINERY

British Columbia			Tons	
Consolidated Mining and Smelting Co. of Canada, Ltd.	Tadanac (Trail)..	Betts electrolytic process: 1,198 cells arranged in 13 cascades and made of concrete coated with asphalt and using hard rubber-lined pipe; current density 21 to 23 amperes per sq. ft. and voltage drop between cells 0·3-0·6 volts; cathodes are thin lead sheets; electrolyte: solution of hydrofluosilicic acid and lead fluosilicate; four 235-ton pots and three 60-ton kettles for cathode melting, and two 235-ton kettles for remelting anode scrap; two casting wheels for pig lead; maximum capacity per 24 hours is 650 tons.	255,000 (700 per day)	Refined lead

MAGNESIUM REDUCTION WORKS

Ontario			Tons	
Dominion Magnesium Co., Ltd.	Haley (near Renfrew)	Ferrosilicon (Pidgeon) Process: Crushing; calcining of dolomite; mixing and briquetting of calcined dolomite and ferrosilicon. Reduction plant consisting of ten (10) electrically heated retort furnaces. Melting and alloying plant for production of pure magnesium and magnesium alloy ingots from the magnesium condensate.	15 tons per day	Refined magnesium, and magnesium alloy ingots

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

NICKEL-COPPER SMELTERS

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Ontario			Tons	
International Nickel Company of Canada, Ltd.	Copper Cliff.....	Roasters: Forty-two Herreshoff roasting furnaces (dimensions: outside diameter 21¼'; height 31'; ten interior hearths and a drying hearth). These roasters are superimposed over seven reverberatory furnaces; capacity 4,000,000 tons (ore and concentrate) a year.		
		Cottrell plant: (a) Roasters—Eleven units of three sections, treating gases from roasters. (b) Converters—Seven units of three sections each treating gases from nickel converters.		
		Reverberatory furnaces: (a) Nickel—Seven reverberatory furnaces; five are 27' 6" x 110', one is 29' x 110'; and one is 24' x 110', inside dimensions. Total rated capacity per day, 11,000 tons of dry solid charge. (b) Copper—Two reverberatory furnaces, 24' x 110', inside dimensions. Total rated capacity per day 1,700 tons of dry solid charge.		
		Converters: (a) Nickel—Fifteen Pierce-Smith converters treating nickel-copper matte, dimensions 13' x 35'.	235,000	Copper-nickel Bessemer matte
		(b) Copper—Five Pierce-Smith converters, blowing copper matte to blister copper.	.....	Blister copper
		Blast furnaces: Two blast furnaces retained for smelting ore and reverts; total rated capacity, 1,800 tons per day		
		Stacks: Nickel circuit—One brick stack 500' high above the base and 45' diameter at top. Copper circuit—One reinforced concrete stack 500' high above base and 40' diameter at top. Orford department—One reinforced concrete stack 350' high and 26' diameter at top.		
		Orford cupolas: Three cupola furnaces for smelting nickel-copper matte and flux (dimensions 48¾" x 198").	.....	Nickel sulphide.
		Orford converters: (a) Basic converters—Three Pierce-Smith (dimensions 10' x 35') used for separating flux (sodium sulphide) from copper sulphide.		
		(b) Clay-lined converters—Six upright converters (dimensions 8' diameter x 14' long), used for blowing copper sulphide to blister copper.	.....	Blister copper
International Nickel Company of Canada, Ltd.	Coniston.....	Six Dwight-Lloyd sintering machines (dimensions 42" x 396", capacity 275 tons each; usual 6" layer; fuel oil ignition used);	.....	.....
		Four blast furnaces—50" x 240" at tuyere with settlers 20' in diameter—capacity 3,000 tons of ore and concentrate per day;		
		Five 13' x 30' Pierce-Smith basic converters—capacity 5,000 tons of matte per month.	55,000	Copper-nickel Bessemer matte

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

NICKEL-COPPER SMELTERS—Concluded

Ontario—Concluded			Tons	
Falconbridge Nickel Mines, Ltd.	Falconbridge.....	Five standard Dwight-Lloyd sintering machines (dimensions 42" x 396"; nominal capacity 150 tons each, actual total capacity 750 tons per day; usual 6" layer; fuel oil ignition);	Cu 6,000 Ni 12,000	Copper-nickel Bessemer matte
		Two blast furnaces, size: one 20' x 50", one 15' x 50"; total capacity 1,200 tons of ore per day;		
		Three Pierce-Smith converters: one 13' x 24' with 38 tuyeres, and two 13' x 24' with 34 tuyeres; casting moulds.		
International Nickel Company of Canada, Ltd. (Nickel Refining Division)	Port Colborne....	Wet process treatment (nickel): Five crushers (18" x 30" Farrel); five ball mills (four No. 8 Krupp and one 7' 6" Traylor); sixty concrete and nine wooden tanks, 14' x 12' x 4' 6"; eleven mechanical calciners and two hand calciners; sixteen concrete leaching tanks, 14' x 12' x 4' 6". Product, partly roasted sulphide, green nickel oxide and black nickel oxide.	.....	Washed nickel sulphide Partially roasted sulphide Green nickel oxide Black nickel oxide
		Anode nickel department: Seven Dwight-Lloyd sintering machines, 42" x 264"; one trommel (4' in diameter x 8' long); one jaw crusher, 18" x 30"; two Symons cone crusher(one 4', the other 5' 6"); two Hummer screens; six anode furnaces, five of which vary in hearth area from 609 to 776 sq. ft., used for anode making, and one with 207 sq. ft. hearth area used for melting nickel cathodes; five anode casting wheels.	.....	Anode nickel
		Electrolytic department: Twelve units, each served by two 3-ton bridge cranes and one 3-ton work floor crane; units Nos. 1, 2 and 3 have 112 tanks each, units 4 to 12 have 156 tanks each, and there are 40 additional tanks in annex; stainless steel sheets are used as starting blanks in all units.	106,000	Anode slimes: refined nickel (precious metals)

PRECIOUS METALS REFINERIES

Quebec			Tons	
Canadian Copper Refiners, Ltd.	Montreal East....	Slimes wet room: Surge tank for holding tank house anode slimes; Dorrco pump; Dorr thickener; Oliver filter; Nichols-Herreshoff drying furnace, capacity 5 tons dried slimes per day; tanks for water leaching acid-roasted slimes; Dorrco pump; Oliver filter; tank for caustic leaching treated slimes; four filter presses; solution storage tanks.	Fine ounces Au: 600,000 Ag: 5,400,000	Fine gold, fine silver
		Roaster room: Chain roasters for roasting dry slimes, capacity 7 tons roasted slimes per day; six digesters for mixing dried slimes with acid; scrubber and Cottrell system for recovering selenium and acid from chain roaster gases.		

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

PRECIOUS METALS REFINERIES—Continued

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Quebec—Concluded			Tons	
Canadian Copper Refiners, Ltd. —*Concluded*	Montreal East....	Doré furnace room: One reverberatory oil-fired Doré furnace (hearth area 34½ sq. ft.), charge 12,000 lb. caustic-leached slimes, producing Doré metal. (Au 10%, Ag 89·5%, Cu 0·5%) and slags (scoria slag and nitre slag to anode furnace, No. 2 soda slag water-leached and filtered, solution for selenium recovery and residue to anode furnace); scrubber and Cottrell system for recovering flue dust from Doré furnace gases; slag crushing and sampling mill; slag leaching tank. Parting plant: Fifteen rubber- and brick-lined steel Moebius cells, operating at 25 amps. per sq. ft. cathode area; carts for washing silver crystals; silver sand storage bin; silver melting retort; moulds for casting silver bars (1,000 Troy ounces each and 999+fine); Gold boiling kettle; gold sand filter; Monarch tilting crucible furnace; moulds for casting gold bars (700 Troy ounces each and 998+fine). Crucible furnace for melting scrap Doré anodes; dissolving tank for electrolyte makeup; wash water storage and cementation for recovering silver from discard parting plant electrolytes. Moebius cell, capacity 450,000 ounces silver per month.		
Ontario				
International Nickel Co. of Canada, Ltd. (Copper Refining Division)	Copper Cliff.....	Slimes room: Electrolytic slime from copper refinery treated; two 40-inch lead-lined centrifuges for separating and drying slimes. Furnace room: Roasting furnace for treatment of raw slimes to remove copper; Doré furnace for treatment of leached slimes to produce Doré metal. Parting plant: Forty (40) Balbach Thum mastic lined concrete tanks and one oil-fired furnace for melting silver crystals. Gold, platinum and palladium room: Treating parting plant slimes; one stoneware dissolving kettle; two gold precipitating kettles; and two cementation tanks—cementing out platinum and palladium. Precipitated gold cast into anodes and refined electrolytically in Wohlwill cells.	Au: 100,000 Ag: 2,800,000	Fine gold, fine silver (impure platinum and palladium)
Manitoba				
Hudson Bay Mining and Smelting Co., Limited	Flin Flon.....	Cyanidation; precipitate treated in smelter.	.....	Gold-silver precipitate (feed: 1,642,500 tons)

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Continued

PRECIOUS METALS REFINERIES—Concluded

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
British Columbia			Tons	
Consolidated Mining and Smelting Company of Canada, Ltd.	Trail	Drying chambers for lead slimes; two melting furnaces: one slag retreatment furnace; two oxidizing furnaces; two Doré furnaces; first slag (lead-antimony) returned to blast furnaces; second slag (lead, copper and bismuth oxides and silver) to bismuth plant; flue dust to antimonial lead plant. Parting plant: Balbach Thum electrolytic plant (92 cells) for treatment of Doré metal for recovery of gold and silver (capacity 40,000 oz. per day); Bailey furnace (electric) for melting silver crystals; gold to gold kettle and filter; Globar furnace for melting gold.	Au: 350,000 Ag: 12,000,000	Fine gold and fine silver

RADIUM REFINERY

Ontario			Tons	
Eldorado Mining and Refining (1944), Ltd.	Port Hope	Oxidizing, roasting of pitchblende-silver ore, salt-roasting of ore, followed by acid leaching; treatment of uranium solution with soda ash, acid, and sodium hydroxide for recovery of sodium uranate. Recovery of silver from residues by hyposulphite leaching and treatment with sodium sulphide; treatment of residues with soda ash, followed by acid leaching, to put radium into solution; conversion of radium to bromide and recovery by fractional crystallization.	2,400 tons of ore a month.	Uranium oxide (black), uranium nitrate, sodium uranate, radium bromide, silver sulphide, radioactive lead

SILVER-COBALT-NICKEL-ARSENIC SMELTER AND REFINING WORKS

Ontario			Tons	
Deloro Smelting & Refining Company, Ltd.	Deloro	Blast furnace: (Products: silver bottoms, crude arsenic and speiss.)	5,000 tons of ore or concentrate	.....
		Silver: Refining furnace and melting furnace. (Product: fine silver.)	Ag: 6,000,000 ozs.	Silver bullion
		Arsenic: Bag house, refining furnace, blast furnace re-treatment. (Products: refined arsenic, bismuth-lead bullion.)	As_2O_3: 2,000 tons	White arsenic
		Speiss: Ball mill, Edwards roasters, Brückner chloridizer ball mill, leaching tanks, cyanidation-precipitation tank, filter presses, silver melting furnace. (Products: fine silver and speiss residue.)	.....	.....
		Speiss residue: To cobalt oxide plant.	.....	.....

Table 204—Non-Ferrous Smelters and Refineries in Canada—Continued

SILVER-COBALT-NICKEL-ARSENIC SMELTER AND REFINING WORKS—Concluded

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Ontario—Concinded			Tons	
Deloro Smelting & Refining Company, Ltd.—*Concluded*	Deloro.....	Cobalt oxide and metal plant: Steam plant—high and low pressure air compressors. Sulphating equipment — dissolving tanks, Oliver filter, precipitation tanks, filter presses, calcining furnaces, reduction furnaces; pulverizing and packing equipment.	.....	Cobalt oxide and cobalt metal
		Stellite plant: Electric melting furnaces, mould and casting shop, testing equipment, grinding and finishing equipment.	.....	Stellite cutting tools and hard facing rods

SELENIUM REFINERY

Quebec			Pounds	
Canadian Copper Refiners, Ltd.	Montreal East....	Eliminated in sulphatizing roast of silver slimes in muffle-fired roasting furnaces and collected in solution in lead gas scrubber. Precipitated out of scrubber solution in 6 precipitators, settled, washed, dried, retorted, ground, screened, and packed.	450,000	Refined selenium
Ontario				
International Nickel Co. of Canada, Ltd. (Copper Refining Division)	Copper Cliff.....	Three receiving tanks; three neutralizer tanks; one wooden filter press; one vacuum evaporator; three precipitating tanks; one 150-lb. capacity rod mill; two Rotex screens; and one micro pulverizer.	.....	Refined selenium.

TELLURIUM REFINERY

Quebec			Pounds	
Canadian Copper Refiners Ltd.	Montreal East...	Obtained from caustic leach liquors from silver slimes and Doré furnace slags, neutralized, mixed with sulphuric acid, roasted, water leached, acid leached, precipitated with SO_2, washed, dried, and melted in furnace and poured into moulds as finished product.	50,000	Metallic tellurium
Ontario				
International Nickel Co. of Canada, Ltd. (Copper Refining Division)	Copper Cliff.....	Two dissolving tanks; one leaf filter; two vacuum bottles; two precipitation tanks; one tilting oil-fired furnace; one micro pulverizer; one Rotex screen.	.....	Metallic tellurium

TIN SMELTER

British Columbia			Tons	
Consolidated Mining and Smelting Co. of Canada, Ltd.	Kimberley.....	Tin recovered from iron flotation tailings, blanketed, tabled, and smelted in electric furnace.	700	Metallic tin

Table 204.—Non-Ferrous Smelters and Refineries in Canada—Concluded

ZINC ELECTROLYTIC REFINERIES

Company	Location of Plant	Process and Equipment	Rated Annual Capacity	Product
Manitoba			Tons	
Hudson Bay Mining and Smelting Co., Limited	Flin Flon.....	Roasters: Eight 7-hearth Wedge roasters, 25′ in diameter. Leaching and filtering: Pachuca tanks, Dorr classifiers, thickeners, Moore filters. Electrolytic precipitation: 840 electrolytic tanks, each holding 18 aluminum sheets. Two reverberatory furnaces (capacity 150 tons of zinc per day) for melting cathode zinc.	50,000	Bar zinc
British Columbia				
Consolidated Mining and Smelting Company of Canada, Ltd.	Tadanac (Trail)..	Roasters: Twenty-five (25) 7-hearth Wedge roasters (eight modified for flash roasting). Leaching and filtering: Pachuca tanks, classifiers; ball mill, Dorr thickeners, purifying mixers, thickeners and Kelly filters and Sheiver filters. Electrolytic precipitation: Electrolytic tanks; five reverberatory furnaces for melting cathode zinc. Re-treatment plant: Pug mills (mixers); cell room (acid); eight Pachuca tanks (4 acid and 4 neutral); six thickeners (3 acid and 3 neutral); eight purification mixers; nine Kelly filters and four American filters. Capacity of plant: 365,000 tons of concentrate per year.	165,000 (465 per day)	Bar zinc

CHAPTER SEVEN

THE MINERAL FUELS INDUSTRIES IN CANADA

The Coal Mining Industry.
The Coke and Gas Industry.
The Natural Gas Industry.
The Peat Industry is included under non-metals, chapter 8.
The Petroleum Industry:
1. Production of Crude Petroleum;
2. Production of Petroleum Products.

NOTE:—In order to correlate data regarding fuels in Canada, this chapter has been prepared to include statistics of the coal, natural gas, and petroleum industries. This survey presents information regarding these industries as a whole, dealing principally with the mineral industry, although supplementary data are shown for closely allied manufacturing operations.

The Bureau issues an annual report on Coal Statistics for Canada which may be referred to for complete details of the Coal Mining Industry.

THE COAL MINING INDUSTRY

Production of coal in Canada during the calendar year 1946 amounted to 17,811,747 tons, an increase of 8 per cent over the production of the previous year. Compared with 1945, production increased 7 per cent in Nova Scotia, 3 per cent in New Brunswick and 13 per cent in Alberta, but declined 1 per cent in Saskatchewan and 4 per cent in British Columbia. Of the total production for the year 3,323,196 tons or approximately 19 per cent was obtained from stripping operations.

Coal imported during 1946 totalled 26,639,918 tons, an increase of 8 per cent over the 24,588,702 tons imported in 1945. Exports of coal amounted to 862,489 tons in 1946 compared with 840,708 tons in 1945.

Coal made available for consumption in 1946 amounted to 43,589,176 tons, an increase of 8 per cent over the quantity available for consumption in the previous year. These figures do not represent the quantity consumed during the year but are the actual tonnages of new coal made available for use and are calculated by adding production and imports and subtracting exports.

During 1946 Canadian coal mines employed 1,332 salaried employees and 24,155 wage-earners and paid a total of $51,343,925 in salaries and wages.

Change in Classification of Canadian Coal

Since 1945 the Dominion Bureau of Statistics has been using the classification adopted by the American Society for Testing Materials (A.S.T.M.). The new classification is the result of the joint work of the United States and Canadian chemists, fuel technologists, geologists and others, and is an attempt to provide a uniform system of classification for coals on this continent.

Report(*) No. 814, dated June, 1939, of the National Research Council of Canada, explains the specifications of the A.S.T.M. classification and its application to Canadian coals, and recommends the adoption of this classification for general use by the Dominion Government and the industry.

The application of the A.S.T.M. classification for statistical purposes involves a change only in the coals of the province of Alberta; coals of the other provinces remain classified as before.

The effect of the A.S.T.M. classification when applied to Alberta coals is a general promotion in rank of the low rank coals, in which coals formerly classified as sub-bituminous are raised to the rank of bituminous, and coals formerly classified as lignite are raised to the rank of sub-bituminous, with exception that coals from three former lignite districts—Halcourt, Lethbridge and Magrath—now become bituminous. Coals formerly classified as bituminous remain as such.

The new classification does not create any partition of individual districts, the districts being only re-grouped into the two divisions, bituminous and sub-bituminous, instead of bituminous, sub-bituminous and lignite as previously.

* Report on the A.S.T.M. Standard Specifications for Classification of Coals by Rank and by Grade and their Application to Canadian Coals, prepared for the Associate Committee on Coal Classification and Analysis of the National Research Council of Canada.

Table 205.—Output of Coal in Canada, by Grades, 1931-1946

Calendar Year	Bituminous		Sub-bituminous		Lignite		Total	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
		$		$		$		$
1931	9,692,732	35,581,558	1,886,337	4,677,068	664,142	949,056	12,243,211	41,207,682
1932	8,666,277	30,636,270	2,183,945	5,248,292	888,691	1,233,133	11,738,913	37,117,695
1933	8,875,309	30,072,157	2,096,506	4,556,595	931,529	1,295,210	11,903,344	35,923,962
1934	10,914,405	36,568,356	1,982,387	4,227,504	913,401	1,250,082	13,810,193	42,045,942
1935	10,671,305	35,609,964	2,291,810	5,052,070	924,891	1,301,076	13,888,006	41,963,110
1936	11,717,648	38,736,380	2,486,713	5,582,349	1,024,821	1,473,205	15,229,182	45,791,934
1937	12,496,642	42,049,957	2,286,792	5,200,045	1,052,520	1,502,046	15,835,954	48,752,048
1938	11,164,742	37,714,195	2,105,794	4,881,900	1,024,182	1,386,076	14,294,718	43,982,171
1939	12,614,236	42,442,382	2,117,324	4,975,636	961,138	1,258,972	15,692,698	48,676,990
1940	14,262,922	47,921,227	2,204,748	5,340,040	1,099,214	1,412,577	17,566,884	54,673,844
1941	14,531,862	50,088,519	2,370,050	6,254,222	1,324,009	1,716,889	18,225,921	58,059,630
1942	14,822,230	53,423,090	2,740,419	7,710,063	1,302,381	1,763,828	18,865,030	62,897,581
1943	13,358,664	51,798,996	2,833,422	8,643,340	1,666,971	2,435,213	17,859,057	62,877,549
1944	12,988,328	59,303,397	2,665,405	9,094,858	1,372,766	2,034,914	17,026,499	70,433,169
1945	11,774,164	54,689,261	3,199,554	10,572,059	1,532,995	2,327,082	16,506,713	67,588,402
1946	12,851,365	61,044,144	3,436,893	12,231,923	1,523,489	2,544,092	17,811,747	75,820,159

Figures shown in above table have been adjusted to agree with A.S.T.M. classification.

Table 206.—Output and Value of Coal in Canada, by Kinds and Provinces, 1945 and 1946

(Short tons)

Province	1945			1946		
	Number of mines	Quantity	Value	Number of mines	Quantity	Value
		tons	$		tons	$
Nova Scotia (Bituminous)	38	5,112,615	28,350,278	42	5,452,868	30,573,883
New Brunswick (Bituminous)	29	361,184	2,021,806	33	370,655	2,099,373
Manitoba (Lignite)	.....	.....	.....	.....	.....	.....
Saskatchewan (Lignite)	79	1,532,995	2,327,082	70	1,523,489	2,544,092
Alberta—						
Bituminous	37	4,600,597	17,179,318	42	5,389,418	21,210,007
Sub-bituminous	162	3,199,554	10,572,059	156	3,436,893	12,231,923
Total	199	7,800,151	27,751,377	198	8,826,311	33,441,930
British Columbia (Bituminous)	28	1,699,768	7,137,859	22	1,638,424	7,160,881
Yukon (Bituminous)	.....	.....	.....	.....	.....	.....
Canada—						
Bituminous	132	11,774,161	54,689,261	139	12,851,365	61,044,144
Sub-bituminous	162	3,199,554	10,572,059	156	3,436,893	12,231,923
Lignite	79	1,532,995	2,327,082	70	1,523,489	2,544,092
Total	373	16,506,713	67,588,402	365	17,811,747	75,820,159

Table 207.—Employees, Salaries and Wages in the Coal Mines, by Provinces, 1946

Province	Average number of employees					Salaries and wages		
	Salaried employees		Daily wage-earners		Total	Salaries	Wages	Total
	Male	Female	Surface	Underground				
						$	$	$
Nova Scotia	322	47	1,882	10,980	13,231	820,194	24,835,100	25,664,294
New Brunswick	39	9	249	517	814	121,804	1,283,539	1,405,343
Manitoba	.....	.....	.....	.....	.....	.....	.....	.....
Saskatchewan	42	4	294	146	486	81,733	745,285	827,018
Alberta	640	33	2,264	5,626	8,563	1,492,479	17,008,068	18,500,547
British Columbia	188	8	539	1,658	2,393	387,603	4,559,170	4,946,773
Canada	**1,231**	**101**	**5,228**	**18,927**	**25,487**	**2,912,813**	**48,431,162**	**51,343,975**

Table 208.—Employment and Days' Work Done, by Months, at Coal Mines in Canada, 1946, with Comparative Totals for 1945

Month	Number of employees			Man-days worked		
	Surface	Underground	Total	Surface	Underground	Total
January	6,279	20,117	26,396	154,763	433,585	588,348
February	6,126	20,107	26,233	137,676	402,422	540,098
March	5,896	19,985	25,881	144,270	428,432	572,702
April	5,671	19,344	25,015	129,284	390,734	520,018
May	5,730	19,045	24,775	137,075	406,469	543,544
June	5,844	18,999	24,843	127,980	366,182	494,162
July	5,914	18,848	24,762	124,522	316,392	440,914
August	5,959	18,873	24,832	138,381	372,250	510,631
September	5,983	18,951	24,934	133,663	376,980	510,643
October	6,143	19,304	25,447	143,540	412,075	555,615
November	6,459	19,993	26,452	142,790	392,742	535,532
December	6,468	19,813	26,281	137,380	367,512	504,892
Total 1946	.....	.....	.....	**1,651,324**	**4,665,775**	**6,317,099**
Total 1945	.....	.....	.....	**1,598,452**	**4,571,573**	**6,170,025**

The Coke and Manufactured Gas Industry

Production from coke plants and from illuminating and fuel gas plants in Canada during 1946 was valued at $62,582,475, a decline of 9·4 per cent from the $68,483,305 of the previous year. Output included 3,363,109 tons of coke valued at $32,676,130 at the works, 51,065,424 M cubic feet of gas valued at $25,931,069, and by-products valued at $3,975,276.

Thirty coke and gas works operated in 1946, including 11 by-product and bee-hive plants, 18 retort coal and water gas plants, and 1 butane gas plant. Fifteen of these works were located in Ontario, 4 in British Columbia, 5 in Quebec, 2 in Manitoba, 2 in Nova Scotia, 1 in New Bruns-

wick and 1 in Alberta. In addition to these producers, 1 company in Quebec and 2 in Ontario purchased coke-oven gas and distributed it for domestic or commercial use, and data covering their operations have been included to round out the figures for the industry.

Output of coke from gas retorts, by-products and bee-hive ovens totalled 3,363,109 tons in 1946 compared with 3,912,320 tons in 1945 and 4,017,696 tons in 1944. By-product and bee-hive ovens produced 3,098,189 tons of coke in 1946 and gas retorts made 264,920 tons. In addition, 69,615 tons of petroleum coke were recovered in petroleum refineries and 18,598 tons of pitch coke in coal tar distillation plants.

Data on the distribution of coke (except petroleum and pitch coke) by the producers show that 189,271 tons were sold direct to domestic consumers; 1,324,909 tons were used in associated works operated by the producing companies; 399,158 tons were used by coke plants as fuel or to make water gas; 677,427 tons were sold direct to consumers for foundry and other uses (other than domestic); 801,337 tons were sold to dealers for resale, and 43,388 tons were sold for export. The total distribution was 3,392,102 tons, including imports by the producers of 40,000 tons. Total stocks of coke in the hands of producers amounted to 363,987 tons at the end of 1946.

Imports into Canada of coke made from coal decreased to 900,833 tons in 1946 from 1,244,398 tons in 1945, and exports increased to 49,192 tons from 38,665 tons. Imports of petroleum coke during this period increased to 221,678 tons from 192,122 tons and exports (including re-exports of imported coke) decreased to 14,677 tons from 22,314 tons.

Manufactured gas, sold and used, amounted to 61,065,424 M cubic feet in 1946, including 45,595,212 M cubic feet from by-product ovens and 15,470,212 M cubic feet from gas plants. Sales of gas by the producers totalled 22,503,927 M cubic feet, of which 12,951,689 M cubic feet were from by-product ovens and 9,552,238 M cubic feet were from gas works. Most of the remaining gas was used as fuel in the producing plants or in their associated metallurgical works. These figures do not include 53,365 M cubic feet of (Pintsch) oil gas for lighting railway cars, 11,511,941 M cubic feet of still gas recovered at petroleum refineries, nor iron blast furnace gas and producer gas which was recovered and used by the producers but for which no records are available.

The number of customers served with manufactured illuminating and fuel gas in 1946 was 548,033, the length of distributing mains was 2,948 miles, and the average calorific value of the gas sold ranged from 450-570 B.T.U. per cubic foot.

Table 209.—Materials Used in Coke and Gas Plants, 1945 and 1946

Material	Unit of measure	1945		1946	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Bituminous coal carbonized in ovens or retorts—					
(a) Canadian	ton	1,136,436	6,509,235	1,185,266	7,440,795
(b) Imported	ton	3,998,049	28,248,799	3,259,195	23,931,421
Bituminous coal for making water gas—					
(a) Canadian	ton	.....	.....	417	3,761
(b) Imported	ton	6,764	57,532	6,702	62,641
Coke for gas-making—					
(a) Purchased	ton	10,759	120,273	13,618	156,635
(b) Companies' own make	ton	91,122	742,909	105,386	976,502
Oil used for enriching water gas	Imp. gal.	10,655,717	836,488	13,126,351	1,062,785
Absorbing and wash oil	Imp. gal.	275,792	36,117	245,897	29,999
Caustic soda	lb.	1,936,288	39,239	1,040,063	24,064
Lime	ton	1,849	26,087	1,304	18,378
Water	.....	.....	39,967	.....	47,017
Iron oxide	ton	7,357	57,441	9,385	69,899
Sulphuric acid, 66° Bé	lb.	67,830,415	560,007	55,052,729	455,980
All other materials	.....	.....	472,388	.....	429,273
Total Cost	.....	.....	**37,746,482**	.....	**34,709,159**

Table 210.—Products Made in Coke and Gas Plants, 1945 and 1946

Product	Unit of measure	1945		1946	
		Quantity	Gross selling value at works	Quantity	Gross selling value at works
			$		$
GAS MADE—					
Retort coal gas	M cu. ft.	12,661,741	.....	9,744,357	.....
Coke oven gas	M cu. ft.	49,313,480	.....	42,471,460	.....
Producer gas	M cu. ft.	2,031,124	.....	1,337,275	.....
Water gas	M cu. ft.	5,885,110	.....	7,101,932	.....
Propane and butane gas	M cu. ft.	130,394	.....	118,012	.....
Total Gas Made	**M cu. ft.**	**70,021,849**	.....	**60,773,036**	.....
GAS SOLD OR USED—					
Gas sold	M cu. ft.	21,551,189	19,916,643	22,503,927	20,916,981
Gas used in own coke or gas plants	M cu. ft.	20,999,668	2,056,833	18,299,361	2,302,714
Gas used in associated metallurgical works	M cu. ft.	24,531,485	2,160,752	18,257,178	1,662,323
Gas otherwise accounted for but not sold	M cu. ft.	328,489	125,693	222,902	63,358
Gas not accounted for	M cu. ft.	2,857,285	981,688	1,782,056	985,693
Total Gas Sold or Used	**M. cu. ft.**	**70,268,116**	**25,841,609**	**61,065,424**	**25,931,069**
COKE MADE—					
Coke from by-product or bee-hive ovens	ton	3,332,578	34,210,045	2,857,600	29,005,738
Coke from gas retorts	ton	271,018	2,435,505	259,166	2,848,316
Coke breeze from by-product ovens	ton	272,033	940,017	240,589	782,211
Coke breeze from gas retorts	ton	36,691	86,424	5,754	39,865
Total Coke	**ton**	**3,912,320**	**37,671,991**	**3,363,109**	**32,676,130**
OTHER PRODUCTS—					
Tar	Imp. gal.	37,995,126	2,193,711	33,043,844	1,987,375
Ammonia liquor	lb. NH_3	1,703,170	16,457	1,559,320	17,081
Ammonium sulphate	pound	78,573,124	1,140,273	60,949,463	865,322
Benzol	Imp. gal.	7,412,377	1,009,159	5,776,019	818,315
Toluol, xylol and naphthalene	Imp. gal.	1,675,115	558,279	671,922	188,086
All other products	.....	.....	51,826	.....	99,097
Grand Total	.....	.....	**68,483,305**	.....	**62,582,475**

The Natural Gas Industry

Production of natural gas in Canada totalled 47,900,184 thousand cubic feet valued at $12,165,050 in 1946, a decrease of 1·1 per cent in quantity and value from the 1945 output of 48,411,585 thousand cubic feet at $12,309,564. These figures include all natural gas sold for domestic, industrial or other uses and also the gas used as field fuel by the well operators, but the gas which is allowed to go to waste is not included.

The 40,097,096 thousand cubic feet produced in Alberta in 1946 was a decrease of 0·7 per cent from the record high of 40,393,061 thousand cubic feet in 1945. The major portion was produced in the Turner Valley field but about 30 per cent of the output came from the Viking and Kinsella, Foremost, Medicine Hat, Redcliff and other fields.

Production in Saskatchewan continued to increase and thus established a new record of 209,569 thousand cubic feet valued at $61,740.

In Ontario there was a decline in production, the output in 1946 being 7,051,309 thousand cubic feet compared with 7,199,970 thousand cubic feet in the preceding year. There is a large demand for gas in the southwestern Ontario area both for home heating and for industrial use and efforts are being made to supplement the declining production by the use of propane units and by importing natural gas from the United States. A pipe line across the river at Windsor has recently been completed and some imported gas is now being received for use in the Windsor district and for storage in the Dawn Township field.

New Brunswick produced 541,010 thousand cubic feet valued at $262,441, a decrease from 1945 when 653,230 thousand cubic feet were produced.

In 1946 the natural gas industry employed an average of 1,655 employees. The salaries and wages amounted to $2,491,361. Fuel and electricity cost $226,980 and $21,457 was spent for process supplies. The industry as defined for statistical purposes is confined to wells that produce natural gas only. Wells that produce both natural gas and crude petroleum are included in the crude petroleum industry.

A review by the Bureau of Mines, at Ottawa, states that: "The large reserves of natural gas being built up in Alberta are a potential source of supply for industries which may be established to process natural gas for the production of gasoline and other by-products. Already in the United States a plant is being built for this purpose, and the time appears to be approaching when gasoline will be synthesized from natural gas at cost competitive with those for producing gasoline from crude oil. Another potential outlet for natural gas in Canada is its use in the manufacture of liquid gas for general cooking and heating. The liquid gas, a mixture of pentane and butane, is bottled under pressure, and, when used, pressure is released and the gas is burned in the gaseous form."

Table 211.—Principal Statistics for The Natural Gas Industry in Canada, 1937-1946

Year	Number of firms	Number of wells*	Average number of employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies	Gross Selling value of products
				$	$	$	$
1937	218	3,268	2,028	2,488,125	75,690	23,190	9,037,326
1938	218	3,325	1,966	2,506,121	67,725	15,162	9,831,564
1939	222	3,352	1,990	2,536,220	82,877	15,520	10,732,543
1940	236	3,438	2,189	2,748,740	85,561	8,793	11,203,103
1941	231	3,424	2,161	2,841,795	103,229	4,975	11,223,103
1942	212	3,566	1,940	2,826,811	92,489	12,313	11,356,350
1943	191	3,558	1,882	2,846,514	181,841	7,899	11,552,696
1944	211	3,621	1,810	2,885,654	188,003	13,149	9,772,357
1945	218	3,748	1,890	2,993,091	227,514	18,298	10,860,594
1946	219	3,825	1,665	2,491,361	226,980	21,457	10,588,175

* See Note to Table 2.

Table 212.—Principal Statistics, by Provinces, 1945 and 1946

Province	Number of firms	Number of wells*	Average number of employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies	Gross selling value of products
				$	$	$	$
1945							
New Brunswick	2	40	82	139,179	15,004	1,500	345,628
Ontario	191	3,573	1,244	1,820,178	150,775	16,781	4,837,586
Saskatchewan	5	9	7	8,971	1,998	.....	58,165
Alberta	20	126	557	1,024,763	59,737	17	5,619,215
Canada	**218**	**3,748**	**1,890**	**2,993,091**	**227,514**	**18,298**	**10,860,594**
1946							
New Brunswick	2	43	76	119,328	16,393	.....	287,111
Ontario	193	3,643	1,063	1,574,305	149,873	20,161	4,656,528
Saskatchewan	3	4	5	5,391	.....	.....	61,740
Alberta	21	135	511	792,337	60,714	1,296	5,582,796
Canada	**219**	**3,825**	**1,655**	**2,491,361**	**226,980**	**21,457**	**10,588,175**

* Wells which produce natural gas only; if both petroleum and natural gas were produced the wells were included in the Crude Petroleum Industry.

Table 213.—Production of Natural Gas in Canada, 1927-1946

Year	Quantity	Value	Year	Quantity	Value
	M cu. ft.	$		M cu. ft.	$
1927	21,376,791	8,043,010	1937	32,380,991	11,674,802
1928	22,582,586	8,614,182	1938	33,444,791	11,587,450
1929	28,378,462	9,977,124	1939	35,185,146	12,507,307
1930	29,376,916	10,289,985	1940	41,232,125	13,000,593
1931	25,874,723	9,026,754	1941	43,495,353	12,665,116
1932	23,420,174	8,899,462	1942	45,697,359	13,301,055
1933	23,138,103	8,712,234	1943	44,276,216	13,159,418
1934	23,162,324	8,759,652	1944	45,067,158	11,422,541
1935	24,910,786	9,363,141	1945	48,411,585	12,309,564
1936	28,113,348	10,762,243	1946	47,900,484	12,165,050

Table 214.—Production of Natural Gas in Canada, By Provinces, 1937-1946

Year	New Brunswick	Ontario	Saskatchewan	Alberta	Northwest Territories	Canada
	(M cubic feet)					
1937	576,671	10,746,334	100,380	20,955,506	1,500	32,380,991*
1938	577,492	10,952,806	90,285	21,822,108	1,500	33,444,791*
1939	606,382	11,966,581	96,423	22,513,660	1,500	35,185,146*
1940	616,041	13,053,403	100,773	27,459,808	1,500	41,232,125*
1941	653,542	11,828,703	106,168	30,905,440	1,500	43,495,353
1942	619,380	10,476,770	117,124	34,482,585	1,500	45,697,359
1943	675,029	7,914,408	116,201	35,569,078	1,500	44,276,216
1944	702,464	7,082,508	119,116	37,161,570	1,500	45,067,158
1945	653,230	7,199,970	163,824	40,393,061	1,500	48,411,585
1946	541,010	7,051,309	209,569	40,097,096	1,500	47,900,484

* Includes 600 M cu. ft. in Manitoba.

Table 215.—Production(*) of Natural Gas in Canada, By Provinces, 1945 and 1946

Province	1945		1946	
	M cu. ft.	Value	M cu. ft.	Value
		$		$
New Brunswick	653,230	317,568	541,010	262,441
Ontario	7,199,970	4,837,586	7,051,309	4,656,528
Saskatchewan	163,824	58,165	209,569	61,740
Alberta	40,393,061	7,095,910	40,097,096	7,184,006
Northwest Territories	1,500	335	1,500	335
Canada	**48,411,585**	**12,309,564**	**47,900,484**	**12,165,050**

(*) Sold and used by producer.

Table 216.—Production (b) of Natural Gas in Canada, By Months and By Provinces, 1946

Month	New Brunswick	Ontario	Saskatchewan	Alberta	Canada
	(M cu. ft.)				
January	65,555	892,282	30,898	4,175,474	5,164,209
February	55,407	840,249	27,737	3,866,661	4,790,054
March	50,983	645,978	18,577	3,521,357	4,236,895
April	52,211	634,172	14,500	2,999,697	3,700,580
May	46,857	547,587	12,274	2,887,557	3,494,275
June	41,125	432,577	7,158	2,670,706	3,151,566
July	31,819	335,070	5,776	2,542,053	(a) 2,915,218
August	26,511	357,420	5,484	2,604,943	(a) 2,994,858
September	33,142	427,360	9,036	2,787,977	(a) 3,258,015
October	37,678	502,795	16,801	3,438,832	3,996,106
November	49,507	627,994	25,880	4,143,149	4,846,530
December	50,215	807,825	35,448	4,458,690	5,352,178
Total	**541,010**	**7,051,309**	**209,569**	**40,097,096**	**47,900,484**

(a) Includes production from Fort Norman, Northwest Territories.
(b) Sales and consumption by producers.

Table 217.—Production of Natural Gas in Ontario, By Fields, 1945 and 1946

County	Field	1945	1946
		(M cu. ft.)	
Essex	Kingsville	27,416	22,276
	(Tilbury, Romney and Raleigh	2,125,982	2,540,638
	(Declute	461,428	.....
Kent	(Dover	162,286	134,814
	(Chatham	297,978	296,757
	(Zone	605,568	692,149
Lambton	(Dawn)		
	(Oil Springs)	421,320	337,298
Middlesex	Mosa	.....	.....
	(South Norwich	90	.....
Oxford	(Brownsville(*))		
Elgin	Bayham)	30,036	22,999
	(Bayham	23,888	13,661
Elgin	(Malahide	25,445	45,437
Norfolk	Norfolk	463,243	450,316
Lincoln	Lincoln)		
Haldimand	Haldimand)	2,016,669	2,022,637
Wentworth	Wentworth)		
Welland	Welland	331,955	340,639
Brant	Onondaga, Brantford and Tuscarora	72,666	65,188
Prince Edward	Hallowell	.....	.....
Wells in surface drift	Harwich and Howard Tps	14,000	6,500
Private wells		60,000	60,000
	Total Produced	**7,199,970**	**7,051,309**

(*) Dereham Tp.—22,999 M cu. ft.; Bayham Tp.—Nil M cu. ft.....1946.
Dereham Tp.—17,157 M cu. ft.; Bayham Tp.—12,879 M cu. ft.....1945.

Table 218.—Natural Gas Pipeline Mileage in Canada, 1945 and 1946

Province	Actual Miles of Mains				Miles of Equivalent 3" Mains			
	Gathering and transmission		Distribution		Gathering and transmission		Distribution	
	1945	1946	1945	1946	1945	1946	1945	1946
New Brunswick	20	20	65	65	36	36	73	73
Ontario	2,330	2,352	2,057	2,071	3,922	3,949	2,537	2,417
Saskatchewan	2	4	6	8	4	3	4	5
Alberta	706	842	656	700	2,287	2,649	1,213	1,168
Canada	**3,058**	**3,218**	**2,784**	**2,844**	**6,249**	**6,637**	**3,827**	**3,663**

Table 219.—Natural Gas Distribution in Alberta(*), 1945 and 1946

—	1945	1946
	(M cu. ft.)	
FIELD DISTRIBUTION FROM TURNER VALLEY FIELD		
Drilling fuel	1,426,783	1,110,335
Lease fuel	883,351	814,449
Waste	6,234,584	5,560,905
Transmission fuel, loss, meter difference	170,149	−2,479
To absorption plants (see below)	28,945,386	28,099,927
Total Turner Valley Field	**37,660,253**	**35,583,137**
From Foremost field to gas company system	198,398	217,042
From Viking and Kinsella fields to Edmonton system	8,450,983	8,992,009
From Medicine Hat field to city system	2,231,161	2,244,036
To industries	1,054,759	867,692
From Redcliff field to domestic services	106,177	104,980
To industries	1,026,604	1,102,006
From Brooks field to town system	81,851	88,719
From Vermilion field to town system	169,044	200,259
From Wainwright field to town system	245,312	183,839
Miscellaneous services	781,637	623,219
Miscellaneous waste	285,410	371,731
Total Distribution	**52,291,589**	**50,578,669**
DISTRIBUTION OF GAS SENT TO ABSORPTION PLANTS—		
To gas company system, except Bow Island repressuring	16,008,276	12,239,850
Domestic fuel for Turner Valley	351,648	252,731
Plant and equipment fuel	2,033,883	2,089,109
Drilling and lease fuel	1,710,474	138,542
Industrial fuel—Turney Valley	398,959	3,343,837
Repressured—Turner Valley	3,044,445	4,409,020
Repressured—Bow Island	725,625	920,747
Shrinkage, waste and meter difference	4,672,076	4,706,091
Total Gas to Plants	**28,945,386**	**28,099,927**
Total Utility Market	**29,643,624**	**29,837,000**

* Information from the Alberta Petroleum and Natural Gas Conservation Board.

Table 220.—Sales(*) of Manufactured and Natural Gas in Canada, 1945 and 1946

—	1945			1946		
	Number of customers	Quantity sold	Revenue from sales	Number of customers	Quantity sold	Revenue from sales
		M cu. ft.	$		M cu. ft.	$
MANUFACTURED GAS—						
Domestic	493,307	12,720,922	13,928,374	504,544	13,773,461	14,892,220
House heating	6,217	1,679,796	914,981	6,604	1,760,702	962,255
Industrial	3,356	5,109,828	2,996,984	3,687	4,617,662	2,810,862
Commercial	29,619	3,893,848	3,429,237	29,199	4,048,811	3,569,418
Miscellaneous	114	48,423	49,040	126	35,390	49,667
Total	**532,613**	**23,452,817**	**21,318,616**	**544,160**	**24,236,026**	**22,284,422**
NATURAL GAS—						
Domestic	194,098	16,875,164	7,975,469	203,941	17,398,813	8,082,941
Industrial	1,162	8,375,151	1,930,013	1,196	7,711,571	1,774,132
Commercial	11,728	8,276,943	2,164,934	12,646	7,834,497	2,094,600
Miscellaneous	482	404,328	36,011	453	241,264	108,540
Total	**207,470**	**33,931,586**	**12,106,427**	**218,236**	**33,186,145**	**12,060,213**
Total—All Gas	**740,083**	**57,384,403**	**33,425,043**	**762,396**	**57,422,171**	**34,344,635**

* Sales by distributing companies to final consumers, amounts used by producers are not included.

Table 221.—Employees, Salaries and Wages, By Provinces, 1945 and 1946

Province	Number of Employees					Salaries	Wages	Total Salaries and Wages
	Administrative and Office		Workmen		Total			
	Male	Female	Male	Female				
						$	$	$
1945								
New Brunswick	10	9	61	2	82	38,545	100,634	139,179
Ontario	516	150	571	7	1,244	1,079,495	740,683	1,820,178
Saskatchewan	5	1	1	.....	7	7,450	1,521	8,971
Alberta	245	65	240	7	557	654,541	370,222	1,024,763
Canada	**776**	**225**	**873**	**16**	**1,890**	**1,780,031**	**1,213,060**	**2,993,091**
1946								
New Brunswick	.....	.....	75	1	76	.....	119,328	119,328
Ontario	244	64	743	12	1,063	494,547	1,079,758	1,574,305
Saskatchewan	3	.....	2	.....	5	2,944	2,447	5,391
Alberta	104	5	397	5	511	217,734	574,603	792,337
Canada	**351**	**69**	**1,217**	**18**	**1,655**	**715,225**	**1,776,136**	**2,491,361**

Table 222.—Workmen, By Months, 1945 and 1946 (On the last work-day of each month)

Month	1945			1946		
	Male	Female	Total	Male	Female	Total
January	644	9	653	827	14	841
February	652	11	663	795	14	809
March	677	13	690	878	15	893
April	731	10	741	1,066	16	1,082
May	857	17	874	1,285	16	1,301
June	954	16	970	1,384	16	1,400
July	996	19	1,015	1,479	17	1,496
August	1,023	20	1,043	1,543	16	1,559
September	1,048	16	1,064	1,408	19	1,427
October	1,044	18	1,062	1,390	18	1,408
November	941	12	953	1,328	15	1,343
December	835	12	847	1,111	15	1,126
Average	**873**	**16**	**889**	**1,217**	**18**	**1,235**

Table 223.—Natural Gas Wells in Ontario, By Townships, 1946

Township	1946					
	No. of producing wells in operation Dec. 31, 1945	Idle during year	No. of wells abandoned this year	No. of dry wells drilled this year	No. of producing wells drilled this year	No. of producing wells in operation Dec. 31, 1946
Aldborough				4		
Anderson						
Bayham	34	4	1			33
Bertie	172	4	3	4	10	179
Beverly			1			
Binbrook	42	4			4	44
Brant			7			
Brantford	2					2
Brooke						
Caistor	84	1	2	1	9	90
Camden Gore		2		1	12	13
Canboro	147	4	2	8	9	152
Cayuga North	216	3	12	14	26	233
Cayuga South	88	8		1	4	87
Charlotteville	15			3		15
Chatham	24	3		4	1	23
Crowland	30			1	5	35
Culross						
Dawn	30	1				30
Delaware						
Delhi Village	3					3
Dereham	2	10				2
Dorchester North						
Dover	16		3			14
Dover East						
Dunn	53	5		9	23	73
Dunwich						
Enniskillen	3	1		2		3
Gainsboro	13	2				11
Glanford	10					10
Gosfield South	24	3				24
Hallowell						
Harwich				1		
Hobson						
Houghton	4					4
Humberstone	72		2		10	81
Maidstone				1		
Malahide	22		12	1	5	15
Malden		2		3	2	
Marysburg						
Mersea	3		2			3
Middleton	35	4				35
Mosa				1		
Moulton	105		2			103
Nassageya						
Norwich South	1		1	1		1
Nottawasaga						
Oneida	118	5	8	8	10	118
Onondaga	20	5	4			14
Orford				2		
Oxford North						
Oxford West						
Port Dover Village	3					3
Port Rowan	4					4
Rainham	299	11	10	1	18	307
Raleigh	53	5		2	2	56
Romney	134	2	4	1		132
Sarnia						
Seneca	149	10	6	5	2	141
Sherbrooke	16	1	1		1	16
Sombra		6			6	
Stamford					5	5
Thorold					3	3
Tilbury East	118	1	3	2		115
Townsend	62	3	2	11	6	64
Tuscarora	67		12		1	56
Wainfleet	41		2		2	41
Walpole	560	14	15	18	24	560
Walsingham North	8			4	6	14
Walsingham South	15			5		15
Westminster						
Willoughby	51		1	3	4	54
Windham	21			1		21
Woodhouse	94	5	1	2	2	92
Yarmouth				1	1	1
Zone	32		1	3	8	41
Private wells	320					320
Surface drift wells	69					69
Total	**3,504**	**129**	**120**	**129**	**221**	**3,580**

THE PETROLEUM INDUSTRY IN CANADA

Including (1) Production of Crude Petroleum; and (2) Petroleum Products

(1) Production of Crude Petroleum

Production of crude petroleum and natural gasoline in Canada during 1946 totalled 7,585,555 barrels valued at $14,989,052, compared with 8,482,796 barrels worth $13,632,248 in 1945, a decrease of 10·6 per cent in quantity and an increase of 10 per cent in value. The highest recorded production was in 1942 when the 2,253 wells yielded 10,364,796 barrels of crude oil.

Alberta accounted for 94 per cent of the total for Canada in 1946, but output in this province at 7,137,921 barrels was 11·8 per cent lower than in the previous year. There was a further decline in output, from the Turner Valley field, but other Alberta fields, except Vermilion, showed increases with Taber, Conrad and Lloydminster areas having the largest proportional gains.

In Saskatchewan, the production was 118,686 barrels compared with 14,374 in 1945, the first year of recorded production. All of this oil came from the Lloydminster district.

Ontario showed only a slight increase in the quantity yielded in 1946, the output amounting to 123,082 barrels compared with 113,325 barrels in the preceding year.

In the Northwest Territories production dropped to 177,282 barrels in 1946 from 345,171 barrels in 1945. A decrease was also recorded in New Brunswick with production at 28,584 barrels compared with 30,140 barrels in 1945.

In 1946 the crude petroleum industry employed an average of 1,563 persons and distributed $3,260,571 in salaries and wages. About $914,551 were spent for fuel and electricity and $109,555 for process supplies. Sales by the industry including some natural gas, were valued at $14,725,139. Reports were received from 2,314 wells which were in operation during the year.

Imports of crude petroleum into Canada totalled 63,406,461 barrels in 1946 compared with 58,806,232 barrels in 1945. The supply came from the following countries: United States 38,011,326 barrels; Venezuela 20,954,422 barrels; Colombia, 4,265,342 barrels, and Trinidad 175,371 barrels.

Table 224.—Principal Statistics for the Crude Petroleum Industry in Canada, 1937-1946

Year	Number of operating wells	Number of employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies	Gross value of sales (*)
			$	$	$	$
1937	2,328	1,620	2,340,359	471,187	638,779	6,002,633
1938	2,400	1,894	2,656,112	338,780	802,982	10,127,832
1939	2,389	1,780	2,567,983	707,067	724,988	10,742,077
1940	2,360	1,741	2,835,410	934,834	533,161	11,486,073
1941	2,312	1,844	3,254,817	609,616	194,182	15,011,324
1942	2,253	1,972	3,648,965	971,504	235,959	16,876,123
1943	2,197	2,399	5,212,895	709,879	202,479	16,906,780
1944	2,264	2,547	5,814,676	1,000,484	242,311	15,818,358
1945	2,222	1,968	3,898,662	748,351	117,708	14,121,921
1946	2,314	1,563	3,260,571	914,551	109,555	14,725,139

(*) Includes some natural gas sold by the industry.

Table 225.—Principal Statistics for the Crude Petroleum Industry, by Provinces, 1946 (a)

—	Ontario	Saskatchewan	Alberta	Northwest Territories	Canada
Number of firms	123	3	113	1	240
Number of active wells (b)	1,629	18	582	58	(c) 2,314
Number of employees—Administrative	9	.....	394	2	405
Workmen	157	3	978	20	1,158
Total	**166**	**3**	**1,372**	**22**	**1,563**
Salaries and wages—Salaries $	13,417	.....	971,266	6,000	990,683
Wages $	157,110	5,512	2,042,950	64,316	2,269,888
Total $	**170,527**	**5,512**	**3,014,216**	**70,316**	**3,260,571**
Selling value of products (gross) $	291,719	135,990	14,124,038	173,392	14,725,139
Cost of fuel and electricity $	40,635	8,222	865,694	.....	914,551
Cost of process supplies used $	44,191	71	65,293	.....	109,555
Selling value of products (net) $	206,893	127,697	13,193,051	173,392	13,701,033

(a) Data for New Brunswick are included in the Natural Gas Industry.
(b) Includes wells still drilling and dry wells completed in year specified.
(c) Includes 27 in New Brunswick.

Table 226.—Production of Crude Petroleum in Canada, by Fields, 1945 and 1946

—	1945		1946	
	Barrels	Total Value	Barrels	Total Value
		$		$
New Brunswick	30,140	42,413	28,584	40,018
ONTARIO—				
Petrolia and Enniskillen	39,350	92,072	44,323	103,745
Oil Springs	25,657	63,350	27,995	69,151
Moore township	247	578	259	606
Sarnia township	190	445	152	357
Plympton township	9	21	28	66
Bothwell township and Thamesville	22,791	53,327	18,610	43,560
West Dover, Romney, Raleigh and Tilbury East	5,935	13,887	4,671	10,933
Onondaga	24	56	89	208
Mosa township	14,344	33,562	17,351	40,613
Dunwich	1,677	3,924	1,620	3,792
Dawn and Euphemia	362	847	237	555
Warwick, Metcalfe and Adelaide townships	2,739	6,409	7,747	18,133
Total Ontario	**113,325**	**268,478**	**123,082**	**291,719**
Saskatchewan	14,374	15,362	118,686	135,990
Alberta—				
Turner Valley	7,422,061	11,875,298	6,371,572	12,806,860
Other fields	557,725	1,294,394	766,349	1,541,073
Total Alberta	**7,979,786**	**13,169,692**	**7,137,921**	**14,347,933**
Northwest Territories	345,171	136,303	177,282	173,392
Canada	**8,482,796**	**13,632,248**	**7,585,555**	**14,989,052**

Table 227.—Production of Crude Petroleum in Canada, by Provinces, 1926-1946

Year	New Brunswick	Ontario	Saskatchewan	Alberta	Northwest Territories	Canada
	(Barrels of 35 Imperial gallons)					
1926	10,544	137,850	.....	216,950	.....	364,444
1927	18,244	139,606	.....	318,741	.....	476,591
1928	8,043	134,094	.....	482,047	.....	624,184
1929	7,499	121,194	.....	988,675	.....	1,117,368
1930	6,758	117,302	.....	1,398,160	.....	1,522,220
1931	6,577	122,365	.....	1,413,631	.....	1,542,573
1932	6,408	130,343	.....	906,751	910	1,044,412
1933	8,835	136,058	.....	995,832	4,608	1,145,333
1934	11,106	141,385	.....	1,253,966	4,438	1,410,895
1935	12,954	165,041	.....	1,263,510	5,115	1,446,620
1936	17,112	165,495	.....	1,312,368	5,399	1,500,374
1937	18,089	165,205	.....	2,749,085	11,371	2,943,750
1938	19,276	172,641	.....	6,751,312	22,855	6,966,084
1939	22,799	206,379	.....	7,576,932	20,191	7,826,301
1940	22,167	187,644	331	8,362,203	18,633	8,590,978
1941	31,359	160,238	.....	9,918,577	23,664	10,133,838
1942	28,089	143,845	.....	10,117,073	75,789	10,364,796
1943	24,530	132,492	.....	9,601,530	293,750	10,052,302
1944	23,296	125,067	.....	8,727,366	1,223,675	10,099,404
1945	30,140	113,325	14,374	7,979,786	345,171	8,482,796
1946	28,584	123,082	118,686	7,137,921	177,282	7,585,555

Table 228.—Production of Crude Petroleum in Canada, by Months, 1946 (Barrel—35 Imperial Gallons)

Month	(*)New Brunswick	Ontario	Saskatchewan	Alberta(*)	(*)Northwest Territories	Canada 1946	Canada 1945
	(Barrels)						
January	2,294	10,544	4,273	659,326	1,081	678,418	872,930
February	1,966	9,446	3,341	592,110	1,717	608,580	770,975
March	2,220	9,016	4,007	642,943	3,489	661,675	771,674
April	2,183	10,417	7,886	601,707	20,433	642,626	685,903
May	2,804	10,988	9,894	598,183	26,196	648,065	708,633
June	2,586	9,578	7,524	581,874	18,626	620,188	666,103
July	2,633	10,459	6,598	591,392	21,832	632,914	689,698
August	2,602	10,353	6,415	575,234	26,934	621,538	678,123
September	2,286	10,577	18,410	567,323	24,604	623,200	650,612
October	2,497	11,642	18,160	584,614	20,515	637,428	675,918
November	2,384	9,855	19,701	577,523	8,630	618,093	652,081
December	2,129	10,207	12,477	565,692	2,325	592,830	660,146
Total	**28,584**	**123,082**	**118,686**	**7,137,921**	**177,282**	**7,585,555**	**8,482,796**

(*) These figures include total output each month.

Table 229.—Petroleum Wells in Canada, by Provinces, 1944-1946

—		New Brunswick	Ontario	Saskatchewan	Alberta	Northwest Territories	Canada
Productive wells at beginning of year	1944	22	1,728	.....	365	26	2,141
	1945	23	1,690	.....	426	57	2,196
	1946	26	1,579	3	479	58	2,145
Number of productive wells drilled	1944	1	6	.....	81	32	120
	1945	3	5	3	66	1	78
	1946	1	26	18	49	.....	94
Number of wells abandoned	1944	.....	47	.....	19	1	67
	1945	.....	1,022	.....	13	.....	1,035
	1946	.....	34	3	11	.....	48
Number of dry wells drilled	1944	.....	18	.....	41	.....	59
	1945	.....	19	.....	42	.....	61
	1946	.....	42	.....	51	.....	93
Number of productive wells in operation at end of year	1944	23	1,690	.....	426	57	2,196
	1945	26	1,579	3	479	58	2,145
	1946	27	1,610	18	517	58	2,230

Table 230.—Employees, Salaries and Wages in the Crude Petroleum Industry, 1941-1946

Year	Number of Employees: On Salaries, Male	On Salaries, Female	On Wages, Male	On Wages, Female	Total Employees	Salaries	Wages	Total Salaries and Wages
						$	$	$
1941	356	60	1,428	.....	1,844	867,638	2,387,179	3,254,817
1942	371	113	1,483	5	1,972	997,609	2,651,356	3,648,965
1943	496	155	1,736	12	2,399	1,547,605	3,665,290	5,212,895
1944	641	238	1,646	22	2,547	2,050,411	3,764,265	5,814,676
1945	643	191	1,107	27	1,968	1,606,820	2,291,842	3,898,662

—	Administration: Male	Administration: Female	Workmen: Male	Workmen: Female	Total	Administrators Earnings	Workmen's Earnings	Total Earnings
						$	$	$
1946	324	81	1,141	17	1,563	990,683	2,269,888	3,260,571

Table 231.—Workmen, by Months, 1945 and 1946 (Number on pay-roll on the last work day of each month)

Month	1945			1946		
	Male	Female	Total	Male	Female	Total
January	1,042	23	**1,065**	1,127	22	**1,149**
February	1,034	25	**1,059**	1,103	22	**1,125**
March	1,075	25	**1,100**	991	18	**1,009**
April	1,023	25	**1,048**	1,103	18	**1,121**
May	1,044	22	**1,066**	1,148	18	**1,166**
June	1,107	21	**1,128**	1,171	19	**1,190**
July	1,132	25	**1,157**	1,222	16	**1,238**
August	1,211	27	**1,238**	1,167	15	**1,182**
September	1,113	26	**1,139**	1,154	13	**1,167**
October	1,093	26	**1,119**	1,120	12	**1,132**
November	1,042	19	**1,061**	1,078	12	**1,090**
December	1,024	20	**1,011**	1,034	12	**1,046**
Average	**1,107**	**27**	**1,134**	**1,141**	**17**	**1,158**

Table 232.—Imports Into Canada of Petroleum, Asphalt and Their Products, 1945 and 1946

Item	1945		1946	
	Quantity	Value	Quantity	Value
		$		$
Asphaltum or asphalt, solid or not ... cwt.	128,418	326,313	165,604	435,612
Oil, imported by miners or mining companies, for the concentration of ores or metals ... gal.	142,866	91,017	102,636	64,316
Crude petroleum for refining ·8155 specific gravity (42·0 A.P.I.) or heavier at 60° Fah. ... M gal.	1,987,943	72,310,214	2,218,963	89,471,006
Crude petroleum for refining, lighter than ·8155 specific gravity (42·0 A.P.I.) at 60° Fah. ... gal.	...	...	...	...
Crude petroleum, n.o.p. ... gal.	275,138	10,460	298,840	11,568
Fuel oil, ex-warehoused, for ships' stores ... gal.	35,395,731	1,288,061	12,922,344	510,715
Coal oil and kerosene lighter than ·8236 specific gravity at 60° Fah., n.o.p. ... gal.	13,039,459	801,575	35,557,549	2,280,149
Engine distillate ·8017 specific gravity or heavier at 60° Fah. ... gal.	356,012	23,388	2,174,540	148,854
Gasoline, lighter than ·8236 specific gravity at 60° Fah. ... gal.	49,352,979	7,764,143	118,718,873	11,513,890
Natural casinghead, compression or absorption gasoline lighter than ·6690 specific gravity (80·0 A.P.I.) at 60° Fah. when imported by refiners of crude petroleum for blending with gasoline wholly produced in Canada ... gal.	29,197,565	1,807,271	57,939,488	3,397,891
Lubricating oils, composed wholly or in part of petroleum and costing less than 25 cents per gallon ... gal.	4,551,635	760,431	4,564,681	724,267
Lubricating oils, n.o.p. ... gal.	5,964,265	2,863,674	6,348,330	3,015,856
Oils, mineral, n.o.p. ... gal.	3,840,662	1,677,124	697,708	815,655
Imports of petroleum n.o.p., ·8236 specific gravity (40·3 A.P.I.) or heavier at 60° Fah. ... gal.	53,350,952	2,164,781	109,544,452	4,880,869
Petroleum greases and lubricating greases, n.o.p. ... lb.	10,500,345	640,800	9,928,228	690,328
Refined petroleum jellies and oils for toilet, medicinal, edible or similar purposes ...	...	491,631	...	659,989
Paraffin wax ... lb.	18,544,302	1,114,356	21,529,806	1,348,861
Paraffin wax candles ... lb.	169,966	44,163	322,264	86,262
Products of petroleum n.o.p., lighter than ·8236 specific gravity at 60° Fah. ... gal.	1,482,657	190,069	17,373,015	1,642,024
Liquefied petroleum gases ...	...	685,964	...	2,044,813

Table 233.—Exports of Petroleum and its Products from Canada, 1945 and 1946

Item	1945		1946	
	Quantity	Value	Quantity	Value
		$		$
Petroleum, crude ... gal.	...	...	...	...
Oil, coal and kerosene, refined ... gal.	6,604,122	703,719	2,980,079	317,747
Gasoline and naphtha ... gal.	56,824,754	8,255,473	10,080,980	1,274,678
Fuel oil ... gal.	32,615,854	1,925,593	20,277,614	1,283,060
Lubricating oil ... gal.	947,089	287,699	4,473,824	1,111,214
Oil, mineral, n.o.p. ... gal.	143,838	32,021	211,976	52,396
Wax, mineral ... cwt.	18,295	47,943	127,133	583,243

(2) The Petroleum Products Industry

Statistics for the Petroleum Products Industry cover all establishments in Canada which were occupied chiefly in (a) the refining of crude oil to produce gasoline, fuel oil, etc., and (b) the blending or compounding of lubricating oils and greases.

Thirty refineries and 13 blending plants, or a total of 43 works, reported under this category in 1946 and the aggregate value of production was $223,425,380, an increase of 10·8 per cent over the 1945 total of $201,683,679.

Output figures for 1946 included $221,702,376 for petroleum refineries and $1,723,004 for concerns engaged in blending oils and greases, against corresponding totals in 1945 of $200,233,529 and $1,450,150, respectively. The principal statistics for each of these groups and for the industry as a whole are tabulated below.

Table 234.—Materials Used in Petroleum Refineries, 1945 and 1946

Material	Unit of measure	1945		1946	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Crude oil (under 60° A.P.I.) in its natural state, from Canadian wells	Imp. gal.	261,649,701	14,448,892	236,210,031	15,366,821
Absorption gasoline, etc., from Canadian wells (run to stills)	Imp. gal.	11,460,721	666,550	14,356,179	827,399
Crude oil, in its natural state, imported, (run to stills)—					
(a) From United States	Imp. gal.	1,116,775,550	67,573,181	1,351,879,093	83,182,316
(b) From Other Countries	Imp. gal.	915,009,313	55,323,332	874,210,116	44,830,178
Crude oil, not in its natural state (run to stills)	Imp. gal	.....	.....	1,700,073	87,066
Benzol for blending	Imp. gal.	2,892,487	431,081	2,256,556	325,420
Phenol	pound	1,007,329	141,610	754,004	101,276
Sulphuric acid, 66° Be	pound	39,989,522	437,370	38,480,882	408,145
Sulphur	pound	102,958	2,659	135,379	3,361
Caustic soda	pound	8,503,517	235,011	7,545,781	225,798
Soda ash	pound	510,755	11,742	432,463	9,786
Litharge	pound	246,523	21,325	351,612	30,030
Fuller's earth, bentonite and other clays	pound	28,604,000	685,761	25,626,000	570,909
Compounding materials	.....	.....	362,323	.....	384,218
Tetraethyl fluid	c.c.	2,002,251,865	4,243,451	2,779,052,387	4,154,307
Blending stocks for aviation gas	Imp. gal.	11,192,158	3,515,960	10,065,617	1,486,496
Other materials	.....	.....	1,484,642	.....	1,733,720
Shipping containers	.....	.....	599,329	.....	987,437
Total	.....	.....	**150,185,119**	.....	**154,711,683**

Table 235.—Products Made in Petroleum Refineries, 1945 and 1946

Product	Unit of measure	1945		1946	
		Quantity	Gross selling value at works	Quantity	Gross selling value at works
MADE FOR SALE—			$		$
Gasoline (1) Straight run—Aviation	Imp. gal.	19,174,916	3,681,285	7,996,196	1,382,490
Standard	Imp. gal.	447,191,539	50,994,481	514,458,339	59,536,928
By cracking (2) Aviation	Imp. gal.	.....	.....	.....	.....
Standard	Imp. gal.	486,436,530	56,060,726	494,882,046	56,858,859
Stove oil (40°-42·5° A.P.I.)	Imp. gal.	39,408,805	2,401,840	88,212,202	5,968,044
Gas and light fuel oil (20°-40° A.P.I., except diesel)	Imp. gal.	126,893,270	8,038,426	189,547,916	11,928,836
Diesel fuel oil (all fuel oil sold under this name)	Imp. gal.	116,571,599	6,515,379	129,490,547	7,742,974
Residual fuel oil (10°-20° A.P.I.)	Imp. gal.	538,971,718	26,036,188	538,391,794	27,061,201
Tractor and engine distillate	Imp. gal.	36,965,460	3,511,911	37,576,831	4,009,401
V.M. and P. or solvent naphtha	Imp. gal.	27,682,130	3,287,078	24,785,599	3,409,599
Kerosene	Imp. gal.	33,321,509	3,824,092	30,197,702	3,319,742
Lubricating oil	Imp. gal.	50,018,247	11,864,974	54,958,798	13,761,569
Lubricating grease	pound	19,035,906	856,874	22,112,219	991,334
Asphalt	Imp. gal.	69,247,333	6,092,110	91,334,563	8,099,694
Petroleum coke	ton	59,559	472,933	65,443	343,761
Other products (3)	.....	.....	8,457,745	.....	7,481,192
Total—Made for Sale	.....	.....	**192,090,042**	.....	**212,495,621**
MADE FOR OWN USE—					
Gasoline—Straight run	Imp. gal.	191,255	45,891	243,343	52,957
By cracking process	Imp. gal.	22,715	3,430	40,779	5,576
Stove oil	Imp. gal.	1,795	92	9,354	520
Gas and light fuel oil (20°-40° A.P.I.)	Imp. gal.	112,012	5,289	69,830	4,397
Diesel fuel oil	Imp. gal.	124,359	6,887	475,627	31,957
Residual fuel oil (10°-20° A.P.I.)	Imp. gal.	105,210,613	4,824,466	107,126,092	5,077,023
Tractor and engine distillate	Imp. gal.	1,135	71	.....	.....
Kerosene	Imp. gal.	52,898	6,020	45,692	5,104
Lubricating oil	Imp. gal.	64,848	14,826	128,895	29,721
Asphalt	Imp. gal.	55,519	4,917	60,178	5,315
Petroleum coke	ton	7,260	36,269	4,172	19,345
Still gas	M cu. ft.	8,974,774	2,947,947	10,032,080	3,690,804
Other products	.....	.....	247,382	.....	284,089
Total—Made for own use	.....	.....	**8,143,487**	.....	**9,206,752**
Grand Total	.....	.....	**200,233,529**	.....	**221,702,376**

(1) Includes recoveries from Turner Valley naphtha and natural gasoline run to refinery stills but does not include the imported casinghead gasoline which was used for blending at the refineries.

(2) Includes polymer gasoline.

(3) Includes wax, candles, still gas for sale, butane, propane, cumene, etc. These items were reported by fewer than three companies, so, in accordance with the provisions of the Statistics Act, the figures cannot be shown separately.

Table 236.—Materials Used in Lubricating Oils and Greases Industry, 1945 and 1946

Material	Unit of measure	1945		1946	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Compounding stocks (oils, etc.)	Imp. gal.	1,536,850	589,430	1,871,150	685,834
Tallow and grease	lb.	137,817	16,871	285,042	18,241
All other materials	.....	.....	155,194	.....	136,053
Shipping containers	.....	.....	206,815	.....	263,933
Total	.....	.....	**968,310**	.....	**1,104,061**

Table 237.—Products Made in the Lubricating Oils and Greases Industry, 1945 and 1946

Product	Unit of Measure	1945		1946	
		Quantity	Gross selling value at works	Quantity	Gross selling value at works
			$		$
Greases, lubricating	pound	1,117,561	157,910	899,087	124,057
Oils, lubricating	gallon	1,350,684	1,157,577	1,632,577	1,375,869
Soaps and powders	.....	.....	42,039	.....	60,023
All other products	.....	.....	92,624	.....	163,055
Total	.....	.....	**1,450,150**	.....	**1,723,004**

CHAPTER EIGHT

THE NON-METALLIC MINING INDUSTRIES IN CANADA. (Other than Fuels)

Including detailed data relating to operations in the following industries:—

Asbestos	Miscellaneous	Magnesitic dolomite
Feldspar, Nepheline	Barite	Magnesium sulphate
Syenite and Quartz	Corundum	Mineral waters (natural)
Gypsum	Diamonds	Phosphate
Iron oxides (ochre)	Diatomite	Silica Brick
Mica	Fluorspar	Sodium carbonate
Peat fuel	Garnet	Sodium sulphate
Peat moss	Graphite	Strontium minerals
Salt	Grindstones, etc.	Sulphur (Pyrite)
Talc and soapstone	Lithium minerals	Volcanic dust

THE ASBESTOS MINING INDUSTRY

Asbestos production (shipments) in Canada during 1946 totalled 558,181 short tons valued at $25,240,562, compared with 466,896 tons worth $22,805,157 in 1945. Except for a few tons from Ontario, all the production came from Quebec.

The 11 firms engaged in asbestos mining during 1946 employed 4,547 persons who were paid $7,771,921 in wages and salaries. Expenditures for fuel and electricity amounted to $1,759,462, and process supplies, plus containers, cost $3,236,430. In addition, the industry paid $3,283,055 in taxes in 1946 and spent $2,279,382 on new equipment or plant extensions.

Shipments of asbestos in 1946 included 742 tons of crude at $334,925; 228,234 tons of fibres worth $17,181,400 and 329,205 tons of shorts valued at $7,724,237.

The major portion of the Canadian production was exported. During the year under review, the exports included 639 tons of crude valued at $293,901, 215,233 tons of milled fibres worth $16,215,579, and 304,312 tons of refuse and shorts valued at $7,329,708.

The following statement concerning asbestos mining in Canada has been abstracted from a review prepared by the Bureau of Mines, Ottawa:

"Asbestos of commerce consists mostly of the three varieties known as chrysotile, amosite, and crocidolite or blue asbestos, chrysotile being by far the most important and most widely used. Three other varieties, namely fibrous actinolite, fibrous tremolite, and anthophyllite, have only a limited field of usefulness.

"The asbestos produced in Canada is practically all of the chrysotile variety and comes almost entirely from areas of serpentinized rock in the Eastern Townships, Quebec, where the producing centres are Thetford Mines, Black Lake, East Broughton, Vimy Ridge, Asbestos and St. Remi de Tingwick. The Canadian deposits are the largest known in the world.

"Small deposits of chrysotile asbestos are known in other parts of Quebec and also in Ontario and British Columbia, and several of them have been worked from time to time. The asbestos from some of these deposits has a very low content of iron and is entirely free from magnesite, and should be suitable for use in making insulation for electrical machinery.

"No amosite or crocidolite has been found in Canada, but there are numerous deposits of fibrous tremolite, fibrous actinolite, and anthophyllite, which varieties are commercially termed amphibole asbestos. The fibres of these varieties are harsher and weaker than those of chrysotil and there is little demand for them at present. None of these deposits is being worked, although formerly fibrous actinolite was quarried near the village of Actinolite, Hastings County, Ontario, for use in the making of roofing materials. Asbestos deposits reported as having been found in recent years in Manitoba and in northern and western Ontario are of the amphibole varieties. The amphibole fibres are too harsh and brittle to be spun, but they have a higher resistance to

acids than has chrysotile, and it is possible that material from some of the deposits is suitable for use in acid filters and for other purposes where long harsh fibres are required.

"Production has been continuous from the Thetford area since 1878 and reserves of asbestos-bearing rock are huge. Core-drilling to depths greater than 1,700 feet has revealed the presence of fibre comparable in quantity and quality with that in the present workings. Most of the output consists of vein fibre obtained from veins $\frac{1}{4}$ to $\frac{1}{2}$ inch in width, though veins exceeding 5 inches in width occur. The fibres run crosswise of the vein and thus the width of the vein determines the length of fibre. Slip fibre, occurring in fault planes, is obtained largely in the East Broughton area.

"The asbestos-bearing rock is mined in open pits and underground. The block-caving method of underground mining is coming into general use. This method was put into operation at the King mine of Asbestos Corporation in 1934. Johnson's Company is now using the same method, and Bell Asbestos Mines and Canadian Johns-Manville are sinking shafts preparatory to recovering rock by block-caving operations.

"Asbestos is used for a great variety of purposes, the principal products being: cloth, brake linings, clutch facings, packings, insulation, mill-board, siding, shingles, roofing, tile and pipes."

Price quotations, November 1946, on asbestos show variations depending on grade: crude No. 1, $800 per ton; crude No. 2 and crude run-of-mine, $275 to $495; spinning or textile fibre, $155 to $286; shingle fibre, $75 to $102; paper fibre, $52 to $59; waste, stucco or plaster, $39; refuse or shorts, $17 to $34.

Table 238.—Principal Statistics of the Asbestos Mining Industry in Canada, 1944-1946

—		1944	1945	1946
Number of firms		9	11	11
Number of employees: Administrative		354	429	465
Workmen		3,696	3,808	4,082
Total		**4,050**	**4,237**	**4,547**
Salaries and wages: Salaries	$	805,330	820,164	998,539
Wages	$	5,595,855	5,859,721	6,773,382
Total	$	**6,401,185**	**6,679,885**	**7,771,921**
Selling value of products (a)	$	21,836,376	24,092,799	25,245,579
Cost of purchased fuel and electricity	$	1,635,829	1,684,017	1,759,462
Cost of process supplies (b)	$	1,166,909	1,267,960	1,670,496
Cost of containers	$	1,213,321	1,283,748	1,545,934
Net value of sales	$	17,820,317	19,857,074	20,269,687

(a) Includes value of sand and gravel.
(b) Explosives, drill steel, etc.

Table 239.—Shipments of Asbestos by Canadian Mines, by Grades, 1944-1946

—	1944		1945		1946	
	Tons	$	Tons	$	Tons	$
Crudes	1,547	621,956	981	415,203	742	334,925
Fibres	190,233	14,305,966	219,767	16,628,467	228,234	17,181,400
Shorts	227,485	5,691,594	246,148	5,761,487	329,205	7,724,237
Total	**419,265**	**20,619,516**	**466,896**	**22,805,157**	**558,181**	**25,240,562**
Sand, gravel and stone (waste rock only) (*)	4,521	3,539	5,109	3,894	6,337	5,017

(*) This production is included under the Sand and Gravel Industry.

Table 240.—Shipments of Asbestos by Canadian Mines, 1927-1946

Year	Tons	Selling value at works	Year	Tons	Selling value at works
		$			$
1927	274,778	10,621,013	1937	410,026	14,505,791
1928	273,033	11,238,360	1938	289,793	12,890,195
1929	306,055	13,172,581	1939	364,472	15,859,212
1930	242,114	8,390,163	1940	346,805	15,619,865
1931	164,296	4,812,886	1941	477,846	21,468,840
1932	122,977	3,039,721	1942	439,459	22,663,283
1933	158,367	5,211,177	1943	467,196	23,169,505
1934	155,980	4,936,326	1944	419,265	20,619,516
1935	210,467	7,054,614	1945	466,896	22,805,157
1936	301,287	9,958,183	1946	558,181	25,240,562

Table 241.—Tonnage of Asbestos Rock Mined and Milled, 1944-1946

—	1944	1945	1946
	Tons	Tons	Tons
Rock mined	7,778,805	8,765,370	9,127,859
Rock milled	6,587,740	6,459,813	7,027,483

Table 242.—Shipments of Asbestos by Canadian Mine, by Months, 1946

Month	Short tons	Month	Short tons
January	36,576	August	53,783
February	29,666	September	51,182
March	36,369	October	55,769
April	47,685	November	52,400
May	52,927	December	48,573
June	47,437		
July	45,814	**Total**	**558,181**

Table 243.—Number of Workmen, by Months, 1945 and 1946 (Administration and Office Employees not Included)

Month	Mine			Mill	
	Surface		Underground		
	Male	Female	Male	Male	Female
1945					
January	1,550	32	447	1,696	2
February	1,538	31	465	1,671	2
March	1,528	30	468	1,675	2
April	1,525	29	471	1,666	2
May	1,558	32	459	1,687	2
June	1,585	31	442	1,666	2
July	1,670	34	450	1,684	2
August	1,704	25	440	1,690	2
September	1,709	33	486	1,670	2
October	1,754	30	484	1,685	2
November	1,803	27	456	1,721	2
December	1,759	28	420	1,682	2
Average	**1,643**	**31**	**457**	**1,675**	**2**
1946					
January	1,718	25	458	1,688	2
February	1,684	19	461	1,729	2
March	1,755	26	448	1,755	2
April	1,856	26	453	1,766	2
May	1,948	23	433	1,749	2
June	1,944	24	439	1,761	2
July	1,863	26	452	1,795	2
August	1,893	27	438	1,836	2
September	1,823	20	428	1,855	2
October	1,836	27	412	1,865	2
November	1,823	29	414	1,892	2
December	1,771	25	396	1,845	2
Average	**1,826**	**25**	**435**	**1,794**	**2**

Table 244.—Taxes Paid by the Asbestos Mining Industry, 1945 and 1946

—	1945	1946
	$	$
Dominion income tax, including tax on non-operating revenue	1,361,816	1,677,219
Dominion excess profits tax	1,602,577	1,039,846
Provincial taxes—		
Mining taxes paid on net profits from production, including portion paid to municipality	288,303	374,992
Corporation income tax where levied in addition to mining tax	.....	.....
Taxes paid on capital and places of business	2,557	193
Acreage taxes	372	133
Total Provincial	**291,232**	**375,318**
Municipal taxes—		
Based on property valuation	198,270	190,651
Based on non-operating revenue	.....	21
Total Municipal	**198,270**	**190,672**
Grand Total Taxes Paid	**3,453,895**	**3,283,055**

Table 245.—Specified Miscellaneous Expenditures by the Asbestos Mining Industry, 1944-1946

—	1944	1945	1946
	$	$	$
Workmen's compensation	305,290	384,536	450,248
Unemployment insurance	63,917	51,254	55,237
Aggregate cost of all supplies purchased	3,271,141	4,076,750	4,557,898
Aggregate cost of plant and equipment purchased	294,889	934,294	2,279,382
Cost of buildings, machinery and equipment erected or installed during the year	553,273	1,361,763	2,635,758

Table 246.—Imports Into Canada and Exports of Asbestos and Asbestos Products, 1945 and 1946

—	1945		1946	
	Tons	$	Tons	$
IMPORTS				
Asbestos clutch facings for automobiles, motor vehicles and chassis	.....	316,461	.....	179,480
Asbestos brake linings for automobiles, motor vehicles and chassis	.....	379,038	.....	444,409
Asbestos brake linings and clutch facings, n.o.p.	.....	32,005	.....	47,296
Asbestos in any form other than crude, and all manufactures of, n.o.p.	.....	1,385,224	.....	1,434,680
Asbestos packing	108	101,615	113	124,146
Total	.....	**2,214,343**	.....	**2,230,011**
EXPORTS				
Asbestos (crude)	863	366,563	639	293,901
Asbestos milled fibres	209,765	15,857,555	215,233	16,215,579
Asbestos waste, refuse and shorts	229,929	5,618,124	304,312	7,329,708
Asbestos manufactures, including asbestos roofing	.....	341,648	.....	634,230
Total	.....	**22,183,890**	.....	**24,473,418**

THE FELDSPAR AND QUARTZ MINING INDUSTRY

Owing to the very close physical association of these minerals in many Canadian deposits (pegmatites), it has been found difficult for some operators to make a separation of all data pertaining to the mining of each individual mineral and, for this reason, the general statistics relating to capital, employment, fuel and electricity, etc., have been combined in this report. Since 1936, corresponding statistics relating to the production of nepheline syenite have been included with those pertaining to the commercial production of feldspar and quartz.

Production in 1946, as measured by the sales of feldspar, nepheline syenite and quartz, was valued at $2,168,673 which was the highest recorded amount to date. Sales in the preceding year, 1945, amounted to $2,093,880.

Feldspar production came entirely from Ontario and Quebec; nepheline syenite came from Ontario only, and quartz (silica) in various forms was produced in Nova Scotia, Quebec, Ontario, Saskatchewan and British Columbia.

In 1946 there were 34 active firms in the industry, but only 30 of these properties made shipments during the year. The industry employed 517 persons to whom $876,034 was paid in salaries and wages. The cost of fuel, electricity, process supplies, containers and freight amounted to $440,701 which, if deducted from the gross output value, yields a net value of $1,727,972 compared with $1,626,590 in 1945.

Table 247.—Principal Statistics of the Feldspar and Quartz Mining Industry(*), 1939-1946

Year	Number of shipping mines	Average number of employees	Total salaries and wages	Cost of purchased fuel and electricity at works	Cost of process supplies	Gross value of shipments f.o.b. works
			$	$	$	$
1939	38	338	330,170	79,114	99,607	1,352,671
1940	41	400	377,254	76,134	138,383	1,508,999
1941	35	506	610,489	91,165	159,818	1,838,054
1942	34	533	782,903	124,100	287,928	1,998,996
1943	34	535	768,199	134,247	322,605	2,138,229
1944	41	520	772,385	166,501	241,400	2,104,030
1945	27	483	767,517	180,799	220,873	2,093,880
1946	30	517	876,034	161,208	180,207	2,168,673

(*) Includes nepheline syenite.

Table 248.—Principal Statistics of the Feldspar and Quartz Mining Industry, 1945 and 1946

—	Quebec		Other Provinces (b) (c)	
	1945	1946	1945	1946
Number of active firms (a)	13	17	18	17
Number of shipping mines	12	15	15	15
Number of employees—Administration	36	23	39	22
Workmen	231	248	165	224
Total	**267**	**271**	**204**	**246**
Salaries and wages—Salaries $	62,064	54,451	65,012	52,454
Wages $	340,843	389,165	299,598	379,964
Total $	**402,907**	**443,616**	**364,610**	**432,418**
Selling value of products (gross) $	873,321	943,109	1,220,559	1,225,564
Cost of fuel and purchased electricity $	91,166	91,672	89,633	69,536
Cost of process supplies, freight and containers $	106,855	140,173	179,636	139,320
Net value of sales $	675,300	711,264	951,290	1,016,708

(a) Small shippers whose production is recorded from consumers' returns are sometimes not included in the total.
(b) Includes data relating to nepheline syenite.
(c) Includes plants in Nova Scotia, Saskatchewan, and British Columbia.

Table 249.—Number of Workmen, by Months, 1946

Month	Quebec			Ontario				Canada Total (*)
	Surface	Mill		Surface		Under-ground	Mill	
	Male	Female	Male	Male	Female	Male	Male	
January	130	1	100	40	3	41	24	351
February	124	1	108	54	3	42	25	369
March	112	1	97	57	3	48	28	358
April	112	1	98	122	3	54	26	431
May	146	1	108	108	3	87	34	565
June	163	1	106	114	3	82	34	519
July	155	1	108	162	3	92	34	567
August	150	1	101	146	3	97	37	550
September	162	1	98	140	3	82	34	522
October	187	1	100	125	3	96	36	550
November	180	1	96	119	3	66	26	507
December	141	1	98	102	3	57	26	452
Average	**146**	**1**	**101**	**107**	**3**	**71**	**30**	**472**

(*) Includes a few employees in Nova Scotia in some months.

FELDSPAR

Production of feldspar, crude and ground, during 1946 was 35,243 tons worth $384,677 compared with 30,246 tons valued at $282,656 in 1945. Quebec produced the major portion, namely 29,758 tons worth $330,981.

Exports of feldspar from Canada totalled 19,239 tons at $140,403 in 1946 and imports of ground feldspar amounted to 705 tons valued at $13,622.

The consumption of ground feldspar in Canada amounted to 13,114 tons in 1946, including 4,099 tons for scouring powders, 2,701 tons for glass, 4,800 tons for pottery, etc., and 1,499 tons for enamelling.

The greater part of the production of feldspar is used in the pottery, glass, enamelware and other ceramic trades, and the remainder mainly in scouring soaps and cleansers, and for bonding of fired abrasive wheels and other shapes. Some coarsely crushed spar, usually made from impure waste or quarry fines, is sold for stucco dash, artificial stone, chicken grit, etc. Small tonnages of specially selected crude (dental spar) are used in the manufacture of artificial teeth, and such material commands a large premium.

Most of the feldspar used is of the high-potash type, though some high-soda spar is used for blending purposes and in low-fired enamels and glazes. Practically all colours are equally acceptable for ceramic uses, but for cleanser purposes, pale shades of white to buff are demanded.

Table 250.—Production of Feldspar, Crude and Ground, in Canada, by Provinces 1930-1946

Year	Quebec		Ontario		Manitoba	
	Tons	$	Tons	$	Tons	$
1930	17,074	163,802	9,722	104,667	.....	.....
1931	10,381	86,842	7,962	100,119	.....	.....
1932	3,390	39,063	3,657	42,920	.....	.....
1933	6,183	59,283	4,387	45,350	88	484
1934	9,207	78,853	7,302	61,665	1,793	6,763
1935	7,002	63,075	8,656	75,003	2,084	6,252
1936	8,115	75,703	8,409	70,840	1,322	7,932
1937	12,285	105,612	9,061	72,610	.....	.....
1938	5,874	62,878	8,106	65,064	78	451
1939	5,399	60,923	7,061	51,056	40	330
1940	8,548	89,004	12,907	98,619	.....	.....
1941	14,218	137,160	11,822	107,124	.....	.....
1942	16,802	164,588	5,468	49,353	.....	.....
1943	17,199	176,222	6,659	61,549	.....	.....
1944	17,842	177,271	5,667	50,361	.....	.....
1945	26,389	247,242	3,857	35,414	.....	.....
1946	29,758	330,981	5,485	53,696	.....	.....

Table 251.—Consumption of Ground Feldspar in Canada, 1941-1946

—	1941	1942	1943	1944	1945	1946
	Tons	Tons	Tons	Tons	Tons	Tons
(a) By Uses						
Glass	909	2,880	2,614	2,382	2,740	2,701
Scouring powders	5,411	4,344	5,892	4,617	4,847	4,099
Abrasives	40	119	58	75	60	15
Clay products (pottery, tile, insulators, etc.)	3,755	3,234	2,947	2,625	2,347	4,800
Enamelling	2,030	1,676	1,667	1,372	2,684	1,499
Miscellaneous	.....	.....	.....	102	266	.....
Total	**12,145**	**12,253**	**13,178**	**11,173**	**12,944**	**13,114**
(b) By Provinces						
Quebec	4,763	5,626	7,555	6,388	6,815	6,886
Ontario	7,223	6,588	5,210	4,485	5,769	5,849
Manitoba	.....	.....	166	.....	.....	.....
Alberta	159	39	247	300	360	379
Canada	**12,145**	**12,253**	**13,178**	**11,173**	**12,944**	**13,114**

Table 252.—Imports Into Canada and Exports of Feldspar, 1945 and 1946

—	1945		1946	
	Tons	$	Tons	$
Imports—				
Crude feldspar	.....	.....	.....	.....
Ground feldspar	826	15,052	705	13,622
Exports—				
Feldspar	16,888	125,028	19,239	140,40

NEPHELINE SYENITE

Production of nepheline syenite in Canada during 1946 was confined to one company, The American Nepheline Corporation Ltd. at Lakefield, Ontario. Shipments were valued at $229,198 compared with $275,766 in 1945. All of the exports went to the United States, the quantity being 51,839 tons valued at $168,895 compared with 48,351 tons at $153,311 in the preceding year.

Consumption of ground nepheline syenite in Canada amounted to 5,803 tons in 1946 including 5,584 tons for glass and 219 tons in the pottery industry.

Nepheline syenite is a quartz-free rock consisting essentially of nephelite and albite and of microline feldspar. It usually contains small amounts of iron-bearing impurities, chiefly magnetite, hematite and biotite mica as well as such minor accessory minerals as sodalite, cancrinite, corundum, zircon, muscovite mica, calcite, etc. In the developed Canadian deposits, iron-bearing impurities are of coarse sizes and can be readily removed from the crude rock by magnetic means. Other objectionable minerals, notably corundum and muscovite, can be extracted by flotation methods, with the recovery of commercial grades of such products. Nepheline syenite is relatively high in alumina (24 per cent in average Canadian commercial rock) compared with straight feldspar (17 to 20 per cent), and for this reason it is used as a feldspar substitute in a number of ceramic industries, more especially in the glass trade.

Table 253.—Production(*) of Nepheline Syenite in Canada, 1936-1946

Year	Value	Year	Value
	$		$
1936	37,426	1942	246,893
1937	121,481	1943	292,010
1938	142,737	1944	217,989
1939	140,148	1945	275,766
1940	117,849	1946	229,198
1941	227,583		

(*) Only one or two producers in recent years; quantity not available for publication.

Table 254.—Consumption of Ground Nepheline Syenite in Canada, 1943-1946

—	1943	1944	1945	1946
	Tons	Tons	Tons	Tons
(a) By Uses				
Glass	5,630	7,285	7,778	5,584
Pottery	.....	257	324	219
Total	**5,630**	**7,542**	**8,102**	**5,803**
(b) By Provinces				
Quebec	1,268	1,498	1,570	1,192
Ontario	4,133	5,107	4,991	3,973
Alberta	229	937	1,541	638
Total	**5,630**	**7,542**	**8,102**	**5,803**

QUARTZ (SILICA)

Production of quartz or siliceous material during the year under review was 1,413,378 short tons valued at $1,554,798, a decrease in quantity from the 1,513,628 tons produced in 1945, but an increase over the value of $1,535,458 which was placed on that year's sales. Output included crude and crushed dyke quartz, quartzite, sandstone and natural silica sands and gravels. The mineral in one or more of the forms thus defined was produced during 1946 in Nova Scotia, Quebec, Ontario and Saskatchewan. Shipments of silica in Nova Scotia were made to steel plants largely for the making of silica brick. In Quebec, high-grade silica sands were produced for the manufacture of glass and chemicals while a considerable tonnage of these same sands was sold for sand-blasting, moulding and various other purposes; in the same province relatively large quantities of crushed quartzite were mined and milled for the manufacture of silicon carbide and other products. The greater part of the tonnage of silica shipped in Ontario during 1946 represented material intended for use in the production of silica brick, cement and ferro-silicon and for the fluxing of nickel-copper ores. Quartz production as recorded for Saskatchewan represented low-grade natural silica sands or gravels shipped as flux to the Flin Flon smelter of the Hudson Bay Mining and Smelting Co. Ltd.

Table 255.—Production(*) of Quartz (Silica) in Canada, 1932-1946

Year	Tons	$	Year	Tons	$
1932	189,132	276,147	1940	1,858,302	1,203,527
1933	185,783	297,820	1941	2,052,878	1,366,187
1934	272,563	482,265	1942	1,738,174	1,538,162
1935	233,002	424,882	1943	1,776,749	1,608,448
1936	1,046,049	597,781	1944	1,740,262	1,658,409
1937	1,377,448	1,129,011	1945	1,513,628	1,535,458
1938	1,380,011	961,617	1946	1,413,378	1,554,798
1939	1,582,035	1,100,214			

(*) Complete data for production of this material in Ontario previous to 1936 are not available.

Table 256.—Production of Quartz, by Provinces, 1945 and 1946

—	1945		1946	
	Short tons	Value	Short tons	Value
		$		$
Production (shipments) (*)—				
Nova Scotia	10,734	36,171	7,525	15,550
Quebec	195,857	626,079	214,076	612,128
Ontario	1,165,238	820,664	1,052,644	852,713
Saskatchewan	141,799	52,544	130,105	47,542
British Columbia	.....	.....	9,028	26,865
Canada	**1,513,628**	**1,535,458**	**1,413,378**	**1,554,798**

(*) Includes both crude and crushed quartz, crushed sandstone and quartzite, and natural silica sands.

Table 257.—Production (a) of Natural Low-Grade Silica Sand and Silica Gravel as Non-Ferrous Smelter Flux, 1944-1946

—	1944		1945		1946	
	Tons	$	Tons	$	Tons	$
Ontario	(b) 608,403	212,840	523,558	183,245	461,122	161,392
Saskatchewan	143,101	50,085	141,799	52,544	130,105	47,542
Canada	**751,504**	**262,925**	665,357	235,789	591,227	208,934

(a) Included in totals shown in Tables 255 and 256.
(b) Exclusive of low-cost quartzite used in smelting nickel-copper ores.

Table 258.—Imports Into Canada and Exports of Silica, 1945 and 1946

—	1945		1946	
	Quantity	$	Quantity	$
	Tons		Tons	
IMPORTS—				
Ground flint stone	712	20,550	823	34,449
Ganister	426	3,384	518	3,367
Silica sand for manufacturing	410,427	926,648	390,014	914,456
Silex or crystallized quartz	7,251	247,393	10,690	114,450
Silica fire brick	.....	741,394	.....	570,075
EXPORTS—				
Quartzite	121,435	282,578	200,316	441,976

Table 259.—Consumption of Silica Sand and Ground Quartz in Canada, by Industries and by Provinces, 1942-1946

—	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
(a) BY INDUSTRIES					
Steel foundries	134,724	129,881	89,807	81,590	58,503
Iron foundries	9,146	15,104	7,498	11,135	8,953
Ferro-alloys	4,338	4,535	6,481	9,949	6,013
Enamelling	632	1,071	394	423	633
Brass foundries	1,874	3,237	2,514	.....	.....
White metal foundries	42	12	41	.....	.....
Smelters	321	3,774	191	.....	.....
Electrical apparatus	329	681	.....	.....	350
Glass	145,005	132,992	131,987	135,959	123,910
Artificial abrasives and abrasive products	76,943	89,022	73,771	74,406	83,910
Products from imported clays	3,036	2,773	3,441	3,659	4,554
Monumental and ornamental stone	1,385	980	759	820	1,464
Prepared foundry supplies	1,082	126	169	108	142
Cement mills	20,711	19,473	23,942	29,424	31,222
Refractories	1,642	1,365	1,023	1,114	983
Roofing paper	2,879	2,135	4,307	885	1,193
Chemicals	15,296	17,305	19,708	17,073	19,456
Fertilizers	15,848	37,988	20,715	25,871	44,077
Paints	1,310	1,239	1,767	1,904	1,959
Soaps and washing compounds	180	246	4,545	4,350	5,256
Cleaning preparations	2,282	3,004	58		
Matches	333	334	349	385	356
Miscellaneous	402	236	74	2,678	4,464
Total	**439,740**	**467,513**	**393,541**	**401,733**	**397,398**
(b) BY PROVINCES					
Prince Edward Island	309	335	.....	.....	.....
Nova Scotia	4,836	2,364	1,087	2,001	2,659
New Brunswick	3,996	6,810	705	8,126	20,156
Quebec	207,244	210,909	204,970	192,482	193,504
Ontario	190,465	210,875	153,871	159,543	139,898
Manitoba	12,635	11,989	11,168	16,939	19,717
Saskatchewan	35	59	72	41	368
Alberta	14,777	16,205	16,947	17,235	16,572
British Columbia	5,443	7,967	4,721	5,366	4,324
Canada	**439,740**	**467,513**	**393,541**	**401,733**	**397,398**

THE GYPSUM INDUSTRY

(1) Primary Production—The Gypsum Mining and Quarrying Industry

Shipments of gypsum reached a new high in 1946 when 1,810,937 tons valued at $3,671,503 were moved from the quarries toward the markets. In the previous year 839,781 tons, worth $1,783,290 were shipped. The tonnage in each year was made up of various grades of crude gypsum and crude anhydrite as shipped from the quarries or mines, together with the calcined gypsum used in, or shipped from, the quarries or "primary" plants.

The quantity of crude mineral mined during 1946 included 1,969,173 tons of gypsum and 57,872 tons of crude anhydrite. A total of 321,887 tons of crude gypsum was calcined at the primary plants.

In 1946 the gypsum mining industry operated 14 quarries or mines and paid to 753 employees a total of $1,246,673 in wages and salaries. The cost of fuel, electricity, process supplies and containers amounted to $806,571 and the net value of production was $2,890,156.

Exports in 1946 included 1,488,710 tons of crude gypsum valued at $1,598,661 and 919 tons of plaster of Paris or wall plaster worth $23,501. Imports included 3,731 tons of gypsum worth $22,674 and 7,633 tons of plaster of Paris and wall plaster valued at $165,863.

Some of the Canadian gypsum mining companies restrict their operations in the Dominion to the production and sale of crude gypsum or anhydrite while others, in addition to marketing various grades of crude gypsum, produce a calcine for sale or for consumption in their own manufacturing plants in making wallboard, wall plaster, etc.

Table 260.—Principal Statistics for the Gypsum Mining Industry, 1939-1946

Year	Number of firms	Number of plants	Average number of employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies	Gross selling value of products, including containers
				$	$	$	$
1939	10	17	714	692,158	193,488	105,831	1,935,127
1940	9	16	694	717,666	194,964	223,375	2,065,933
1941	8	15	648	745,008	222,564	229,444	2,248,428
1942	7	13	510	657,620	178,682	65,457	1,254,182
1943	6	12	438	617,780	201,980	46,063	1,381,468
1944	8	12	328	490,872	148,743	239,198	1,511,978
1945	7	12	434	647,287	184,619	391,026	1,783,290
1946	8	14	753	1,246,673	260,479	520,868	3,696,727

Table 261.—Production (a) of Gypsum in Canada, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
SHIPMENTS BY GRADES—				
Crude—Lump or mine run	27,063	64,631	27,762	98,847
Crushed (c)	638,217	760,042	1,541,747	1,772,064
Fine ground	424	2,843	666	5,910
Calcined gypsum, sold and used (b)	174,077	955,774	240,762	1,794,682
Total	**839,781**	**1,783,290**	**1,810,937**	**3,671,503**
SHIPMENTS BY PROVINCES—				
Nova Scotia	634,960	790,273	1,538,738	1,812,815
New Brunswick	46,755	236,833	38,839	550,972
Ontario	92,174	385,516	122,524	492,179
Manitoba	42,275	300,636	63,187	428,133
British Columbia	23,617	70,032	47,649	387,404
Total	**839,781**	**1,783,290**	**1,810,937**	**3,671,503**
Total gypsum mined and quarried (c)	830,723	.....	2,027,045	.....
Total gypsum calcined (b)	210,276	.....	321,887	.....

(a) "Production" means Producers' Shipments of crude gypsum plus calcined gypsum shipped or used at mine.
(b) Does not include gypsum calcined in manufacturing plants located in Montreal and Calgary, but includes calcine used in manufacturing plants operated in direct or close conjunction with the mines—the value of calcine used is its value as a process material.
(c) Includes some anhydrite quarried in Nova Scotia.

Table 262.—Production of Crude and Calcined Gypsum in Canada, 1920-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1920	429,144	1,893,991	1934	461,237	863,776
1921	386,550	1,785,538	1935	541,864	932,203
1922	559,265	2,160,898	1936	833,822	1,278,971
1923	578,301	2,243,100	1937	1,047,187	1,540,483
1924	646,016	2,208,108	1938	1,008,799	1,502,265
1925	740,323	2,389,891	1939	1,421,934	1,935,127
1926	883,728	2,770,813	1940	1,448,788	2,065,933
1927	1,063,117	3,251,015	1941	1,593,406	2,248,428
1928	1,246,368	3,743,648	1942	566,166	1,254,182
1929	1,211,689	3,345,696	1943	446,848	1,381,468
1930	1,070,968	2,818,788	1944	596,164	1,511,078
1931	863,752	2,111,517	1945	839,781	1,783,290
1932	438,629	1,089,379	1946	1,810,937	3,671,503
1933	382,736	675,822			

Table 263.—Production of Crude and Calcined Gypsum in Canada, by Months, 1945 and 1946

Month	1945	1946	Month	1945	1946
	Tons	Tons		Tons	Tons
January	12,936	18,898	July	82,479	201,414
February	12,901	21,942	August	99,012	243,279
March	16,508	54,446	September	132,380	248,143
April	24,776	110,311	October	150,756	270,937
May	43,759	142,589	November	110,025	242,123
June	103,749	150,195	December	50,500	106,660
			Total	**839,781**	**1,810,937**

Table 264.—Imports and Exports of Gypsum, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
IMPORTS—				
Gypsum, crude (sulphate of lime) / Gypsum, ground, not calcined	888	22,183	3,731	22,674
Plaster of Paris and wall plaster	2,884	89,144	7,633	165,863
Total	.....	**111,327**	.....	**188,537**
EXPORTS—				
Gypsum or plaster, crude	558,632	581,625	1,488,710	1,598,661
Plaster of Paris, wall plaster	447	9,058	919	23,501
Gypsum, ground	.....	.....	.....	.....
Total	.....	**590,683**	.....	**1,622,162**

Table 265.—Consumption of Gypsum in the Portland Cement Industry in Canada 1939-1946

Year	Tons	Year	Tons
1939	31,492	1943	47,034
1940	38,903	1944	42,672
1941	49,031	1945	45,883
1942	49,816	1946	65,431

Table 266.—Consumption of Gypsum in the Gypsum Products Industry, 1939-1946

Year	Crude	Calcined
	Tons	Tons
1939	19,946	105,397
1940	21,611	125,917
1941	30,978	157,488
1942	20,742	149,885
1943	17,489	162,273
1944	26,683	165,750
1945	10,147	194,351
1946	46,617	253,617

Table 267.—Employees, Salaries and Wages, by Provinces, 1945 and 1946

Province	Average Number of Employees					Salaries	Wages	Total Salaries and Wages
	On Salaries		On Wages		Total			
	Male	Female	Male	Female				
						$	$	$
1945								
Nova Scotia	18	6	155	1	180	35,345	225,686	261,031
Other provinces	13	.....	240	1	254	32,543	353,713	386,256
Canada	**31**	**6**	**395**	**2**	**434**	**67,888**	**579,399**	**647,287**
1946								
Nova Scotia	24	4	376	3	407	64,816	590,633	655,449
Other provinces	17	5	322	2	346	45,929	545,295	591,224
Canada	**41**	**9**	**698**	**5**	**753**	**110,745**	**1,135,928**	**1,246,673**

Table 268.—Number of Wage-Earners on Payroll or Time Record on the Last Day of Each Month, 1945-1946

Month	1945					1946				
	Mine			Mill		Mine			Mill	
	Surface		Underground	Male	Female	Surface		Underground	Male	Female
	Male	Female				Male	Female			
January	61	1	78	139	.....	81	2	133	198	2
February	55	1	76	121	.....	75	2	133	197	2
March	67	2	81	137	.....	90	2	135	216	2
April	107	2	79	144	.....	233	2	134	270	2
May	124	2	91	160	.....	315	2	137	323	2
June	184	2	87	161	.....	316	2	138	336	2
July	185	2	87	175	.....	350	3	143	329	2
August	178	2	89	189	.....	352	3	135	348	2
September	202	2	91	193	.....	365	3	136	360	2
October	177	2	97	198	.....	396	3	144	357	3
November	199	2	98	215	.....	381	3	145	294	3
December	146	2	89	152	.....	302	3	150	264	2
Average	**142**	**2**	**88**	**165**	.....	**269**	**3**	**108**	**291**	**2**

(2) Secondary Production—The Gypsum Products Industry

Ten Canadian factories, operated by 4 companies, manufactured gypsum products having a factory selling value of $8,755,090 during 1946. This output was 53·2 per cent over the 1945 total of $5,716,114. The main products were gypsum wallboard, gypsum hardwall plaster, gypsum lath, gypsum tile and gypsum blocks.

The average number of employees in these works in 1946 was 905, who were paid $1,298,693 in salaries and wages. Expenditures for fuel and electricity amounted to $412,031 and materials used in manufacturing processes cost $4,076,812.

Table 269.—Principal Statistics of the Gypsum Products Industry, 1945 and 1946

—		1945	1946
Number of establishments		9	10
Number of employees		603	905
Salaries and wages	$	937,369	1,298,693
Cost of fuel and electricity	$	289,914	412,031
Cost of materials at works	$	2,843,004	4,076,812
Selling value of products at works	$	5,716,114	8,755,090

NOTE.—Profits or losses cannot be calculated from above figures as data are not available for general expense items such as interest, rent, depreciation, taxes, insurance, advertising, etc.

Table 270.—Employees, Salaries and Wages, 1945 and 1946

—		1945	1946
Employees—On salaries—Male	No.	58	78
Female	No.	17	15
On wages — Male	No.	474	772
Female	No.	54	40
Total Employees	No.	**603**	**905**
Salaries	$	157,769	243,967
Wages	$	779,600	1,054,726
Total Salaries and Wages	$	**937,369**	**1,298,693**

Table 271.—Wage-Earners, by Months, 1945 and 1946

—	1945			1946		
	Male	Female	Total	Male	Female	Total
January	442	43	485	711	41	752
February	443	41	484	700	40	740
March	439	44	483	727	40	767
April	429	52	481	734	39	773
May	450	52	502	766	40	806
June	454	51	505	792	40	832
July	452	58	510	805	40	845
August	454	62	516	812	39	851
September	486	66	552	803	39	842
October	536	63	599	804	40	844
November	566	60	626	803	40	843
December	532	62	594	809	39	848
Average	**474**	**54**	**528**	**772**	**40**	**812**

Table 272.—Materials Used in the Gypsum Products Industry, 1945 and 1946

Material	1945		1946	
	Quantity	Cost at works	Quantity	Cost at works
	Tons	$	Tons	$
Gypsum, crude	10,147	80,298	46,617	202,021
Gypsum, calcined (plaster of Paris)	194,351	1,143,123	253,617	1,403,169
Paper	15,488	1,038,137	23,309	1,713,069
Starch or paste	810	65,485	1,146	114,449
Hair	83	21,188	108	26,607
Retarder	256	22,469	367	33,563
Sawdust and shavings	283	3,084	.....	5,630
Containers, etc.	.....	131,894	.....	175,465
All other materials	.....	337,326	.....	401,830
Total	.....	**2,843,004**	.....	**4,076,812**

Table 273.—Output of the Gypsum Products Industry, 1945 and 1946

Product	Unit of measure	1945		1946	
		Quantity	Selling value at works	Quantity	Selling value at works
			$		$
Gypsum wallboard	sq. ft.	133,977,115	3,405,323	203,361,505	5,502,593
Gypsum hard wall plasters	ton	67,076	875,529	88,138	1,230,062
All other products (*)	.....	.....	1,435,262	.....	2,022,435
Total	.....	.....	**5,716,114**	.....	**8,755,090**

(*) Includes gypsum tile and blocks, gypsum lath, etc.

THE IRON OXIDES (OCHRE) INDUSTRY

Sales by Canadian producers of ochreous iron oxides during 1946 totalled 12,695 tons valued at $152,268 compared with 10,314 tons worth $172,053 in 1945. These figures include the mineral in both the crude and refined states. Production from Quebec amounted to 12,268 tons worth $146,401 and the remainder came from a deposit in British Columbia.

There were 60 persons employed by the 5 firms which operated in 1946, and the payrolls for the year amounted to $77,727. Fuel and electricity cost $16,656 and the cost of process supplies was $4,200. Operations in the industry are seasonal, starting the latter part of April and closing in December.

The following information relating to ochreous oxides in Canada is taken from a report prepared by the Bureau of Mines, Ottawa:

"Ochreous iron oxide, which is sold uncalcined and is used chiefly in the purification of illuminating gas, comprises the bulk of the minerals produced under this category. The calcined form of ochreous iron oxide is used in the manufacture of paints. A smaller quantity of natural iron oxides associated with clay-like materials in the form of umbers and siennas, is produced in the raw and in the calcined state for use as pigments in paints. The Canadian iron oxide industry is small and the quantity produced shows little change from year to year. Present producing localities have met the requirements of the domestic pigment trade for the cheaper grades for many years.

"The production for some time past has come mostly from deposits near Trois-Rivières, Quebec, but there are other deposits in different parts of Canada that could be operated were the demand sufficient to warrant doing so.

"In the past, deposits in Quebec were operated near Ste. Anne de Beaupré, Montmorency county; in Lynch township, Labelle county; and at St. Raymond, Portneuf county.

"In British Columbia, there has been a small production since 1923 of iron oxide from Alta Lake, New Westminster district, and from oxide beds in the Windermere district. The oxide is used chiefly for gas purification.

"The Canadian price of red iron oxide, f.o.b. Toronto or Montreal, as given by Canadian Chemistry and Process Industries, remained at 2 to 7 cents a pound throughout 1946, while yellow, brown and black iron oxides remained between 5 and 12 cents a pound."

Table 274.—Principal Statistics of the Natural Iron Oxides Industry in Canada, 1944-1946

—		1944	1945	1946
Number of firms		(*) 6	(*) 5	(*) 5
Number of employees—Administration		8	8	9
Workmen		47	43	51
Total		**55**	**51**	**60**
Salaries and wages—Salaries	$	11,416	13,382	15,748
Wages	$	38,460	44,629	61,979
Total	$	**49,876**	**58,011**	**77,727**
Selling value of products (gross)	$	150,250	172,053	152,268
Cost of fuel and purchased electricity	$	19,115	15,851	16,656
Cost of process supplies	$	6,700	5,900	4,200
Freight	$	11,670	13,650	15,161
Selling value of products (net)	$	112,765	136,652	116,251

(*) One producer in British Columbia, remainder in Quebec.

Table 275.—Production of Iron Oxides, by Provinces, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
		$		$
Quebec(*)	9,917	170,068	12,268	146,401
British Columbia	397	1,985	427	5,867
Total	**10,314**	**172,053**	**12,695**	**152,268**

(*) Includes crude and refined grades.

Table 276.—Production of Natural Iron Oxides in Canada, 1927-1946

Year	Quantity	Value	Year	Quantity	Value
	Short tons	$		Short tons	$
1927	6,125	103,536	1937	6,197	83,640
1928	5,414	111,198	1938	5,821	71,769
1929	6,518	115,932	1939	6,015	88,418
1930	6,596	83,873	1940	9,979	111,874
1931	5,520	49,205	1941	10,045	142,069
1932	5,240	46,161	1942	9,304	151,653
1933	4,357	53,450	1943	8,401	135,893
1934	4,959	66,166	1944	8,599	150,250
1935	5,516	77,075	1945	10,314	172,053
1936	5,854	69,630	1946	12,695	152,268

Production of iron oxides in Canada since 1886 to the end of 1946 amounted to 356,722 tons valued at $3,884,024.

Table 277.—Imports Into Canada and Exports of Iron Oxides, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
IMPORTS—				
Ochres, ochrey earths, siennas and umbers	1,900	97,164	1,437	81,929
Oxides, fireproofs, rough stuff, fillers and colours, dry, n.o.p.	3,221	1,238,768	3,647	1,709,726
EXPORTS—				
Pigments, n.o.p. (exclusive of white lead)	6,078	1,012,524	6,754	1,394,354
Iron oxides	2,447	96,490	4,366	199,619

Table 278.—Consumption of Iron Oxides in Specified Canadian Industries, 1938-1946

Year	Coke and Gas		Paint and Varnishes			
			Iron oxide pigments		Ochres, siennas and umbers	
	Quantity	Value	Quantity	Value	Quantity	Value
	Tons (a)	$	Tons	$	Tons	$
1938	(b)	41,013	822	70,736	487	41,062
1939	(b)	35,417	882	80,274	523	46,134
1940	5,417	42,491	1,146	112,826	575	62,636
1941	5,133	36,480	1,602	187,836	464	58,385
1942	4,600	33,790	2,334	253,383	412	52,155
1943	6,568	45,946	2,321	222,858	440	68,425
1944	9,194	71,545	2,614	242,234	648	69,092
1945	7,357	75,441	2,799	310,434	671	71,231
1946	9,385	69,899	2,564	288,190	543	75,769

(a) Oxide and purifying materials.
(b) Data not available.

Table 279.—Number of Workmen(*), by Months, 1945 and 1946

Month	1945		1946		Month	1945		1946	
	Mine	Mill	Mine	Mill		Mine	Mill	Mine	Mill
	(Number)					(Number)			
January	.....	28	3	30	July	26	24	38	40
February	.....	27	.....	27	August	26	29	33	42
March	.....	27	.....	30	September	27	31	16	38
April	9	31	14	38	October	20	32	17	35
May	25	25	13	39	November	6	34	16	28
June	23	27	30	39	December	1	38	12	28

(*) No underground work.

THE MICA MINING INDUSTRY

Canadian production or primary shipments of all grades of mica in 1946 totalled 8,720,669 pounds valued at $199,039 compared with 7,044,221 pounds worth $233,270 in 1945. Of the total output in 1946, mines in the province of Quebec contributed 2,397,788 pounds valued at $108,667 and Ontario 4,707,381 pounds worth $66,952; the British Columbia mines shipped 1,615,500 pounds valued at $23,420. The major portion of the shipments was phlogopite (amber mica) which weighed 7,104,739 pounds and was valued at $175,579. Nearly all the muscovite (white mica) was produced in British Columbia.

Table 280.—Principal Statistics of the Mica Mining Industry in Canada, 1945 and 1946

	1945	1946			
	Canada (*)	Quebec	Ontario	British Columbia	Canada (*)
Number of firms or operators	40	20	6	1	27
Number of employees—On salary	16	13	3	.....	16
On wages	158	94	19	.....	113
Total	174	107	22	.....	129
Salaries and wages—Salaries $	31,973	26,644	4,340	.....	30,984
Wages $	158,165	103,425	19,207	.....	122,632
Total $	190,138	130,069	23,547	.....	153,616
Selling value of products (gross) $	233,270	108,667	66,952	23,420	199,039
Cost of fuel and electricity $	21,597	18,684	1,624	.....	20,308
Cost of process supplies used $	28,895	17,628	150	.....	17,778
Selling value of products (net) $	182,778	72,355	65,178	.....	160,953

(*) Does not include general statistics for one plant operating in British Columbia.

Table 281.—Mica Production (Primary Sales) in Canada, by Classes, 1945 and 1946

Grade	1945		1946	
	Pounds	Total value f.o.b. shipping point	Pounds	Total value f.o.b. shipping point
		$		$
Rough, mine-run or rifted	11,910	886	692,339	35,384
Mica sold for mechanical splitting	329,476	57,816	254,363	42,523
Splittings	4,050	3,865	13,050	10,725
Ground or powdered	1,753,030	36,799	2,657,230	51,146
Scrap—Mine or shop waste and mica mined and sold for grinding	4,877,886	30,074	5,073,092	38,216
Flake (mica schist)—Natural or recovered by milling	.....	.....	.....	.....
Trimmed mica	67,869	103,830	30,595	21,048
Total Mica Shipments	**7,044,221**	**233,270**	**8,720,669**	**199,039**
Varieties—Phlogopite mica (amber)	5,694,504	142,535	7,104,739	175,579
Muscovite mica (white)	1,349,717	90,735	1,615,930	23,460

Table 282.—Production (Sales) of Mica in Canada, by Provinces and Varieties, 1946

Province	Phlogopite		Muscovite		Total	
	Pounds	$	Pounds	$	Pounds	$
Quebec	2,397,788	108,667	.....	.....	2,397,788	**108,667**
Ontario	4,706,951	66,912	430	40	4,707,381	**66,952**
British Columbia	.....	.....	1,615,500	23,420	1,615,500	**23,420**
Total Canada	**7,104,739**	**175,579**	**1,615,930**	**23,460**	**8,720,669**	**199,039**

Table 283.—Production (Sales) of Mica in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	945	133,731	1942	3,010	383,567
1938	519	80,989	1943	4,025	553,856
1939	1,068	147,321	1944	3,342	841,026
1940	975	237,145	1945	3,522	233,270
1941	1,743	335,288	1946	4,360	199,039

The total value of mica produced in Canada from the first official recording of mica statistics in 1886 to the end of 1946 amounted to $10,624,861.

Table 284.—Imports and Exports of Mica, 1945 and 1946

—	1945		1946	
	Pounds	Value	Pounds	Value
		$		$
IMPORTS—				
Mica and manufactures of, n.o.p.	.....	236,597	.....	280,142
Vermiculite, crude	.....	35,496	.....	56,826
EXPORTS—				
Mica	4,853,600	33,200	3,899,400	33,601
Mica splittings	5,200	4,088	8,400	6,913
Mica manufactures	.....	2,614	.....	2,193
Mica, rough, untrimmed	801,400	107,740	675,900	99,059
Mica, trimmed	67,600	146,026	25,800	47,494
Mica, ground	352,000	11,055	451,000	17,808
Total Mica Exports	.....	**304,723**	.....	**207,068**

Table 285.—Consumption of Mica in Canada, by Industries, as Reported to the Annual Census of Industry, 1945 and 1946

—	1945		1946	
	Quantity	Cost at works	Quantity	Cost at works
	Tons	$	Tons	$
In electrical apparatus industry	163	389,491	178	355,160
In rubber industry	166	20,405	132	16,868
In roofing(*)	1,042	53,498	1,263	66,852
In mica manufacturing industry	52	71,377	70	109,475
Total Accounted For	.....	**534,771**	.....	**548,355**

(*) Includes mica used in manufacture of wall paper.

Table 286.—Number of Wage-Earners on Payroll or Time Record on the Last Day of Each Month or Nearest Work Day, 1945 and 1946

Month	1945				1946			
	Mine		Shop(*)		Mine		Shop(*)	
	Surface	Underground	Male	Female	Surface	Underground	Male	Female
January	64	46	44	84	34	27	47	8
February	47	37	40	33	30	26	45	8
March	44	35	41	30	28	26	44	8
April	45	31	47	30	33	22	39	7
May	38	23	55	21	42	16	38	6
June	52	24	64	12	38	17	43	6
July	59	19	69	20	41	16	55	5
August	52	19	55	14	46	15	62	5
September	63	8	42	14	37	15	62	5
October	65	13	40	14	37	16	60	5
November	48	22	48	14	23	6	58	6
December	54	20	48	14	25	10	52	6
Average	55	25	51	27	37	16	52	7

(*) Includes outside workers.

The following information has been extracted from a report on the Mica Industry by the Bureau of Mines, Ottawa:

Main source of phlogopite production is the general Ottawa region, both in Ontario and Quebec. Production of muscovite has been small and intermittent, and only rarely, as in the 1942-44 period, has mining for this type of mica been undertaken on an important scale. Most of the output is handled and prepared for market by producers and dealers having trimming establishments in or near Ottawa. A few operators make direct mine shipments of semi-rough mica to the United States for the production there of punched shapes. The making of thin splittings, now done on a very much smaller scale than formerly, is mostly farmed out in small rural communities in the Ottawa district. Scrap mica continues to be recovered on a considerable scale from old mine dumps, and these furnish most of the scrap sold for grinding, as well as considerable amounts of screened untrimmed mica shipped to the United States for the making of mechanical splittings.

In Quebec, in 1946, the Nellis mine, near Cantley, in Hull township, operated by Blackburn Bros., Ottawa, continued to be the leading producer. This company prepares its output in a shop at Ottawa, and also operates a grinding plant at its mine. The plant continued to be the leading Canadian producer of ground phlogopite mica. The remainder of the Quebec output came mainly from a number of small, scattered operations in the general Gatineau-Lievre River section, most of the material being rough mica sold to dealers, or scrap salvaged from old mine dumps.

Suzorite Company, Limited, a subsidiary of Siscoe Metals Ltd., proceeded with plans to develop production of flake and powdered phlogopite from a large body of "suzorite" rock in Suzor township, Laviolette county, Quebec. Several thousand tons of crude rock were mined and shipped to a plant installed by the company at Shawinigan Falls, Quebec, and some of the material was processed, mainly for the recovery of roofing grades of mica and of rock granules. Early in 1947, milling problems in connection with the processing crude suzorite for the recovery of maximum amounts of coarse flake were under study in the Bureau of Mines laboratories at Ottawa.

In Ontario, Sydenham Mining Company, Limited, operating the old Lacey mine, near Sydenham, in Loughborough township, Frontenac county, was the only important producer. This company ships its product in rough-trimmed form to its affiliate, Lacey Mica Company, of New Brighton, Staten Island, N.Y. Loughborough Mining Company (General Electric Company) continued recovery of scrap mica from old waste dumps at the Lacey mine, and was the leading shipper in 1946 of this class of product. The remaining small sales of sheet mica in the Province came chiefly from properties in the Perth area, Lanark county.

In British Columbia, ground muscovite mica, made from schist rock is produced by Fairey and Company, 661 Taylor Street, Vancouver, and by Geo W. Richmond and Company, 4190 Blenheim Street, Vancouver, for sale to the local roofing trade. The crude rock is procured from Albreda region.

THE PEAT INDUSTRY

Statistics for the peat industry in Canada cover the operations of firms which produce peat for use as fuel and those which produce peat moss and humus for commercial purposes. Peat fuel production in 1946 totalled 145 tons valued at $1,305, the entire output originating in Ontario. Commercial production (shipments) of peat moss during 1946 amounted to 96,839 tons valued at $2,395,649 (excluding cost of containers) compared with an output of 83,963 tons valued at $2,011,139 in 1945.

In 1946 peat was produced by 41 firms, 18 being in Quebec, 14 in British Columbia, 5 in Ontario, and 2 firms in each of New Brunswick and Manitoba.

Employees numbered 1,391, to whom $1,562,689 were paid in salaries and wages. Fuel and electricity cost $671,161 and the cost of containers and packing materials amounted to $523,858.

Exports from Canada of peat moss and other mosses amounted to 81,940 tons worth $2,892,563 in 1946.

Peat is the material produced by the incomplete decomposition of vegetable matter either in water or in the presence of water under such conditions that atmospheric oxygen is excluded. The character of the peat depends upon conditions under which it was formed and upon the nature of the vegetation that contributed to its formation. Many species of plants are found in peat bogs, the most abundant being: mosses, such as sphagnum and hypnum; marsh and heath plants; grasses, rushes, etc.; marine plants; and sometimes trunks, roots, and leaves of trees. Peat occurs in nature in two distinct forms, unhumified and humified, which differ markedly in physical properties and in chemical composition. Unhumified peat is the dead moss of the sphagnum plant, only slightly humified. It is fibrous, elastic, of light greyish green, or yellowish to light brown colour, becoming somewhat darker on drying. It has an absorptive value of up to twenty-five times its own weight. It is used as a bedding litter for animals, for horticultural purposes, and as a filler for fertilizers. Because of its elasticity and low heat conductivity, it is used for insulating and sound-proofing and as a packing material.

Humified or fuel peat in its natural state is dark brown to black, colloidal, plastic, homogeneous, and somewhat elastic. It dries into a hard solid mass of a specific gravity higher than water. It has almost no absorptive value. Peat moss left in its natural state will humify in course of time and all fibrous matter eventually disappears.

Table 287.—Principal Statistics of the Peat Industry in Canada, 1945 and 1946

—	1945	1946
Number of firms	37	41
Number of plants or bogs	37	41
Number of employees—On salary	85	64
On wages	1,148	1,327
Total	**1,233**	**1,391**
Salaries and wages—Salaries $	135,857	156,693
Wages $	1,168,392	1,405,996
Total $	**1,304,249**	**1,562,689**
Selling value of products (gross) $	2,390,306	2,920,812
Cost of fuel and electricity $	90,863	102,004
Process supplies used $	47,136	45,299
Cost of containers and packing materials $	378,105	523,858
Selling value of products (net) $	1,874,202	2,249,651

Table 288.—Principal Statistics, by Provinces, 1945 and 1946

Province	Number of firms	Number of employees	Salaries and wages	Cost of fuel, electricity, process supplies and containers	Production		
					Tons of peat sold or used		Gross selling value f.o.b. works
					As fuel	Moss	
			$	$			$ (*)
1945							
Quebec	15	313	265,246	122,039	.....	18,517	487,545
Ontario	6	161	142,176	60,706	118	11,667	278,534
Manitoba and New Brunswick	4	94	93,557	46,466	.....	3,182	132,203
British Columbia	12	665	803,270	286,893	.....	50,597	1,492,024
Canada	**37**	**1,233**	**1,304,249**	**516,104**	**118**	**83,963**	**2,390,306**
1946							
Quebec	18	374	329,843	185,429	.....	26,382	658,658
Ontario	5	166	192,398	66,351	145	17,175	290,885
Manitoba and New Brunswick	4	152	142,298	42,475	.....	4,018	146,663
British Columbia	14	699	898,150	376,906	.....	49,264	1,824,606
Canada	**41**	**1,391**	**1,562,689**	**671,161**	**145**	**96,839**	**2,920,812**

(*) Includes cost of containers.

Table 289.—Production (Shipments) of Peat Fuel and Peat Moss in Canada, by Uses and Provinces, 1945 and 1946

Province	Fuel		Moss									
			Horticulture		Insulation		Poultry and stable litter		Other uses		Total Moss	
	Tons	$	Tons	$	Tons	$	Tons	$	Tons	$	Tons	$ (*)
1945												
Quebec	.....	.....	6,367	128,189	163	4,239	11,906	249,650	81	5,421	18,517	387,499
Ontario	118	1,062	8,505	148,930	.....	.....	3,162	75,170	.....	.....	11,667	224,100
Manitoba and New Brunswick	.....	.....	1,032	35,292	834	30,051	1,283	41,000	32	900	3,182	107,243
British Columbia	.....	.....	17,088	423,227	5	1,300	33,390	859,102	112	8,668	50,597	1,292,297
Total	**118**	**1,062**	**32,993**	**735,638**	**1,002**	**35,590**	**49,742**	**1,224,922**	**225**	**14,989**	**83,963**	**2,011,139**
1946												
Quebec	.....	.....	12,320	220,719	90	2,082	13,789	266,042	183	12,230	26,382	501,073
Ontario	145	1,305	10,261	151,390	.....	.....	6,914	77,106	.....	.....	17,175	228,496
Manitoba and New Brunswick	.....	.....	1,388	43,359	.....	.....	2,579	75,797	51	775	4,018	119,931
British Columbia	.....	.....	19,117	609,102	17	800	30,108	933,832	22	2,415	49,264	1,546,149
Total	**145**	**1,305**	**43,086**	**1,024,570**	**107**	**2,882**	**53,290**	**1,352,777**	**256**	**15,420**	**96,839**	**2,395,649**

(*) Does not include cost of containers which were valued at $378,105 in 1945 and $523,858 in 1946.

Table 290.—Peat Fuel Produced in Canada, 1941-1946

Year	Short tons	$
1941	355	2,155
1942	172	1,204
1943	782	7,000
1944	644	5,397
1945	118	1,062
1946	145	1,305

Table 291.—Production of Peat Moss in Canada, 1941-1946

Year	Short tons	$
1941	14,345	390,509
1942	28,520	658,771
1943	64,360	1,461,422
1944	80,446	1,869,553
1945	83,963	2,011,139
1946	96,839	2,395,649

NOTE.—The weight of peat moss shipped varies greatly depending on the moisture content. Weight is used as a unit of measure of production (shipments) owing to the fact that Canadian moss is shipped in various forms, including bales, bags, pads, etc., and at present there is no general standardization in Canada as to size of these products.

Table 292.—Workmen, by Months, 1945 and 1946

Month	1945 Total	1946				
		Bog		Dressing Plant		Total
		Male	Female	Male	Female	
January	531	208	2	297	22	529
February	506	209	2	317	15	543
March	529	265	5	324	6	600
April	619	464	43	351	13	871
May	1,033	1,228	79	302	83	1,692
June	2,299	1,636	245	301	20	2,202
July	2,818	1,851	225	280	15	2,371
August	2,043	1,986	307	263	13	2,569
September	978	1,088	97	342	13	1,540
October	895	648	29	405	13	1,095
November	840	609	4	395	11	1,019
December	627	437	3	337	8	785
Average	1,233	888	89	329	21	1,327

THE SALT INDUSTRY

Producers' sales of common salt or natural sodium chloride in Canada during 1946 totalled 537,985 short tons valued at $3,626,165 compared with 673,076 short tons valued at $4,054,720 in 1945. The decrease in tonnage was 20 per cent and the total value decrease was 10·6 per cent. Four provinces, Nova Scotia, Ontario, Manitoba and Alberta accounted for the total output, of which Ontario produced 82 per cent.

The Nova Scotian output is recovered by mining the underground rock salt deposits. In the other provinces brine wells furnish the supply.

Producers consumed 247,911 tons or 46 per cent in the manufacture of caustic soda and other chemicals. The sales of salt included 92,638 tons of table and dairy grades; 144,928 tons of common fine and 49,305 tons of common coarse. The balance of the shipments included salt for agriculture and for highway maintenance.

Nine plants were in operation in 1946. There were 713 employees, 620 males and 93 females, to whom $918,566 was paid in salaries and wages. Process supplies cost $138,630 and fuel and electricity cost $597,112.

Canada exported in 1946 a total of 5,864 tons valued at $116,483; during the same period 228,298 tons of salt valued at $1,367,445 were imported; the apparent consumption was 760,419 short tons valued at $4,877,127.

Caustic soda, chlorine and other chemicals are manufactured by Canadian Industries Limited at Windsor, Ontario, from brine obtained from the company's wells located at that point. This company also operates similar plants at Cornwall, Ontario, and Shawinigan Falls, Quebec, using dry salt brought from south-western Ontario deposits.

The Brunner, Mond Canada, Limited, located at Amherstburg, Ontario, manufactures soda ash from natural brine; calcium chloride is recovered as a by-product by this company.

Table 293.—Principal Statistics for the Salt Industry in Canada, 1937-1946

Year	Establishments	Employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies and containers	Gross value of products sold during year, including containers (f.o.b. works)
	Number	Number	$	$	$	$
1937	9	543	653,136	183,117	610,498	2,334,016
1938	9	562	786,720	278,711	607,175	2,489,719
1939	9	547	741,736	276,267	508,511	2,957,982
1940	9	586	836,506	321,589	539,179	3,322,250
1941	9	668	1,018,652	450,291	725,675	3,852,499
1942	9	675	1,114,574	536,649	882,599	4,593,003
1943	9	682	1,223,009	596,252	943,522	5,188,628
1944	9	710	1,302,143	652,126	846,298	4,786,084
1945	9	724	1,260,769	670,187	953,054	4,864,697
1946	9	713	918,566	597,112	993,304	4,480,839

NOTE.—Six plants in Ontario and 1 in each of Nova Scotia, Manitoba and Alberta.

Table 294.—Production of Salt in Canada, by Grades, 1945 and 1946

—	1945			1946		
	Manufactured	Sold	Value of salt sold (not including containers)	Manufactured	Sold	Value of salt sold (not including containers)
	Tons	Tons	$	Tons	Tons	$
Table, dairy and pressed blocks	100,352	99,679	1,886,955	91,877	92,638	1,729,810
Common, fine	169,329	170,493	1,153,289	143,965	144,928	996,990
Common, coarse	48,430	50,889	412,762	50,061	49,305	461,443
Evaporated	.....	.....	.....	350	340	4,411
Land salt	141	131	1,120	180	195	1,533
Other grades	3,502	3,396	51,358	2,366	2,668	37,941
Brine for chemical works (salt equivalent sold or used)	348,743	348,488	549,236	247,788	247,911	394,037
Total of Above	**670,497**	**673,076**	**4,051,720**	**536,587**	**537,985**	**3,626,165**
Value of containers	.....	.....	809,977	.....	.....	854,674
Gross Value	.....	.....	**4,864,697**	.....	.....	**4,480,839**

Table 295.—Production of Salt in Canada, by Provinces, 1937-1946

Year	Nova Scotia		Ontario		Manitoba		Alberta	
	Tons	$	Tons	$	Tons	$	Tons	$
1937	47,865	216,401	407,701	1,539,599	3,391	43,465	.....	.....
1938	44,950	194,759	388,130	1,657,140	2,920	34,979	4,045	46,035
1939	47,885	213,029	370,843	2,200,189	2,453	35,888	3,319	37,526
1940	42,495	220,328	412,401	2,371,780	3,076	45,731	6,742	185,430
1941	54,007	307,637	477,170	2,512,166	13,051	115,367	16,617	260,995
1942	50,199	317,798	558,407	2,793,328	22,706	397,101	22,360	335,960
1943	47,775	245,157	594,889	3,356,870	27,523	497,227	17,499	280,124
1944	38,809	281,482	603,806	2,906,117	27,267	488,776	25,335	397,646
1945	37,825	254,138	578,697	2,920,973	27,133	449,561	29,421	430,048
1946	38,371	329,579	441,679	2,408,279	26,166	446,472	31,769	441,835

NOTE.—Production = Producers' sales.

Table 296.—Total Production of Salt in Canada, 1930-1946

Year	Tons	$	Year	Tons	$
1930	271,695	1,694,631	1939	424,500	2,486,632
1931	259,047	1,904,149	1940	464,714	2,823,266
1932	263,543	1,947,551	1941	560,845	3,196,165
1933	280,115	1,939,874	1942	653,672	3,844,187
1934	321,753	1,954,053	1943	687,686	4,379,378
1935	360,343	1,880,978	1944	695,217	4,074,021
1936	391,316	1,773,144	1945	673,076	4,054,720
1937	458,957	1,799,465	1946	537,985	3,626,165
1938	440,045	1,912,913			

Table 297.—Salt Produced for Chemical Purposes(*) 1930-1946

Year	Quantity tons (2000 lb.)	Per cent of total salt output	Year	Quantity tons (2000 lb.)	Per cent of total salt output
1930	114,737	42	1939	187,958	44
1931	97,958	38	1940	224,009	48
1932	96,242	37	1941	258,711	46
1933	104,740	37	1942	327,548	50
1934	124,132	39	1943	346,145	50
1935	145,433	40	1944	370,199	53
1936	165,882	42	1945	348,488	52
1937	205,149	45	1946	247,911	46
1938	170,938	39			

(*) Used in the manufacture of chemicals by producers of salt.

Table 298.—Production in Canada, Imports, Exports and Consumption of Salt, 1945 and 1946

—	1945		1946	
	Tons	Value	Tons	Value
		$		$
Production	673,076	4,054,720	537,985	3,626,165
IMPORTS—				
Table salt	.....	.....	1,528	61,570
Salt, for the use of the sea or gulf fisheries	28,703	174,211	40,857	316,648
Salt, in bulk, n.o.p.	88,822	443,192	136,092	627,932
Salt, n.o.p., in bags, barrels, etc.	19,641	187,599	40,821	361,295
Total	**137,166**	**805,002**	**228,298**	**1,367,445**
Exports	5,313	105,494	5,864	116,483
Apparent Consumption	**804,929**	**4,754,228**	**760,419**	**4,877,127**

Table 298A.—Consumption of Salt in Specified Canadian Industries, 1944-1946

—	1944		1945		1946	
	Quantity used	Cost at works	Quantity used	Cost at works	Quantity used	Cost at works
	lb.	$	lb.	$	lb.	$
Acids, alkalies and salts—						
Brine (salt content)	496,570,000	248,285	448,354,000	224,177	341,906,408	173,343
Dry salt	180,981,896	678,560	158,908,373	610,032	150,117,053	602,174
Abrasives—Artificial	686,000	3,858	512,000	3,426	604,000	4,517
Slaughtering and meat packing	138,042,530	943,941	139,522,583	960,008	118,458,540	803,438
Sausage and sausage casings	608,466	8,784	641,257	8,215	1,003,268	10,368
Animal oils and fats	340,000	1,723	268,000	1,376	460,000	2,335
Fish canning and curing (factories only)	46,592,800	536,865	45,766,300	528,680	64,215,500	732,403
Foods, breakfast	1,654,457	14,185	1,677,108	14,484	1,728,977	14,427
Biscuits, confectionery, etc.	2,207,959	22,352	2,346,095	24,217	2,540,695	34,250
Bread and bakery products	19,956,443	208,371	18,082,095	214,014	19,845,403	233,872
Macaroni, vermicelli, etc.	96,572	1,059	136,365	1,579	224,794	2,382
Ice cream cones	8,132	58	Included in the Biscuit Industry			
Foods, miscellaneous, including coffee, tea, etc.	4,575,569	48,210	4,927,366	48,080	5,829,382	65,152
Butter and cheese	.....	223,729	.....	225,292	.....	214,833
Cheese, processed	270,467	4,037	282,095	4,206	307,376	3,298
Condensed milk	.....	297	.....	545	.....	279
Starch and glucose	475,245	2,291	537,947	2,613	772,375	3,921
Fruit and vegetable products	18,166,054	128,640	15,214,438	118,004	21,177,787	171,760
Breweries	800,790	6,894	871,480	7,276	981,146	8,460
Malt and malt products	331,830	1,963	412,811	2,384	455,187	2,689
Stock and poultry foods	22,516,000	182,653	23,258,000	172,350	27,308,000	200,576
Leather tanneries	18,178,471	98,314	18,527,004	99,359	21,446,362	116,670
Soaps and cleaning preparations	3,591,531	20,858	3,963,703	22,689	4,746,205	30,453
Dyeing, cleaning and laundry work	16,027,808	52,479	3,597,612	50,728	6,187,974	54,026
Dyeing and finishing of textiles	13,405,703	18,901	3,794,097	23,740	3,745,026	24,695
Artificial ice	687,200	5,419	530,290	5,542	418,800	8,407
Waterworks	5,111,700	.....	5,133,800	.....	7,308,000	.....
Pulp and paper mills	30,458,000	150,030	33,130,000	188,061	39,822,000	221,228
Dairy products, n.e.s.	306,095	2,278	93,243	6,039	2,081	56
Miscellaneous wood products	.....	17,500	.....	.....	.....	.....
Woollen goods, n.e.s.	.....	1,000	.....	664	.....	1,819
Vegetable oil mills	.....	.....	10,255	86	11,895	96

Table 299.—Employees, Salaries and Wages in the Salt Industry in Canada, 1940-1946

Year	Number of Employees					Salaries	Wages	Total salaries and wages
	On salaries		On wages		Total employees			
	Male	Female	Male	Female				
						$	$	$
1940	80	40	436	30	586	299,521	536,985	836,506
1941	106	42	490	30	668	361,661	656,991	1,018,652
1942	86	48	509	32	675	337,050	777,524	1,114,574
1943	82	53	495	52	682	366,555	856,454	1,223,009
1944	87	59	504	60	710	397,113	905,030	1,302,143
1945	93	54	517	60	724	367,132	893,637	1,260,769
	Administration		Workmen			Earnings		
						Administration	Workmen	
1946	43	26	577	67	713	207,532	711,034	918,566

Table 300.—Wage-Earners in the Salt Industry in Canada, by Months, 1945 and 1946

Month	1945				1946			
	Surface		Underground	Total	Surface		Underground	Total
	Male	Female	Male		Male	Female	Male	
January	461	56	31	548	522	62	32	616
February	464	61	30	555	509	65	34	608
March	462	60	30	552	520	63	36	619
April	469	64	34	567	532	58	38	628
May	470	54	32	556	541	59	35	635
June	480	59	35	574	544	61	37	642
July	498	55	33	586	559	66	36	661
August	493	62	30	585	565	71	35	671
September	489	71	25	585	565	72	37	674
October	513	71	28	612	563	72	37	672
November	517	66	32	615	540	77	38	655
December	496	50	32	578	533	76	38	647
Average	**486**	**60**	**31**	**577**	**541**	**67**	**36**	**644**

THE TALC AND SOAPSTONE INDUSTRY

Producers' shipments of crude and milled talc and soapstone totalled 29,353 tons valued at $303,684 in 1946, compared with 27,088 tons worth $294,888 in the previous year. Operators in Quebec shipped 14,914 tons of talc and soapstone worth $150,004 and mines in Ontario sold 14,439 tons, mostly high-grade talc, valued at $153,680.

Imports of talc and soapstone in 1946 amounted to 6,737 tons valued at $150,972, and the exports of talc totalled 6,402 tons worth $74,991.

The industry employed 87 persons to whom $117,551 were paid in salaries and wages. Fuel and electricity cost $25,401 and the expenditure for freight and process supplies amounted to $38,167.

The Bureau of Mines, Ottawa, has given the following information on the talc industry:

"Talc and soapstone production in Canada comprises powdered material made from both these raw materials, sawn soapstone furnace blocks and bricks, and talc crayons. For a number of years there has been a steady production of these three classes of material centred in the Eastern Townships, Quebec, and of ground talc in the Madoc area, Hastings county, Ontario. The ground talc produced in Quebec consists of grey, slightly off-colour material, classed for statistical purposes as soapstone; that from Ontario is of prime white grade.

"The market value of ground talc varies widely and is dependent upon purity (determined by freedom from lime and gritty or iron-bearing substances, slip and colour), particle shape, and fineness of grinding, the specifications for which vary in the different consuming industries. Roofing and foundry talcs are the cheapest grades, the users being satisfied with coarser, grey or off-colour material, often soapstone powder or sawing dust, which sells at about $6 to $7 a ton, f.o.b. rail. Domestic grey talc suitable for roofing, rubber, and paper use, sold in 1946 for $7.50 to $10 a short ton, according to fineness; similar talc from Vermont was quoted at $9.50 to $11 in bulk. White talc from Madoc, Ontario, was quoted at $9.50 for the coarser grades, $10.50 to $17.50 for finer mesh sizes, and $44 for minus 400 mesh material, output of the last material being only a small part of the total. New York fibrous talc, 325 mesh, sold for $12 to $15. Imported European cosmetic talcs cost as high as $80 per ton delivered."

Table 301.—Principal Statistics of the Talc and Soapstone Industry in Canada, 1944-1946

—	1944	1945	1946
Number of firms	6	5	5
Number of employees—Administrative	14	11	11
Workmen	99	92	76
Total	**113**	**103**	**87**
Salaries and wages—Salaries $	29,532	28,714	27,455
Wages $	104,351	106,068	90,096
Total $	**133,883**	**134,782**	**117,551**
Selling value of products (gross) $	357,249	294,888	303,684
Cost of fuel and purchased electricity $	27,642	27,978	25,401
Cost of freight and process supplies $	40,523	51,604	38,167
Selling value of products (net) $	289,084	215,306	240,116

Table 302.—Producers' Shipments of Talc and Soapstone(*), 1944-1946

—	1944		1945		1946	
	Quantity	Value	Quantity	Value	Quantity	Value
	Tons	$	Tons	$	Tons	$
Soapstone (Quebec) (†)	19,013	204,127	14,225	153,694	14,914	150,004
Talc (Ontario)	13,584	153,122	12,863	141,194	14,439	153,680
Total Canada	**32,597**	**357,249**	**27,088**	**294,888**	**29,353**	**303,684**

(*) Includes both crude and milled grades.
(†) Shipments by some firms usually include a considerable quantity of material classified as talc.

Table 303.—Production(*) of Talc and Soapstone in Canada, 1931-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1931	21,916	157,083	1939	18,241	170,066
1932	13,275	159,038	1940	23,791	229,639
1933	16,829	190,836	1941	34,632	360,809
1934	15,532	180,777	1942	29,868	310,824
1935	15,301	171,532	1943	26,163	266,685
1936	16,587	177,270	1944	32,597	357,249
1937	15,939	163,814	1945	27,088	294,888
1938	13,814	144,848	1946	29,353	303,684

(*) Producers' shipments.

Table 304.—Imports and Exports of Talc, 1945 and 1946

—	1945		1946	
	Tons	$	Tons	$
IMPORTS—Talc or soapstone	6,389	131,863	6,737	150,972
EXPORTS—Talc	7,363	100,114	6,402	74,991

Table 305.—Available Statistics on the Consumption of Ground Talc and Soapstone in Canada, 1945 and 1946

—	1945	1946
	Tons	Tons
(a) By Uses		
Paints	5,885	5,445
Roofing	6,168	8,065
Pulp and paper	2,454	2,872
Rubber	2,656	2,529
Toilet and medicinal preparations	1,373	1,226
Electrical apparatus	199	259
Imported clay products	713	1,107
Soaps and cleaning preparations	735	683
Textiles	267	250
Insecticides	943	2,616
Polishes	23	31
Prepared foundry facings	10	17
Iron foundries	106	106
Plastics	10	.....
Adhesives	45	45
Linoleum	.....	19
Total	**21,587**	**25,270**
(b) By Provinces		
Nova Scotia	59	52
New Brunswick	475	375
Quebec	8,133	9,204
Ontario	10,731	13,285
Manitoba	1,439	1,548
Saskatchewan	42	75
Alberta	67	83
British Columbia	641	648
Total	**21,587**	**25,270**

Table 306.—Number of Workmen, by Months, 1945 and 1946

Month	1945			1946		
	Surface	Underground	Mill	Surface	Underground	Mill
January	39	20	51	28	11	19
February	44	21	47	22	12	17
March	39	21	44	24	13	19
April	31	25	32	24	17	34
May	26	25	30	22	19	36
June	46	19	28	26	16	36
July	44	19	28	31	14	37
August	40	21	28	35	13	39
September	42	21	26	36	10	38
October	45	20	28	33	13	38
November	33	21	26	33	14	37
December	22	14	19	27	14	37
Average	**38**	**21**	**33**	**29**	**14**	**33**

MISCELLANEOUS INDUSTRIAL OR NON-METAL MINING INDUSTRIES

Included in this section are the following non-metallic minerals and mineral products:—

Barite
Corundum
Diamonds
Diatomite
Fluorspar
Garnet
Graphite
Grindstones
Lithium Minerals
Magnesitic Dolomite
Magnesium Sulphate
Natural Mineral Waters
Phosphate
Silica Brick
Sodium Carbonate
Sodium Sulphate
Strontium Minerals
Sulphur (Pyrites)
Volcanic Dust

Canadian operators producing certain industrial minerals, and who are usually relatively few in number, have been segregated for statistical purposes into a single group designated as the Miscellaneous Industrial or Non-metallic Minerals Industry. Minerals or primary mineral products produced (or deposits developed) by this industry during 1946 included barite, brucite, diatomite, fluorspar, graphite, grindstones, magnesitic-dolomite (crude and refined), mineral waters, phosphate, silica brick, sodium carbonate and sodium sulphate. For convenience, the sulphur content of pyrites shipped and sulphur recovered from smelter gas are recorded with the various miscellaneous minerals listed above; the value of sulphur production, however, is not included in the total for the miscellaneous non-metallic or industrial minerals as the value of this element is credited to the copper-gold-silver mining and non-ferrous smelting industries.

During the year under review the production of this group of industries had a gross value of $4,248,107 compared with $4,415,718 in 1945. Salaries and wages paid to 911 employees amounted to $1,582,846. About $1,389,098 was spent for the purchase of fuel, electricity, process supplies and containers.

Table 307.—Principal Statistics Relating to Miscellaneous Non-Metal Mining Industries in Canada, 1945 and 1946

—		1945	1946
Number of plants		51	42
Number of employees—Administrative		119	102
Workmen		760	809
Total		**879**	**911**
Salaries and wages—Salaries	$	225,824	230,609
Wages	$	1,375,244	1,352,237
Total	$	**1,601,068**	**1,582,846**
Selling value of products (gross)	$	4,415,718	4,248,107
Cost of fuel and electricity	$	780,313	822,546
Cost of process supplies used	$	540,701	493,642
Cost of containers	$	34,923	35,863
Selling value of products (net)	$	3,059,781	2,859,009

Table 308.—Production of Miscellaneous Non-Metallic Minerals in Canada, 1945 and 1946

Item	Unit of measure	1945		1946	
		Quantity	Value	Quantity	Value
			$		$
Barite	ton	139,589	1,211,403	120,419	1,006,475
Corundum	ton	1,317	133,762	742	102,340
Diatomite	ton	46	1,238	90	2,532
Fluorspar	ton	7,369	233,708	8,042	237,491
Garnets (schist)	ton	.....	.....	2	1,200
Graphite	ton	1,910	187,364	1,975	189,405
Grindstones	ton	225	10,870	295	17,450
Magnesite dolomite	.....	.....	1,278,596	.....	1,225,593
Mineral waters	Imp. gal.	244,761	149,690	217,842	122,404
Phosphate	ton	299	4,356	57	869
Silica brick	M	4,208	317,263	2,902	197,804
Sodium carbonate	ton	286	3,146	.....	.....
Sodium sulphate	ton	93,068	884,322	105,919	1,117,683
Total	.....	.....	**4,415,718**	.....	**4,212,244**
Sulphur production(*)	ton	250,114	1,881,321	234,771	1,784,866

NOTE.—Value of containers is excluded.

(*) Includes sulphur content of pyrites at its sales value and estimated figures for quantity and value of sulphur in smelter gases used for acid making or recovered as elemental sulphur, or in ammonium sulphate (direct.) General statistics relating to production of sulphur included with those of the copper-gold mining and non-ferrous smelting industries.

Table 309.—Workmen, by Months, in the Miscellaneous Non-metal Mining Industries in Canada, 1945-1946

Month	1945					1946				
	Mine			Mill		Mine			Mill	
	Surface		Underground			Surface		Underground		
	Male	Female		Male	Female	Male	Female		Male	Female
January	127	1	40	528	1	140	.....	60	548	1
February	134	1	42	502	1	149	.....	59	600	1
March	147	1	58	470	1	163	1	60	482	1
April	215	.....	61	456	1	105	1	66	543	1
May	225	.....	65	499	1	223	2	62	536	1
June	227	.....	71	470	1	218	2	68	550	1
July	250	.....	71	505	1	240	2	68	545	1
August	245	.....	74	507	1	234	2	74	462	1
September	194	.....	70	485	1	239	2	70	446	.....
October	236	.....	66	486	1	228	2	72	537	.....
November	196	.....	68	556	1	218	.....	75	580	.....
December	154	.....	64	497	1	166	.....	73	610	.....
Average	**199**	**1**	**63**	**496**	**1**	**201**	**1**	**68**	**538**	**1**

BARITE

(Text from the Annual Review by the Bureau of Mines, Ottawa)

In Nova Scotia, the Canadian Industrial Minerals Limited, the only shipper of barite in Eastern Canada in 1946, continued to expand its important operation at Walton, Hants county. Production came entirely from open-cast mining, but preparations for underground operations were made by the sinking of a three-compartment shaft to a depth of 400 feet from which it is expected some ore will be raised in 1947. A large program of plant expansion was completed, including the erection of a new power house, headframe, ore bin building, roll crusher house, and of housing for employees. Bleaching and beneficiation tests by the Bureau of Mines, Ottawa, in 1946 on ore from Walton property, showed that material heavily stained by iron can be bleached at a 325-mesh grind to yield a good white colour.

In British Columbia, the Mountain Minerals Ltd. shipped part of its production from its property at Parson, 25 miles south of Golden, to Pulverized Products Ltd., Montreal, for grinding, and the remaining part to the plant of Summit Lime Works, Crow's Nest, where it was ground for use in western glass works and in drilling mud. There was no production from the company's property near Brisco, in the Windermere Valley section, about 25 miles south of Parson, from which most of the barite shipped for ballast purposes in 1945 was taken.

In Ontario, the Woodhall Mines Ltd. resumed development work on the old Premier Langmuir property on Nighthawk River, Langmuir township, Porcupine area, under lease from Canada Baryte Mines. Considerable stripping, trenching and test-pitting was reported to have been done on two veins and 1,200 tons of crude ore was stockpiled.

The average unit price of domestic barite sold by primary producers in 1946 was $6.40 to $7.30 per short ton, f.o.b. mine. Ground, off-colour barite exported for oil-well drilling was sold for $13.70 per ton f.o.b. Atlantic ports, and ground white for the pigment and filler trade averaged $33 per ton f.o.b. mill.

In the United States, Georgia crude was quoted at $8.50 to $9.00 per long ton f.o.b. mines, and Missouri crude at $8.25 to $8.50. Missouri prime white, water-ground, floated and bleached sold for $22.85 per ton, f.o.b. works.

In the American market, crude barite is usually sold on a penalty-premium basis, a content of 94 per cent $BaSO_4$ and less than 1 per cent iron (Fe_2O_3) being considered standard. A premium or penalty of 25 cents per ton is set for each per cent barium sulphate above or below 94% and a similar premium or penalty for each 0·1 per cent of Fe_2O_3 below or above 1 per cent.

The United States imposes a duty of $4 per ton on crude barite, and $7.50 per ton on ground or otherwise manufactured material. Canadian imports are free of duty under the British preferential tariff, and there is no duty on barite used in drilling mud, or in the manufacture thereof. Otherwise, imports from countries other than the United Kingdom are subject to a duty of 25 per cent.

Table 310.—Production of Barite in Canada, 1914-1946

Year	Short tons	$	Year	Short tons	$
1914	612	6,169	1928	127	2,847
1915	550	6,875	1929	105	2,341
1916	1,368	19,393	1930	66	1,484
1917	3,490	54,027	1931	16	363
1918	640	10,165	1932	.....	.....
1919	468	8,154	1933	20	60
1920	751	22,983	1939	323	3,639
1921	270	9,567	1940	338	4,819
1922	289	9,537	1941	6,890	74,416
1923	409	8,548	1942	19,667	188,144
1924	151	3,308	1943	24,474	279,253
1925	95	2,259	1944	118,719	1,023,696
1926	100	2,307	1945	139,589	1,211,403
1927	56	1,268	1946	120,419	1,006,473

Table 311.—Imports of Barite Into Canada, 1940-1946

Year	Tons	$	Year	Tons	$
1940	2,622	64,922	1944	1,824	47,913
1941	3,431	81,620	1945	1,150	32,531
1942	2,536	68,196	1946	1,547	42,904
1943	1,686	43,239			

Table 312.—Consumption of Barite in Canada, 1941-1946

—	1941	1942	1943	1944	1945	1946
(a) By Uses	Tons	Tons	Tons	Tons	Tons	Tons
Paints	2,453	3,417	2,760	1,971	1,749	1,711
Rubber goods	830	557	351	288	478	461
Wall paper	13	18	15	20	22	.....
Glass	367	286	290	294	879	266
Miscellaneous	180	161	233	226	200	400
Total	**3,843**	**4,439**	**3,649**	**2,799**	**3,328**	**2,838**
(b) By Provinces						
Nova Scotia	109	67	38	41	33	34
Quebec	1,483	1,639	1,191	803	931	1,125
Ontario	1,902	2,325	1,983	1,388	1,916	1,179
Manitoba	113	155	162	183	210	276
Saskatchewan	5	10	11	8	4	4
Alberta	96	93	128	119	105	106
British Columbia	135	150	136	167	129	116
Canada	**3,843**	**4,439**	**3,649**	**2,799**	**3,328**	**2,838**

Note.—Above figures do not include amounts used in oil drilling.

CORUNDUM

With completion of the treatment of tailings at the Craigmont property, Renfrew county, Ontario, at the end of October, 1946, corundum operations in Canada have come to an end for an indefinite period and the machinery and equipment at the property have been sold. Treatment

of the tailing was undertaken at the request of the United States Government as an emergency measure in October, 1944, arising from the difficulty of obtaining supplies of flour corundum from the Transvaal, South Africa. This type of corundum was then urgently needed for use in polishing high precision lenses for military optical instruments, and a 200-ton gravity mill was erected by Wartime Metals Corporation to treat the tailing. Shipments of concentrate were made to American Abrasive Company's plant at Westfield, Massachusetts, for grinding and for the preparation of fine powders. During the 25-month period of operaton a total of 139,323 tons of tailings averaging 2·56 per cent corundum was treated, and 2,588 tons of concentrate containing 1,726 tons of corundum, having a nominal value of $234,820 was shipped to Westfield. Since November, 1945, the Craigmont operations have been handled by the Department of Reconstruction and Supply, Ottawa.

Some corundum is still available in the known deposits, but, except in an emergency, production costs would be excessive. The Canadian consumption of corundum is small and supplies are obtained from foreign sources without difficulty.

Corundum (Al_2O_3), the oxide of aluminum, usually occurs as bronze-coloured barrel-shaped crystals. It is fairly heavy, and has a hardness (Mohs' scale) of 9, being the hardest known mineral next to diamond (hardness 10).

Prior to the war corundum was used chiefly for the abrasive grit in grinding wheels required for special types of work, but during the war most of it was used as flour for the polishing of lenses, and the coarse grain, for snagging wheels. In the United States, which is by far the leading consumer, a start was made shortly after the end of the war to revert to the use of corundum for the manufacture of precision grinding wheels.

The price of Canadian concentrate was Government controlled at about $90 per ton. The prices of corundum and other ores imported into the United States were frozen as of August 20, 1943. South African 'crystal' corundum was $107 and 'boulder' was $74 per short ton delivered to the Westfield plant. U.S. prices of prepared grain and flour corundum vary considerably according to mesh size. These prices are 8¼ cents per pound for 6 to 60 mesh and 9¾ cents for 70 to 275 mesh. Flours range from 30 cents for 850 mesh to 70 cents for 2,600 mesh.

Production of corundum in 1946 amounted to 742 tons valued at $102,340.

DIAMONDS

Although diamonds are not produced in Canada, they play a very important role in the mineral industry. In 1946 the diamond drilling on Canadian mineral deposits exceeded 1,500 miles. During 1946 the imports of black diamonds and borts for borers were appraised at $4,002,457 compared with $1,985,299 in 1945. Imports of unset white diamonds in 1946 were valued at $6,103,856 compared with $3,299,415 in the preceding year.

Table 313.—World Production and Sales of Diamonds, 1937-1946

Year	Production	Sales	£ Sterling
	Metric carats	£ Sterling	
1937	9,164,024	9,151,205	
1938	11,619,971	3,673,934	
1939	12,500,553	5,865,000	
1940	13,012,525	6,144,314	
1941	9,104,978	7,414,420	Industrials..... 2,000,000 Cuttables..... 5,550,100
1942	9,258,734	10,694,671	Industrials..... 4,240,000 Cuttables..... 6,250,000
1943	8,347,239	20,500,000	Industrials..... 5,000,000 Cuttables.....15,500,000
1944	11,676,578	17,000,000 (estimate)	Industrials..... 4,000,000 Cuttables.....13,000,000
1945	14,257,157	24,500,000 (estimate)	Industrials..... 4,900,000 Cuttables.....19,600,000
1946	10,212,573	29,500,000 (estimate)	Industrials..... 3,400,000 Cuttables.....26,100,000

DIATOMITE

There are more than 400 known deposits of diatomite in Canada. They are in the swamps and in the lake bottoms of northern Nova Scotia; in southern New Brunswick; in the Muskoka district, Ontario; and in various parts of British Columbia. The Tertiary fresh water deposits near Quesnel in the Cariboo district, British Columbia, are by far the largest known in Canada. They extend for many miles along the Fraser River, are compact, and are up to 40 feet thick. At Digby Neck, Nova Scotia, is the largest known Recent fresh water (swamp) deposit in Canada.

All the Canadian production of diatomite since 1939 has come from the aforementioned areas. The present producers are G. Wightman, who operates the deposit at Digby Neck, L. T. Fairey of Vancouver, who has been obtaining his output from Lot 1122 on the west bank of the Fraser River, north of Quesnel, and Cariboo Diatomite Company, which produces small quantities from a deposit near Alexandria, a few miles south of Quesnel for use in fertilizer dusting.

The Nova Scotia Department of Mines in 1946 investigated some of the deposits of the province, particularly those along Digby Neck. The Resources Development Board, Fredericton, New Brunswick, examined a number of diatomite deposits in the vicinity of Saint John and intends to submit bulk samples to consumers. Tests were continued on the suitability of diatomite in the vicinity of Quesnel, British Columbia, for fertilizer use and for insulation.

Prior to 1944, from 70 to 80 per cent of the diatomite consumed in Canada was used in the form of filter aids, mainly in the refining of cane sugar. The ammonium nitrate fertilizers in which diatomite is used as a dusting agent are made in Canada by The Consolidated Mining and Smelting Company of Canada Limited in its plant in Trail, British Columbia, and in another in Calgary, and by North American Cyanamid, Limited, in its plant in Welland, Ontario. The diatomite thus used is highly porous and when added to the nitrate it absorbs moisture, which prevents the nitrate from caking and ensures even spreading. Specifications call for uncalcined material of 325 mesh and less than 5 per cent moisture. The remainder of the diatomite was used chiefly as a filler in the paint, chemical, paper, rubber, soap, and textile industries; also in silver polish bases, and as an admixture in concrete. A small amount of lime-diatomite insulation bricks is made by a company in Toronto, which uses diatomite from Nova Scotia. Diatomite is being used in pressure filters in industrial plants in place of sand filters for the removal of disease-producing organisms.

The price of diatomite used in Canada for insulation varies from $23 to $40 per ton; for filtration from $26 to $75 per ton; and for fertilizer grades, $28 to $42 per ton. For material suitable for polishes, the price for small lots ranged up to $200 a ton in 1946. Imported insulation bricks vary in price from $85 to $140 per 1,000, according to grade and density.

Table 314.—Production of Diatomite in Canada, 1932-1946

Year	Short tons	$	Year	Short tons	$
1932	1,496	29,509	1940	248	7,957
1933	1,789	36,648	1941	344	9,935
1934	1,372	54,916	1942	365	9,088
1935	823	33,140	1943	98	3,331
1936	615	13,659	1944	13	437
1937	643	18,606	1945	46	1,238
1938	398	13,842	1946	90	2,532
1939	301	10,388			

Table 315.—Consumption of Infusorial Earth by the Canadian Sugar Refining Industry, 1932-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1932	1,280	73,309	1940	2,492	112,369
1933	1,254	79,191	1941	2,672	138,973
1934	1,281	69,116	1942	1,504	75,295
1935	2,154	96,560	1943	1,726	89,075
1936	2,188	98,954	1944	2,188	115,053
1937	2,293	95,532	1945	1,992	102,961
1938	2,454	101,473	1946	2,196	104,794
1939	2,410	105,711			

Table 316.—Consumption of Diatomaceous Earth in the Manufacture of Fertilizers, 1944-1946

Year	Tons	$
1944	9,699	297,987
1945	6,444	274,968
1946	8,185	308,446

FLUORSPAR

Fluorspar is used chiefly as a powerful fluxing agent in the steel industry, and is used in small amounts in numerous other metallurgical industries. The next largest market is in the manufacture of hydrofluoric acid, which is used mainly in making artificial cryolite and aluminum fluoride for the aluminum industry. The fluorspar imported from Newfoundland is used for this purpose at Arvida, Quebec. The ceramic industry is next, and uses fluorspar as a fluxing and opacifying ingredient in glass and enamels. Uranium hexafluoride is used for the gaseous diffusion separation of the uranium isotopes U235 and U238 in the development of atomic energy.

Of considerable interest are the possible uses of elemental fluorine in the development of new industrial products and processes. A field of use is envisaged for fluorine in the chemical industry comparable to that of its closely related element chlorine. Only recently available on a commercial scale, compressed fluorine gas is being offered in small half-pound steel cylinders by a company in Philadelphia. The fluorine is produced in a specially designed electrolytic cell, using an electrolyte of anhydrous hydrofluoric acid and fused potassium bifluoride. Fluorine gas in evolved at the anode and hydrogen at the cathode. The fluorine is purified from associated small amounts of HF either by absorption of the latter in sodium fluoride or by chilling. Among the new compounds expected to be made available by the use of fluorine are: a liquid fluorinated non-inflammable and non-toxic hydrocarbon which can be used in place of mercury in the present mercury vapour boiler; sulphur hexafluoride gas of high insulating value for high voltages used in X-ray and nuclear physics work; and an extremely stable synthetic lubricating oil capable of withstanding high pressures and friction. Other suggested fluorine compounds include: insecticides, fungicides, germicides, fumigants, anesthetics, fire extinguishers and for proofing media, resins, and plastics.

Canadian trade journal quotations for metallurgical gravel, 85 per cent grade, fluorspar in 1946 remained at $40 per ton, f.o.b. Toronto, and for ground, 97 per cent grade, $66 to $69.

In the United States, under an OPA ruling of August, 1943, the maximum price for metallurgical grade spar f.o.b. at consumer's plant was based on the effective CaF_2 content, plus either (a) rail freight from shipping point to consumer's plant, or (b) rail freight from Rosiclare, Illinois, to such plant, whichever is the lower. The base price was set as follows: 70 per cent or more effective units, $33 per short ton; 65 to 70 per cent, $32; 60 to 65 per cent, $31; under 60 per cent, $30. "Effective units" are computed as the CaF_2 content less $2\frac{1}{2}$ times the percentage of contained silica. This price ruling remained in effect through 1946. Acid grade, 97·5 per cent CaF_2 was quoted at $37 per ton, plus freight. United States fluorspar had an average unit value of $28 per ton and probably included a substantial proportion of acid and ceramic grades, neither of which is produced in Canada. Mexican material had an average unit value of $16 per ton and is assumed to have been all of metallurgical grade.

The duty on metallurgical grade fluorspar entering the United States is $5·625 a ton, and on acid and ceramic grades $3.75 a ton. Fluorspar enters Canada duty free.

Table 317.—Principal Statistics of the Fluorspar Mining Industry in Canada, 1945 and 1946

—		1945	1946
Active firms	No.	7	4
Employees—Administrative	No.	11	8
Workmen	No.	63	64
Total	No.	**74**	**72**
Salaries and wages—Salaries	$	17,035	15,594
Wages	$	82,610	76,080
Total	$	**99,645**	**91,674**
Gross value of production	$	233,708	237,491
Cost of fuel and electricity	$	14,003	16,648
Process supplies used	$	9,312	9,729
Net value of production	$	210,393	211,114

Table 318.—Production of Fluorspar in Canada, 1932-1946

Year	Short tons	$	Year	Short tons	$
1932	32	464	1940	4,454	59,317
1933	73	1,064	1941	5,534	97,767
1934	150	2,100	1942	6,199	146,039
1935	75	900	1943	11,210	318,424
1936	75	900	1944	6,924	217,701
1937	150	2,550	1945	7,369	233,708
1938	217	3,906	1946	8,042	237,491
1939	240	4,995			

Table 319.—Imports of Fluorspar into Canada, 1932-1946

Year	Tons	$	Year	Tons	$
1932	1,009	22,965	1940	30,312	628,719
1933	2,219	21,165	1941	26,539	567,656
1934	7,220	56,628	1942	47,784	1,046,526
1935	11,591	92,775	1943	77,436	1,738,669
1936	11,194	95,268	1944	37,100	840,309
1937	11,444	158,082	1945	20,517	530,670
1938	15,057	212,131	1946	31,813	717,094
1939	16,322	258,796			

Table 320.—Consumption of Fluorspar in Canada, 1942-1946

—	1942	1943	1944	1945	1946
	Tons	Tons	Tons	Tons	Tons
(a) By Uses					
Steel	20,133	20,790	20,024	19,462	13,805
Glass	231	273	376	302	145
Enamelling and glazing	434	216	243	200	220
Heavy chemicals	3,599	2,680	3,113	3,600	3,388
Non-ferrous smelters	22,493	39,396	33,643	12,830	10,972
Ferro-alloys	853	1,407	104	792	1,431
White metal alloys	13	23	30	20	34
Miscellaneous	13	137	99	100	.....
Total	**47,769**	**64,922**	**57,632**	**37,304**	**29,995**
(b) By Provinces					
Nova Scotia	8,898	7,916	9,112	7,390	6,612
Quebec	21,471	38,990	32,745	13,300	11,098
Ontario	15,565	17,309	15,371	16,266	12,058
Manitoba	212	210	165	170	205
Alberta	138	151	118	70	.....
British Columbia	1,485	346	121	110	22
Total	**47,769**	**64,922**	**57,632**	**37,304**	**29,995**

GARNET

The Niagara Garnet Company was the only garnet producer in Canada in 1946. About 60 tons of garnet ore was mined by the company from the deposit near River Valley in Dana township, Ontario, and was shipped 25 miles southeast to the mill at Sturgeon Falls. The garnet ore is crushed and concentrated to about 95 per cent garnet grain and is then finely pulverized into flour grades for use in the grinding of lenses and in the optical trade. About 1½ tons of flour grade was shipped to plants in the United States. About a ton of flour was on hand at the end of 1946 and nearly 100 tons of broken ore at mine and mill.

Over 85 per cent of the world output of garnet comes from North Creek, New York, and the product is regarded as the world standard garnet. Production in the United States in 1946 was about 7,700 tons compared with 6,306 tons in 1945. The largest producer in the United States uses the "Sink-float" process in preliminary stages to eliminate the coarse tails, and uses a heat treatment process to improve the grain in the final concentrate.

Garnet, crushed and suitably graded as to size, is used for making abrasive-coated papers and cloth, which in turn are used mainly in the wood working (hard woods), and to a lesser extent in the shoe leather industries. The specifications for garnet for this use are somewhat exacting. Few if any of the hundred or more garnet deposits so far examined in Canada fulfil all of the requirements. Garnet is used to a minor extent for sandblasting, and for surfacing plate glass. Garnet superfine (flour) grades are used as a partial substitute for corundum flour, which is used for polishing optical lenses. For this purpose, several hundred tons of garnet were probably used in the United States in 1946.

Prices of ungraded concentrate suitable for sandpaper range from $60 to $85 a ton, and flours from 6 cents a pound for 275 mesh to 65 cents a pound for 5 and 10 micron.

GRAPHITE

Flake graphite is found in many parts of the Canadian Shield, chiefly in gneisses and crystalline limestone. Occurrences of flake graphite are known also in Manitoba and British Columbia, but have attracted little interest. Bodies of amorphous graphite near Saint John, New Brunswick, were worked on a small scale many years ago. Otherwise, production has been confined to adjacent sections of western Quebec and eastern Ontario, in the general Ottawa region, where about 12 mines and mills were operated at various times in the early years of the industry.

Production from the Black Donald continued to come mainly from the re-treatment of old mill tailings recovered from the lake alongside the workings by pumping or power shovel, the remainder being mill feed provided by lump ore salvaged from old surface dumps. Preparations for renewal of underground mining from the old Ross shaft were started early in 1946 and a stoping drift was opened on the 290-foot level to develop an orebody discovered some years ago by drilling. This orebody is 150 feet long and 6 to 8 feet wide, and contains 25 to 30 per cent graphite. Mining and stock-piling of new ore was commenced in August, and by November about 1,500 tons had been raised. Proven ore reserves at the end of 1946 was reported as 7,500 tons, and possible reserves at 10,000 tons. Old tailings reserves, which henceforth will be drawn on only during the summer, are estimated at 10,000 tons. The mill runs three 8-hour shifts, 7 days a week, and has treated up to 50 tons per day of salvaged ore and tailings. The expected rate on newly mined ore is 35 tons per day. Recovery of finished products comprising natural flake, powdered flake, and amorphous in 1946 was about 5 tons per day. Total labour force employed was 22 men, 12 in mining, and 10 in the mill. The mill treated about 13,500 tons, with a recovery of 11·7 per cent carbon per ton.

Trade journal quotations for flake graphite in the United States in 1946 ranged from 16 cents per pound for best quality, down to 3 cents per pound for the lowest grade. Crude Ceylon lump, chip, and dust ranged from 12 cents to 5 cents per pound, according to carbon content. Madagascar crucible flake sold for 10 to 11 cents per pound, nominal. Mexican crude amorphous was quoted at $14 to $30 per ton, f.o.b. New York, according to grade.

The duty on graphite entering the United States under the general tariff is 5 per cent ad valorem on natural amorphous and artificial grades, and 15 per cent on crystalline lump, chip, and dust grades. The Canadian tariff is as follows: graphite, not ground or otherwise manufactured, British, free; intermediate (including the United States), 7½ per cent ad valorem; general, 10 per cent; on ground and manufactures of, including foundry facings, but not crucibles, British, 15 per cent; intermediate, 22½ per cent; general, 25 per cent. Graphite crucibles enter Canada free under the British Preferential Tariff, under other tariffs the duty is 15 per cent ad valorem.

Table 321.—Mine Production (Sales) of Graphite in Canada, 1932-1946

Year	Short tons	$	Year	Short tons	$
1932	346	18,483	1940	1,382	94,038
1933	405	18,367	1941	1,644	132,924
1934	1,518	71,424	1942	1,192	117,904
1935	1,782	79,781	1943	1,903	197,431
1936	2,045	88,812	1944	1,582	179,457
1937	2,511	125,343	1945	1,910	187,364
1938	723	41,590	1946	1,975	180,405
1939	1,101	61,684			

Table 322.—Consumption of Graphite or Plumbago in Canada by Industries, 1945-1946

Industry	1945		1946	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
Paints and varnishes	78	8,760	77	9,724
Polishes	43	5,591	46	5,640
Foundries	551	65,922	431	62,275
Acids and salts	117	37,438	124	36,675
Primary iron and steel	526	53,955	969	82,830
Miscellaneous non-metallics	135	16,555	138	11,968

GRINDSTONES, PULPSTONES AND SCYTHESTONES

Material suitable for these stones occurs in certain sandstone beds in Nova Scotia, New Brunswick, and on the coast of British Columbia. Many years ago the output was considerable, but most of the known beds have been depleted and the demand for natural stones has decreased.

No natural pulpstones or scythestones were produced in Canada in 1946, but a total 295 tons of grindstones valued at $17,450 were shipped from New Brunswick and Nova Scotia. Pulpstones were last produced in 1937 by J. A. and C. H. McDonald Company from Gabriola Island near Nanaimo and Vancouver Island. Good pulpstones are in demand, particularly for use in the large magazine grinders, but known Canadian deposits containing thick beds of sandstone of the proper quality appear to have been worked out. There is also an increasing competition from Canadian-made artificial segmental pulpstones, mainly of silicon carbide grit, and about 645 of these stones are in use and in stock in the various Canadian pulp mills. The imported natural pulpstones come mainly from West Virginia.

Table 323.—Production of Grindstones, Pulpstones and Scythestones in Canada, 1932-1946

Year	Tons	$	Year	Tons	$
1932	328	15,735	1940	341	14,543
1933	498	21,919	1941	188	11,500
1934	987	46,478	1942	216	10,000
1935	708	34,010	1943	164	6,225
1936	569	24,724	1944	225	12,000
1937	412	21,429	1945	225	10,879
1938	306	16,198	1946	295	17,450
1939	304	15,278			

Table 324.—Production of Natural Abrasive Stones, 1945 and 1946

—	Grindstones	
	Tons	$
1945		
Nova Scotia	10	600
New Brunswick	215	10,270
Canada	**225**	**10,870**
1946		
Nova Scotia	.....	.....
New Brunswick	295	17,450
Canada	**295**	**17,450**

Table 325.—Consumption of Pulpstones by the Canadian Pulp and Paper Industry, 1932-1946

Year	Number for 2 ft. wood	Value	Number for 2·5 ft. wood	Value	Number for 4 ft. wood	Value
		$		$		$
1932	210	65,450	139	46,436	222	249,373
1933	321	98,475	95	31,945	199	223,635
1934	378	103,811	84	29,680	268	292,359
1935	417	116,501	52	20,297	237	243,805
1936	463	129,227	61	19,478	253	281,265
1937	392	125,598	84	21,700	280	382,084
1938	306	92,822	37	13,351	186	238,488
1939	242	60,622	60	22,443	203	238,620
1940	311	96,957	110	49,899	163	257,628
1941	295	127,349	77	35,843	97	215,913
1942	237	100,466	53	23,898	94	208,986
1943	197	102,888	54	20,000	66	151,411
1944	187	89,133	57	34,865	76	193,396
1945	191	117,585	33	14,132	114	271,108
1946	233	121,705	41	16,868	139	349,866

LITHIUM MINERALS

Amblygonite, spodumene, and lepidolite are the chief lithium minerals of commerce; their ores contain, respectively, about 8, 6 and 4 per cent of lithium oxide. Spodumene is in greatest supply, and is the base raw material for the manufacture of many lithium salts, lithium metal, and alloys. Amblygonite has similar uses, but is scarcer and more expensive. Lepidolite, or lithia mica, is employed mainly in the natural state as a batch ingredient in glass. The occurrence of all three minerals is confined to pegmatite dykes of a definite type, which usually have a localized, regional distribution and often carry, also, important amounts of beryl and tantalite-columbite. In some cases, such dykes have been worked for the recovery of all of these minerals.

There has been no recorded production of lithium minerals in Canada since 1937, when 32 tons of amblygonite and spodumene valued at about $1,700 was shipped, and little if any lithium ore is known to be used or required for any purpose in the Dominion. Thus, an outside market would have to be found for any production. Considerable development work has been done in recent years, however, on deposits in the Pointe du Bois area in southeastern Manitoba; and in the three years ended 1944 increased interest was shown in the commercial possibilities of lithium deposits in other sections of that province, though activities have been confined to exploratory drilling. Some attention has been given, also, to lithium-bearing deposits in the Yellowknife-Beaulieu area in the Northwest Territories.

Lithium ores and compounds early became of strategic importance in the present war, and to conserve supply for defence needs the United States Government placed both under allocation control in 1942. Government assistance also was given to the establishment of two spodumene mills, one in North Carolina, and the other in South Dakota. These measures resulted in a considerable easing of the general supply situation in 1944.

Total production in Canada during the active period 1925-1937, inclusive, is estimated at about 250 tons, and comprised lepidolite, spodumene, and amblygonite. Most of the material was exported to the United States.

The United States and Southwest Africa have been the two leading producers of lithium ores in recent years, with the former probably supplying well over 50 per cent of the annual total, and possessing the largest reserves. Production consists mainly of spodumene and amblygonite, and in the United States has come chiefly from the Black Hills region in South Dakota. An additional important source of lithia in the United States is lithium-sodium phosphate, recovered from the brine of Searle's Lake, at Trona, California, which at present furnishes nearly 50 per cent of the total American lithia production. Shipments of lithium ores and compounds in the United States in 1944 reached an all-time high of 13,319 tons, a 63 per cent increase over the previous year.

There are no plants in Canada for the chemical treatment of lithium ores. Most of the world production marketed prior to the war was treated by a few large chemical firms specializing in the business, the principal plants being in the United States, Great Britain, Germany and France. Such firms usually purchased their requirements under individual contract, and there has thus been little in the way of an open market, price quotations given in trade journals being merely nominal. Some of the larger consumers own and operate their own mines.

MAGNESITE AND BRUCITE

Magnesitic dolomite, a rock composed of an intimate mixture of magnesite and dolomite, is quarried at Kilmar, Argenteuil county, Quebec, by Canadian Refractories Limited, and is processed for use as refractory products and to a minor extent as fertilizer material.

Brucitic limestone, a rock composed of granules of the mineral brucite (magnesium hydroxide) thickly distributed throughout a matrix of calcite, is quarried near Wakefield, Quebec, by Aluminum Company of Canada, Limited, and is processed for the recovery of magnesia and lime. The magnesia is used for making magnesium metal, basic refractories, and fertilizers.

The value of refractory products made from magnesitic dolomite and brucitic limestone reached a new peak in 1946. Canadian Refractories Limited, the principal producer of these materials, was carrying out an extensive program of enlargement and modernization of its production facilities at Kilmar. This includes the installation of a sink-float plant and a 245-foot rotary kiln. The latter will possibly be in operation in 1947.

Magnesite deposits occur in British Columbia and in Yukon. The most important of these, at Marysville, British Columbia, between Cranbrook and Kimberley, is owned by The Consolidated Mining and Smelting Company of Canada, Limited. Considerable silica and alumina occur as impurities in this magnesite. The company, however, has devised a flotation method to remove the greater part of these impurities, but there has been no commercial production. Other magnesite deposits in British Columbia and Yukon are of limited extent or are too far from transportation to be of economic interest at present. Some deposits of earthy hydromagnesite near Atlin and Clinton in British Columbia have been worked at various times on a small scale, but there has been no production in recent years.

There are large deposits of brucite limestone at Bryson, Quebec, and at Rutherglen, Ontario, and there is a small deposit on West Redonda Island in British Columbia.

Table 326.—Production of Magnesitic Dolomite (Calcined) in Canada, 1937-1946

Year	Value	Year	Value
	$		$
1937	677,207	1942	(a) 1,059,374
1938	(b) 420,261	1943	1,260,056
1939	474,418	1944	1,139,281
1940	897,016	1945	1,278,596
1941	831,041	1946	1,225,593

(a) 1942 and following years include the value of brucite shipped.

(b) Represents value of magnesite (dead-burned, etc.) only, whereas the values for years immediately preceding include the value of some end products containing imported material; for this reason the 1938 to 1946 values are not entirely comparable with those for preceding years.

Table 327.—Magnesite and Dolomite Used in the Canadian Primary Iron and Steel Industry, 1939-1946

Year	Calcined Dolomite		Dolomite, Crude		Magnesite	
	Short tons	Value	Short tons	Value	Short tons	Value
		$		$		$
1939	14,858	99,838	40,592	78,904	11,401	351,680
1940	21,949	136,360	59,284	123,429	13,673	506,032
1941	21,608	160,602	71,087	159,037	18,127	682,742
1942	22,550	179,427	79,091	225,393	20,665	786,321
1943	10,310	99,740	78,746	243,793	19,427	744,716
1944	8,516	125,990	134,907	290,631	18,665	740,456
1945	6,146	111,581	110,478	266,236	18,249	755,958
1946	3,788	66,473	87,217	230,384	13,049	546,396

Table 328.—Calcined Magnesite Used by the Artificial Abrasives and Abrasive Products Industry in Canada, 1937-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1937	484	29,242	1942	398	58,648
1938	.....	.....	1943	150	12,164
1939	121	7,735	1944	771	103,591
1940	302	19,331	1945	840	90,780
1941	809	77,508	1946	1,676	187,250

MAGNESIUM SULPHATE

Natural hydrous magnesium sulphate (Epsom Salts or Epsomite) occurs in deposits in lake bottoms or in solution in brine lakes in British Columbia. In Saskatchewan, it is found associated with sodium sulphate. Attempts have been made to produce refined salts, and a number of years ago there was a considerable production from several of the "lakes" in British Columbia. Experimental shipments have been made also from one of the lakes in Saskatchewan.

Canada's output of magnesium sulphate has come chiefly from a deposit in Basque, British Columbia, production from which was discontinued in the autumn of 1942. The salt was refined at Ashcroft, 15 miles south of the deposit, and the grade of the product was high. The refinery, now owned by Ashcroft Salts Company, Limited, had a capacity of 10 tons of salt a day. There are a number of other occurrences in British Columbia, near Clinton, north of Kamloops, and in Kruger's Pass, south of Penticton.

In Saskatchewan, two lakes south of Wiseton contain brines high in magnesium sulphate, and Muskiki Lake, just north of Dana, contains brine high in magnesium and sodium sulphates, which at certain times of the year crystallizes into a bedded deposit with layers of both salts.

In the chemical industries, Epsom salt has many uses. It is employed for tanning and in dyeing, and for textile and medicinal use. Magnesium sulphate is used in the paper industry for weighting paper. In the sole leather industry it is used to obtain a clean shiny cut, and it also helps to retain moisture in the leather and increases its weight. Magnesium salt is used to a small extent in the dyeing industry. In some cases it is used in the treatment of leather to increase the fastness of the colour in washing. It is used extensively and in large quantities in medicine and for various purposes in the manufacture of textiles. In bleaching wool, magnesium sulphate is added to destroy the corrosive effect of sodium peroxide. It is also used for weighting textile fabric, especially silk. Mixed with gypsum and ammonium sulphate, it is used in the manufacture of non-inflammable fabrics.

Table 329.—Production of Natural Magnesium Sulphate in Canada(*), 1937-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1937	727	14,456	1942	1,140	38,760
1938	470	9,400	1943	.....	.....
1939	550	9,900	1944	.....	.....
1940	.....	.....	1945	.....	.....
1941	265	7,343	1946	.....	.....

(*) Produced entirely in British Columbia.

Table 330.—Imports of Magnesium Sulphate into Canada, 1939-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1939	1,951	56,648	1943	3,379	137,372
1940	2,211	86,090	1944	2,684	108,795
1941	2,729	109,022	1945	2,545	101,695
1942	1,688	68,532	1946	3,463	132,342

Table 331.—Available Data on Consumption of Magnesium Sulphate in Canada, 1942-1946

Industry	1942	1943	1944	1945	1946
	Tons	Tons	Tons	Tons	Tons
Leather tanneries	891	935	932	1,013	1,019
Medicinals	539	577	562	828	645
Fertilizers	790	.....	54	431	57
Textiles	55	330	350	44	28
Miscellaneous	46	60	119	.....	.....
Total Accounted For	**2,321**	**1,902**	**2,017**	**2,316**	**1,749**

NATURAL MINERAL WATERS

Production of natural mineral waters in past years originated in Ontario and Quebec. Some of the more prominent Canadian mineral waters possessing special therapeutic or hygienic properties include the following: in Quebec, the Abenakis springs on the St-François river in Yamaska county, Potton Springs in Brome county and the Columbia spring at l'Épiphanie. In Ontario, saline, sulphur and gas springs occur at Caledonia Springs and at Carlsbad Springs, near Ottawa; the waters range from alkaline to strongly saline. St. Catharines, near Niagara, is one of the oldest Canadian mineral water resorts and sulphur waters are found at the Preston mineral springs in Waterloo county. The most famous of all Canadian springs is undoubtedly the group of hot sulphur springs at Banff, Alberta. In British Columbia, the Harrison Hot Springs in Fraser Valley and the Halcyon Hot Springs on Arrow Lake are noted for their curative properties.

There were 18 firms reporting production of natural mineral waters in the Dominion in 1945. Fifteen of these firms were in Quebec and 3 in Ontario.

Table 332.—Shipments of Natural Mineral Waters from Canadian Springs, 1937-1946

Year	Quebec		Ontario		Canada	
	Imp. gal.	$	Imp. gal.	$	Imp. gal.	$
1937	198,319	19,697	26,700	889	225,019	20,586
1938	159,893	19,033	28,416	2,586	188,309	21,619
1939	104,629	17,503	19,140	1,602	123,769	19,105
1940	109,025	18,466	31,638	2,426	140,663	20,892
1941	144,441	58,062	36,623	14,469	181,064	72,531
1942	129,062	60,316	28,023	14,189	157,085	74,505
1943	125,605	61,793	14,006	5,748	139,611	67,541
1944	148,965	88,113	7,185	805	156,150	88,918
1945	236,476	148,714	8,285	976	244,761	149,690
1946	211,842	121,526	6,000	878	217,842	122,404

PHOSPHATE

(Text from the Annual Review of the Bureau of Mines, Ottawa)

All of the output in 1946 came from the province of Quebec. For many years Electric Reduction Company, Buckingham, Quebec, has purchased most of the output for use in the production of elemental phosphorus and of various phosphorus compounds. The company obtains most of its requirements, however, from Florida. Over 98 per cent of the Canadian imports of rock phosphate come from Florida and Montana and the remainder from North Africa and from Curacao, Netherlands West Indies. The Curacao material is low in fluorine and is used in stock feeds.

In Canada, the apatite is frequently associated with the productive phlogopite mica deposits of the general Ottawa region in Ontario and Quebec. In certain areas of Precambrian pyroxenite, the host rock of the phlogopite, are substantial bodies of apatite that contain little or no mica. These, in the past, were mined for straight phosphate and have accounted for the greater part of the recorded production. In more recent years, the small tonnages of apatite sold have been by-product material taken out in the course of mica-mining operations. During the war, some renewed interest was taken in a few of the larger and richer apatite properties that were worked in the peak years (1878-1894) of the phosphate industry, and this accounted for the slight rise in production in the 1941-1943 period.

Rock phosphate of Permo-Triassic age occurs along the Rocky Mountain Divide, notably in the vicinity of Crow's Nest, British Columbia, where a few thousand tons was mined about 1930 by the Consolidated Mining and Smelting Company of Canada, Limited. The material proved to be too low-grade to be of present economic interest and rock for the company's fertilizer plant at Trail, British Columbia, is obtained from richer deposits in Montana.

Overall average f.o.b. price of the United States production in the first half of 1946 was $4.24 per long ton. The price paid in 1946 for Canadian apatite delivered at plant continued to be $16 per short ton for material of 80 per cent B.P.L. grade, with a penalty or premium of 20 cents per unit below or above that figure.

Table 333.—Production of Phosphate in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	100	900	1942	1,264	17,451
1938	208	1,886	1943	1,451	18,385
1939	157	1,712	1944	482	6,716
1940	358	4,039	1945	299	4,356
1941	2,487	33,376	1946	57	869

Table 334.—Imports of Phosphate Rock into Canada, 1937-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1937	113,971	453,590	1942	271,373	1,053,229
1938	128,409	455,697	1943	260,846	1,085,080
1939	124,900	477,317	1944	388,247	1,710,378
1940	165,858	663,554	1945	317,695	1,459,580
1941	237,029	863,833	1946	373,677	2,164,841

Table 335.—Consumption of Phosphate Rock in Canada, 1945 and 1946

—	1945	1946
	Tons	Tons
(a) By Uses		
Fertilizers	365,195	372,914
Chemicals	26,804	17,861
Steel furnaces	1,895	1,989
Refractories	154	153
Miscellaneous	.....	7,100
Total	**394,048**	**400,017**
(b) By Provinces		
Quebec	93,751	85,871
Ontario	69,060	70,933
British Columbia	231,237	243,213
Total	**394,048**	**400,017**

SILICA BRICK

The manufacture of silica brick for refractory use was confined to the plants of the Dominion Steel and Coal Company, Limited, Sydney, Nova Scotia, and the Algoma Steel Corporation Limited, Sault-Sainte-Marie, Ontario. The brick manufactured by both these firms are processed from crushed silica rock and are utilized in furnace construction and repairs.

Table 336.—Production of Silica Brick in Canada, 1937-1946

Year	M	$	Year	M	$
1937	3,744	181,126	1942	4,273	263,006
1938	1,788	100,403	1943	4,165	295,505
1939	2,493	124,807	1944	3,997	312,092
1940	3,438	182,786	1945	4,208	317,263
1941	4,111	238,433	1946	2,902	197,804

Note.—Quantities are shown as 9" equivalent.

SODIUM CARBONATE (NATURAL)

Deposits of natural sodium carbonate in the form of "Natron" (sodium carbonate with 10 molecules of water) and of brine occur in a number of small "lakes" throughout the central part of British Columbia, chiefly in the Clinton Mining Division and in the neighbourhood of Kamloops. As the deposits are far from the main eastern Canadian markets, production is restricted to the requirements of consumers within economical rail haul.

Sodium carbonate has many industrial uses, notably in the manufacture of glass and soap, in the purification of oils, in the production of aluminum, in the flotation of minerals, in the refining of metals, and in the production of caustic soda.

Table 337.—Production of Sodium Carbonate (Natural) in Canada, 1937-1946

Year	Tons	$	Year	Tons	$
1937	286	2,574	1942	256	2,048
1938	252	2,268	1943	468	5,148
1939	300	2,400	1944	44	484
1940	220	1,760	1945	286	3,146
1941	186	1,488	1946	.....	.....

SODIUM SULPHATE (NATURAL)

(Text from the Annual Review of the Bureau of Mines, Ottawa)

Sodium sulphate occurs as crystals or in the form of highly concentrated brines in many lakes and deposits throughout Western Canada. From these, hydrated sodium sulphate, known as Glauber's salt, and anhydrous sodium sulphate, known to the trade as "salt cake", are produced in Canada.

Investigations of the sodium sulphate deposits in Western Canada were made by the Mines Branch, predecessor organization of the Bureau of Mines, Ottawa, in 1921, and over 120,000,000 tons of hydrous salts were proved in the few deposits examined in detail. The material is in the form of the hydrous salt (mirabilite or Glauber's salt) which contains 55·9 per cent of water of crystallization that is removed before marketing. For the small amount of the hydrous product that is marketed as such, clean crystals are harvested and stock-piled, after which they are screened to various sizes, bagged and shipped.

Anhydrous sodium sulphate is also obtained as a by-product from the manufacture of hydrochloric acid and as a by-product from the viscose industry. The latter source of supply is likely to increase rapidly as the demand for the other products of the viscose industry expands. Thus, unless the anhydrous material from western Canada can be made of such a high degree of purity that consumers will be willing to pay a premium based on the sodium sulphate content, it will be unable to compete in the export market with the by-product material.

Glauber's salt is used widely in the chemical industries and the demand is increasing. Sodium sulphate is used chiefly in the sulphate process for the manufacture of kraft pulp, and large amounts are used at Copper Cliff in the smelter. It is used in the glass, dye and textile industries and to a smaller extent for medicinal purposes, and for tanning.

The price of natural sodium sulphate from the deposits in Western Canada in 1946 was quoted at $10.00 per short ton in carload lots f.o.b. plant. The delivered price at pulp mills, which are mostly distant from producing centres, is considerably higher.

Table 338.—Principal Statistics of Sodium Sulphate Mining Industry, 1945 and 1946

—		1945	1946
Active firms	No.	5	4
Producing plants	No.	5	4
Employees—Administrative	No.	25	13
Workmen	No.	131	154
Total Employees	No.	**156**	**167**
Salaries	$	31,072	32,259
Wages	$	231,297	219,628
Total Salaries and Wages	$	**262,369**	**251,887**
Gross value of production	$	884,322	1,118,783
Cost of fuel and electricity	$	226,109	254,450
Cost of process supplies and containers	$	27,473	66,423
Net Value of Production	$	**630,740**	**797,910**

Table 339.—Production of Natural Sodium Sulphate(*) in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	79,804	617,548	1942	131,258	1,079,692
1938	63,000	553,307	1943	107,121	1,025,151
1939	71,485	628,151	1944	102,421	987,842
1940	94,260	829,589	1945	93,068	884,222
1941	115,608	931,554	1946	105,919	1,117,683

(*) All produced in the province of Saskatchewan, with the following exceptions:
Includes production in Alberta—1937—80 tons, value $480
1938—89 tons, value $1,127
1939—10 tons, value $186
1940—10 tons, value $50
1941— 8 tons, value $32

Table 340.—Production in Canada of Manufactured Sodium Sulphate, 1937-1946

Year	Salt Cake		Glauber's Salt	
	Tons	$	Tons	$
1937	3,746	53,244	3,203	52,658
1938	2,955	42,049	2,464	39,935
1939	2,661	40,219	3,189	52,331
1940	4,100	61,567	4,425	82,969
1941	5,191	83,991	3,372	64,202
1942	4,945	68,377	914	18,761
1943	4,256	57,526	.....	.....
1944	3,758	46,077	.....	.....
1945	2,850	35,226	.....	.....
1946	2,584	33,333	.....	.....

Table 341.—Imports into Canada of Sodium Sulphate, 1937-1946

Year	Salt Cake		Glauber's Salt	
	Tons	$	Tons	$
1937	14,117	132,352	1,706	25,000
1938	5,786	61,122	2,266	20,288
1939	6,542	73,575	1,330	20,102
1940	8,295	94,674	543	12,450
1941	7,819	105,502	250	8,244
1942	7,070	85,479	75	4,664
1943	11,904	150,490	566	15,399
1944	20,460	195,105	777	21,960
1945	13,535	120,982	1,016	29,452
1946	20,881	244,617	1,258	33,136

Table 342.—Available Data on Consumption of Sodium Sulphate (Salt Cake) in Canada, 1941-1946

—	1941	1942	1943	1944	1945	1946
	Tons	Tons	Tons	Tons	Tons	Tons
Pulp and paper	61,679	70,078	67,292	70,954	67,654	81,161
Non-ferrous smelters	28,294	21,541	33,385	37,079	30,000	26,124
Heavy chemicals	10	58	120	934	125	67
Glass	556	643	892	770	621	2,660
Medicinals	11	14	38	29	30	42
Textiles	10	3				
Tanneries	21	3		Not available		
Soaps	.....	18				
Miscellaneous	10	4				
Total	**90,591**	**92,362**	**101,727**	**109,766**	**98,430**	**110,054**

STRONTIUM MINERALS

There was no commercial production of strontium minerals in Canada during recent years. In 1941, 27 tons of celestite valued at $280 was shipped from old dumps located on lots 6 and 7, concession 10 of Bagot township, Renfrew county, Ontario.

The following, relating to strontium, is from a review prepared by the Bureau of Mines, Ottawa:

"Several occurrences of celestite (strontium sulphate) of possible economic interest are known in Canada, and in 1920-21 some ground material produced from a deposit in Bagot township, Ontario, was sold to the paint trade. The material from this deposit is coarsely-fibrous in character and is not very pure, containing about 18 per cent of barium sulphate. It is accordingly not favoured for chemical use, but is regarded as suitable for paints and general filler or loader use. The old pit was pumped out in 1941 and a few tons of ore were scaled down from a small drift. This, along with some stockpile material, was shipped to Montreal for grinding. The product was used in the paint trade as a substitute for barite, but is reported to have found little favour, and no further work was done. Celestite of similar character and analysis occurs at some of the old fluorspar mines of the Madoc area in Ontario, and part of it might be recoverable from the waste dumps.

"Celestite, analyzing 98 to 99 per cent strontium sulphate, occurs as a small vein of coarse platey crystals in Lansdowne township, Ontario and some of it was mined many years ago.

"World production of strontium minerals is estimated at 5,000 to 7,000 tons a year. England is the principal source of supply, with Germany next. The United States produced about 350 tons in 1940, exclusive of celestite used for oil-drilling. Important deposits are reported to occur in India and Newfoundland, but there has been no production from these sources as yet.

"Celestite is the principal source of strontium used in the manufacture of the various strontium salts, and strontianite a less common mineral, is used for the same purpose. The nitrate, carbonate, and hydrate are the most important of the strontium compounds used in industry and medicine. Strontium nitrate is employed mainly in pyrotechnics, for fireworks, railroad signal flares, and military flares and rockets to which it imparts the characteristic strong red flame colour of the element. Other strontium compounds are employed in tracer bullets and shells. The hydrate is used chiefly in the refining of beet sugar by the Scheibler process. In North America, however, sugar is refined mainly by the Steffens, or lime process. The carbonate is reported to be used to some extent as a batch ingredient in the manufacture of certain kinds of glass, glazes, and enamels, and as a fluxing and desulphurizing and dephosphorizing agent in iron and steel. Strontium chloride powder finds limited use in refrigerators working on the solid absorption principal. Ground celestite is used in fairly large quantities for purifying caustic soda in the rayon industry, and some impure material has been ground and employed as a barite substitute for weighting oil-drilling muds. Interest has also been shown in the possibilities of the carbonate and the sulphate in glass and white wares.

"Strontium metal, made from either the natural sulphate or carbonate, is used in limited quantities in certain alloys, mainly of copper, tin, lead, zinc, and cadmium."

VOLCANIC DUST

(Text from the Annual Review by the Bureau of Mines, Ottawa)

Volcanic dust (pumicite or pumice dust) is a natural glass or silicate, atomized by volcanic explosions and thrown into the air in great clouds which ultimately settle, forming beds of varying thickness, often hundred of miles from its source. In many instances the dust has been washed down from higher levels and redeposited by the agency of waters, in which case the beds are stratified and mixed with foreign substances. It consists of aluminum silicate (80 to 90 per cent), and of oxides and silicates of iron, sodium, magnesium, calcium, etc.

Deposits of volcanic dust occur in Saskatchewan, Alberta and British Columbia. There was no production in 1945 and 1946. In 1943 about 60 tons was shipped from Rock Glen, 125 miles southeast of Swift Current, Saskatchewan. A lease was taken out recently on the Duncairn deposit near Swift Current and samples of cleanser material were distributed.

The United States is the largest consumer of volcanic dust and pumice, and has an annual output of about 90,000 tons valued at over $700,000. The material is used mainly in scouring and cleansing compounds and as a concrete admixture and concrete aggregate. To a minor extent it is used for insulation; in glass bevelling; for polishing aluminum; in the manufacture of fire-proof walls; in Acoustic plaster; in building tiles; as a filler in paint and in asphalt; and in glazes in ceramics.

SULPHUR (Including Pyrites)

(Text from the Annual Review by the Bureau of Mines, Ottawa)

Pyrites is produced in Canada as a by-product in the treatment of copper-pyrites ores at Waite-Amulet and Noranda mines in Quebec and at Britannia mine in British Columbia. No lump pyrites has been produced in Canada for several years, and published statistics on recent pyrites production refer to by-product iron pyrites recovered in the concentrating of copper and copper-zinc ores.

Deposits of native sulphur of commercial grade have not been found in Canada, but sulphur occurs in combination with copper, lead, zinc, nickel, or iron in many base metal sulphide orebodies in various parts of the country. In smelting these ores sulphur dioxide gas is produced, and to 1925 this gas was a total waste as no facilities were available for the recovery from it of sulphur or of sulphur compounds. In practice this gas can be used directly for the manufacture of liquid sulphur dioxide or for the production of elemental sulphur. Sulphur used in the making of sulphuric acid is recovered in the form of sulphur dioxide from salvaged gas by The Consolidated Mining and Smelting Company of Canada, Limited at Trail, British Columbia, and by Canadian Industries Limited at Copper Cliff, Ontario. There has been no production of elemental sulphur in Canada since July 1943.

In Quebec, Noranda Mines Limited, Noranda, recovers the pyrites from the cyanide mill tailings and sells it to pulp and paper mills at Trois-Rivières and at Hull, Quebec, and to chemical plants in Canada and the United States. Waite-Amulet Mines, Limited has been producing a pyrite concentrate since March 1944, which it ships mainly to the United States.

In British Columbia, most of the large output of pyrites from the Britannia mine of Britannia Mining and Smelting Company, Limited, at Britannia Beach, was sold to Nichols Chemical Company's acid plant at Barnet, British Columbia, and the remainder was exported to Compagnie des Boleo in Mexico. The pyrites averaged over 50 per cent in sulphur. A considerable tonnage from operations in previous years has accumulated for disposal when market conditions are more favourable. The property of Northern Pyrites, Limited at Ecstall River, about 60 miles south of Prince Rupert, remained idle. Reserves are estimated at 5,000,000 tons with a sulphur content of 45 per cent.

By July 1943, the demand for sulphuric acid for fertilizer manufacture had become so great that the production of elemental sulphur at Trail, which was commenced in 1936 was discontinued. The sulphuric acid is made in a plant using the contact process, that was erected by Consolidated Mining and Smelting Company in 1929. Canadian Industries Limited also uses the contact process in its acid plant at Copper Cliff, the production of sulphuric acid being from converter gas that is withdrawn from the flues by arrangement with The International Nickel Company of Canada, Limited.

Table 343.—Production of Sulphur(*) in Canada, 1932-1946

Year	Tons	$	Year	Tons	$
1932	53,172	470,014	1940	170,630	1,298,018
1933	57,373	510,299	1941	260,023	1,702,786
1934	51,537	515,502	1942	303,714	1,994,891
1935	67,446	634,235	1943	257,515	1,753,425
1936	122,132	1,033,055	1944	248,088	1,755,739
1937	130,913	1,154,992	1945	250,114	1,881,321
1938	112,395	1,044,817	1946	234,771	1,784,666
1939	211,278	1,668,025			

(*) Includes sulphur recovered from smelter gas.

Table 344.—Production in Canada of Pyrites With Sulphur Content, Including Sulphur Contained in Sulphuric Acid, Etc., Made From Smelter Gases, 1944-1946

—	Pyrites			Smelter Gas		Total Sulphur	
	Sales	Sulphur Content		Sulphur Content		Tons	Value
	Tons	Tons	Value	Tons	Value		
			$		$		$
1944							
Quebec	240,370	116,887	453,501	.....	.....	116,887	453,501
Ontario	.....	.....	.....	17,876	178,760	17,876	178,760
British Columbia	9,701	4,886	39,088	108,439	1,084,390	113,325	1,123,478
Canada	**250,071**	**121,773**	**492,589**	**126,315**	**1,263,150**	**248,088**	**1,755,739**
1945							
Quebec	218,628	105,613	445,534	.....	.....	105,613	445,534
Ontario	.....	.....	.....	16,847	168,470	16,847	168,470
British Columbia	9,095	4,590	36,677	123,064	1,230,640	127,654	1,267,317
Canada	**227,723**	**110,203**	**482,211**	**139,911**	**1,399,110**	**250,114**	**1,881,321**
1946							
Quebec	194,291	92,716	375,328	.....	.....	92,716	375,328
Ontario	.....	.....	.....	15,433	154,330	15,433	154,330
British Columbia	7,644	3,822	27,006	122,800	1,228,002	126,622	1,255,008
Canada	**201,935**	**96,538**	**402,334**	**138,233**	**1,382,332**	**234,771**	**1,784,666**

Table 345.—Available Data on the Consumption of Sulphur (Brimstone) in Canada, 1943-1946

Industry	1943	1944	1945	1946
	(Tons of 2,000 pounds)			
Pulp and paper	206,785	195,203	203,522	226,296
Heavy chemicals	69,236	68,649	53,689	45,346
Rubber goods	1,412	1,259	1,496	1,446
Explosives	1,806	1,753	1,131	1,461
Insecticides	1,246	1,228	1,244	1,297
Adhesives	93	495	75	64
Starch	270	240	253	208
Fruit and vegetable preparations	215	156	123	119
Sugar refining	104	108	130	128
Petroleum refining	47	51	51	68
Matches	76	75	89	83
Miscellaneous	3,828	670	600	195
Total Accounted For	**285,118**	**269,887**	**262,403**	**276,711**

Table 346.—Imports of Sulphur (Brimstone) into Canada, 1937-1946

Year	Tons	$	Year	Tons	$
1937	225,684	3,669,082	1942	290,121	4,680,672
1938	93,647	1,471,741	1943	218,527	3,524,006
1939	152,216	2,453,836	1944	235,955	3,875,649
1940	215,597	3,628,348	1945	248,846	4,063,324
1941	235,271	3,920,184	1946	273,502	4,271,081

CHAPTER NINE

CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS

Including Cement, Clay and Clay Products (Brick, Drain Tile, Kaolin, Sewer Pipe, Structural Tile, Stoneware and Pottery made from Domestic Clays, Fireclay, Firebrick, Fireclay Blocks and Shapes, Imported Clay Products), Lime, Sand and Gravel, Sand-Lime Brick, and Stone, including Slate.

Grouped in this Chapter are those industries producing structural materials from non-metallic minerals, rocks and clays of Canadian origin. These industries include those firms engaged in the production of Clay Products, Portland Cement, Lime, Sand, Gravel and Stone. The combined value of these materials produced in Canada during 1946 totalled $66,120,221 compared with $48,419,673 in 1945. Of the 1946 output, Ontario contributed $24,293,081 and Quebec $22,615,910 or 36·7 per cent and 34·2 per cent respectively. In order of importance, lesser amounts were also produced in British Columbia, Alberta, Manitoba, New Brunswick and Nova Scotia.

The quality of structural materials produced in Canada compares favourably with that of other countries. Most of the larger plants producing cement, clay products, lime, stone and sand and gravel are equipped with modern machinery and the Dominion is endowed with practically inexhaustible deposits of most primary materials required in any building or construction project of the future.

There has been an increasing consumption of stone and lime for other than building purposes. This has been particularly evident in recent years and is the result of expansion in certain industries where these materials are utilized in various chemical processes. Shipments of stone and lime for these purposes are classified, for convenience, with data relating to production of these same materials for structural purposes. However, statistics pertaining to their consumption for industrial purposes are segregated in the following tables.

Table 347.—Gross Value of Clay Products and Other Structural Materials Produced in Canada, by Provinces, 1942-1946

Province	1942	1943	1944	1945	1946
	$	$	$	$	$
Nova Scotia	1,980,912	1,597,791	1,081,805	1,310,214	1,671,504
New Brunswick	1,305,343	911,121	1,644,047	1,497,688	1,833,508
Quebec	17,723,293	15,863,115	15,085,337	17,628,154	23,362,072
Ontario	16,557,804	15,414,525	16,088,455	17,872,222	24,917,670
Manitoba	2,317,933	2,402,647	2,648,430	3,350,115	4,405,157
Saskatchewan	707,123	932,412	864,082	834,564	1,322,107
Alberta	2,836,160	2,752,839	3,149,234	3,398,323	4,886,591
British Columbia	3,564,405	3,246,623	3,573,857	3,911,254	5,570,349
Canada—Gross value	**46,992,973**	**43,121,073**	**44,135,247**	**49,802,534**	**67,968,967**
Net value	**35,334,369**	**32,464,633**	**32,916,190**	**37,885,652**	**51,848,199**

Gross value includes cement containers.
Net value—Deductions made for fuel, electricity, process supplies and containers.

NOTE.—For statistics relating to employment, etc., in these combined industries, see Chapter 1.

THE CEMENT MANUFACTURING INDUSTRY

The total value of shipments of Portland cement from Canadian plants reached a new high in 1946, when 11,560,483 barrels worth $20,122,503 were sold or used by the producers, an increase of 36 per cent in quantity and 48 per cent in value over the 1945 shipments of 8,471,679 barrels valued at $14,246,480. Production (shipments) by provinces in 1946 was as follows: Quebec, 5,046,166 barrels; Ontario, 3,677,695 barrels; Manitoba, 1,254,946 barrels; Alberta, 809,721 barrels, and British Columbia, 771,955 barrels.

The same 8 plants were in operation during 1946 as in the previous year. The Canada Cement Company Limited had works at Hull and Montreal East in Quebec, at Port Colborne and Belleville in Ontario, at Fort Whyte in Manitoba, and at Exshaw in Alberta; the St. Mary's Cement Co. Limited operated a mill at St. Mary's, Ontario, and the British Columbia Cement Co. Limited had a plant at Bamberton, British Columbia. These plants have 18 kilns with a rated capacity of 33,550 barrels per day, and the capacity of the 16 kilns which were in operation in 1946 was 31,640 barrels per day.

Raw materials used in 1946 included 2,525,653 tons of limestone, 65,431 tons of gypsum, 227,645 tons of clay, 3,862 tons of pyrite cinder, 31,222 tons of silica sand, and 99,355 tons of shale.

There is also one plant in Canada, operated by Medusa Products Company of Canada Limited at Paris, Ontario, which makes white Portland cement, cement paints, etc., but as this firm uses imported clinker its operations have not been included in this review which is concerned only with the establishments which operate on domestic raw materials.

An average of 1,532 employees in this industry in 1946 were paid $2,929,020 in salaries and wages. Raw materials, process supplies and containers cost $4,306,467, fuel and electricity cost $4,487,496, and the gross value of shipments, f.o.b. works, including containers, was $21,724,021.

Imports of Portland cement into Canada amounted to 350,057 barrels valued at $1,098,532 in 1946, and imports of white Portland cement clinker totalled 14,296 barrels valued at $30,147. Exports of Portland cement in the year under review amounted to 114,370 barrels at $236,276. The apparent consumption in Canada in 1946 was 11,796,170 barrels.

Table 348.—Principal Statistics for the Cement Manufacturing Industry in Canada, 1937-1946

Year	Number of plants	Number of employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies, materials and containers (*)	Gross value of products sold during year, including containers (f.o.b. works)
			$	$	$	$
1937	9	1,083	1,373,444	1,904,418	540,915	9,005,867
1938	8	1,034	1,306,331	1,764,427	1,369,173	9,081,366
1939	8	1,001	1,297,542	1,705,981	1,372,238	9,351,391
1940	8	1,052	1,515,766	2,347,730	1,943,491	13,006,643
1941	8	1,235	1,860,931	2,897,383	2,146,825	14,323,372
1942	8	1,241	2,059,337	3,127,264	2,287,223	15,628,403
1943	8	1,209	2,154,218	3,089,380	2,467,709	12,709,852
1944	8	1,207	2,254,775	3,197,955	2,566,432	12,646,741
1945	8	1,317	2,398,117	3,210,929	2,794,676	15,422,031
1946	8	1,524	2,929,020	4,487,496	4,306,467	21,724,021

(*) Includes only process supplies for 1937; both process supplies and containers for 1938 to 1942 inclusive; and process supplies, containers and raw materials for later years.

Table 349.—Production, Imports and Exports of Portland Cement, 1945 and 1946

—	1945		1946	
	Barrels(*)	Value	Barrels(*)	Value
		$		$
Output	7,819,412	.....	10,675,472	.....
Shipments (sold or used by producers)	8,471,679	14,246,480	11,560,483	20,122,503
Stocks on hand December 31	1,354,532	.....	469,521	.....
IMPORTS—				
Portland cement and hydraulic or water lime	32,653	141,539	350,057	1,098,532
Portland cement clinker (white)	10,728	35,023	14,296	30,147
Manufactures, n.o.p.	.....	31,306	.....	51,633
EXPORTS—				
Portland cement	281,944	535,012	114,370	236,276
Apparent Consumption	(†) 8,222,388	.....	11,796,170	.....

(*) 1 barrel = 350 pounds.
(†) Exclusive of clinker imported.

Table 350.—Producers' Shipments and Apparent Consumption of Cement in Canada, 1937-1947

Year	Shipments (Sold or Used)		Apparent Consumption in Canada(*)
	Barrels	$	Barrels
1937	6,168,971	9,095,867	6,157,485
1938	5,519,102	8,241,350	5,478,180
1939	5,731,264	8,511,211	5,591,328
1940	7,559,648	11,775,345	7,272,886
1941	8,368,711	13,063,588	8,069,824
1942	9,126,041	14,365,237	8,878,481
1943	7,302,289	11,599,033	7,148,265
1944	7,190,851	11,621,372	6,994,406
1945	8,471,679	14,246,480	8,222,388
1946	11,560,483	20,122,503	11,796,170

(*) Shipments plus imports less exports.

Table 351.—Producers' Shipments of Cement in Canada, by Provinces, 1944-1946

Province	1944		1945		1946	
	Barrels	Value(*)	Barrels	Value(*)	Barrels	Value(*)
		$		$		$
Quebec	3,249,302	4,736,004	3,872,373	5,985,077	5,046,166	7,910,548
Ontario	1,863,210	2,730,381	2,460,996	3,805,131	3,677,695	6,025,503
Manitoba	865,756	1,698,567	959,398	2,027,629	1,254,946	2,811,264
Alberta	699,989	1,370,502	620,337	1,246,346	809,721	1,635,222
British Columbia	512,594	1,085,918	558,575	1,182,297	771,955	1,739,966
Canada	**7,190,851**	**11,621,372**	**8,471,679**	**14,246,480**	**11,560,483**	**20,122,503**

(*) Does not include the value of containers.

Table 352.—Specified Materials Used in Canadian Cement Plants, 1937-1946

Year	Shale	Limestone	Gypsum	Silica sand	Clay	Iron oxides(*)
	Tons	Tons	Tons	Tons	Tons	Tons
1937	(x)	1,465,168	33,691	9,281	195,877	444
1938	13,821	1,344,868	51,975	9,465	143,421	22
1939	27,241	1,379,858	31,492	7,942	105,982	16
1940	18,347	1,765,944	38,903	15,298	144,152	170
1941	26,837	2,086,781	49,031	16,110	185,954	614
1942	30,498	2,155,750	49,816	20,711	188,202	2,094
1943 (a)	75,460	1,918,742	47,034	19,473	165,345	1,502
1944	74,303	1,865,597	42,672	23,942	173,728	3,924
1945 (b)	70,600	1,849,258	45,883	29,424	161,980	3,197
1946 (b)	99,355	2,525,653	65,431	31,222	227,645	3,862

(x) Data not recorded.
(*) Produced from iron pyrites by the chemical industry.
(a) Prior to 1943 shale consumed in British Columbia plants was included with limestone
(b) Value of these materials purchased in 1945 totalled $349,195, and 1946 totalled $505,994.

Table 353.—Coal Used in Portland Cement Plants in Canada, 1937-1946

Year	Canadian		Foreign	
	Tons	$	Tons	$
1937	145,791	760,706	90,925	513,417
1938	127,812	656,187	89,172	499,812
1939	190,538	1,010,071	16,141	82,336
1940	185,325	1,108,287	85,885	513,224
1941	125,740	772,829	203,905	1,331,448
1942	156,544	1,003,490	192,105	1,305,383
1943	98,135	595,385	225,741	1,664,546
1944	108,292	731,706	219,802	1,634,690
1945	121,299	823,988	206,995	1,566,420
1946	172,081	1,237,718	289,046	2,233,402

Table 354.—Number and Capacity of Kilns in Portland Cement Plants in Canada, 1937-1946

Year	Total Kilns		Kilns in Use During the Year	
	Number	Total capacity Barrels per 24 hours	Number	Total capacity Barrels per 24 hours
1937	18	33,900	(*)	(*)
1938	21	35,200	10	23,100
1939	21	35,000	11	23,700
1940	21	35,000	13	27,950
1941	20	33,050	16	30,350
1942	19	34,650	17	32,450
1943	19	33,750	15	30,296
1944	19	33,250	15	30,150
1945	19	33,250	15	30,150
1946	18	33,550	16	31,640

(*) Data not recorded.

Table 355.—Employees, Salaries and Wages in the Cement Manufacturing Industry in Canada, 1940-1946

Year	Number of Employees					Salaries	Wages	Total Salaries and Wages
	On Salaries		On Wages		Total			
	Male	Female	Male	Female				
						$	$	$
1940	79	4	969	.....	1,052	191,548	1,324,218	1,515,766
1941	79	8	1,148	.....	1,235	190,771	1,670,160	1,860,931
1942	79	10	1,152	.....	1,241	200,779	1,858,558	2,059,337
1943	75	16	1,091	27	1,209	215,137	1,939,081	2,154,218
1944	76	16	1,066	49	1,207	229,490	2,025,285	2,254,775
1945	87	15	1,159	56	1,317	248,365	2,149,752	2,398,117
	Administration		Workmen			Administrators' earnings	Workmens' earnings	Total
1946	101	12	1,400	19	1,532	276,567	2,682,028	2,958,595

Table 356.—Wage-Earners in the Cement Manufacturing Industry in Canada, by Months, 1945 and 1946

Month	1945			1946		
	Quarry	Mill		Quarry	Mill	
	Male	Male	Female	Male	Male	Female
January	129	942	39	239	1,157	44
February	120	928	30	159	1,132	25
March	122	930	31	160	1,144	23
April	126	928	39	178	1,170	16
May	149	936	72	171	1,234	12
June	151	993	73	164	1,272	11
July	156	1,027	79	179	1,271	13
August	152	1,033	72	181	1,253	15
September	153	1,047	64	175	1,271	16
October	146	1,123	61	175	1,274	17
November	147	1,161	54	183	1,249	17
December	165	1,126	45	164	1,258	17
Average	**144**	**1,015**	**56**	**176**	**1,221**	**19**

THE CLAY AND CLAY PRODUCTS INDUSTRY

The industrial clays of Canada may be classified as common clays, stoneware clays, fireclays and china clays. Statistically, the ceramic industry of Canada is conveniently classified into two divisions: (1) Production from domestic clays, which includes the production of building brick, structural tile, drain tile, roofing tile, stoneware, sewer pipe, pottery and refractories, and (2) production from imported clays, which includes the manufacture of electrical porcelains, sanitary ware, sewer pipe, table ware, pottery, ceramic floor and wall tile, and various kinds of fireclay refractories. Data relating to the production of glass, cement and artificial abrasives are contained in separate reports.

A total of 151 plants operated in the domestic and imported clay products industries in Canada during 1946. These two industries provided employment for 5,350 persons during the year; their earnings totalled $7,986,505. The combined production in 1946 was valued at $19,280,738 compared with $14,240,374 in 1945.

I. Production from Domestic Clays

The gross value of Canadian producers' sales of domestic clays and products made from same totalled $12,207,367 in 1946 compared with $8,913,092 in 1945. Eight provinces reported the commercial production of domestic clay products. Ontario production was valued at $4,288,780; Quebec, $3,457,168; Alberta, $1,808,971 and the remainder was contributed by the other five provinces.

There were 119 plants operated by 110 firms who employed 3,437 persons and distributed $5,115,962 in salaries and wages. Fuel and electricity used in 1946 was valued at $2,365,552 and the process supplies had a value of $278,125.

Sales of building brick in 1946 amounted to $6,627,517 for 272,389 M pieces. This is compared with 200,241 M pieces which sold for $4,566,179 in 1945. The sewer pipe and drain tile sales were $2,032,403; structural tile, $1,504,345; pottery, $1,195,478; bentonite, $211,825 and firebrick, fireclay blocks and fireclay, $458,886.

Table 357.—Principal Statistics for the Clay Products Industry in Canada, 1937-1946

Year	Establishments	Employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies	Gross value of products sold during year (f.o.b. works)
			$	$	$	$
1937	143	2,287	2,094,792	1,032,755	103,508	4,516,859
1938	152	2,242	2,110,233	939,190	114,659	4,536,084
1939	149	2,165	2,161,688	998,083	108,815	5,151,236
1940	143	2,557	2,675,251	1,282,593	139,035	6,344,547
1941	142	2,881	3,227,785	1,561,326	207,247	7,575,336
1942	124	2,523	3,073,011	1,292,373	158,866	7,081,723
1943	105	2,173	2,909,841	1,157,471	104,336	6,608,193
1944	110	2,247	3,176,804	1,357,313	161,189	6,997,425
1945	106	2,688	3,828,206	1,780,426	194,257	8,913,092
1946	119	3,437	5,115,962	2,365,552	278,125	12,207,367

Table 358.—Production (Total Sales) of Clay Products from Domestic Clays, 1937-1946

Year	$	Year	$
1937	4,516,859	1942	7,081,723
1938	4,536,084	1943	6,608,193
1939	5,151,236	1944	6,997,425
1940	6,344,547	1945	8,913,092
1941	7,575,336	1946	12,207,367

Table 359.—Production (Total Sales) of Clay Products, by Provinces, 1944-1946 (Gross Values)

Province	1944	1945	1946
	$	$	$
Nova Scotia	402,694	433,455	671,466
New Brunswick	207,051	232,783	336,971
Quebec	1,881,791	2,534,630	3,457,168
Ontario	2,347,396	3,107,189	4,288,780
Manitoba	197,383	269,917	372,920
Saskatchewan	330,907	271,288	411,446
Alberta	1,143,577	1,401,875	1,808,971
British Columbia	486,626	661,955	859,645
Canada	**6,997,425**	**8,913,092**	**12,207,367**

Table 360.—Production (Sales) of Domestic Clay and Clay Products in Canada, 1945 and 1946

Product	Unit of measure	Sales or Shipments			
		1945		1946	
		Quantity	$	Quantity	$
Clay—Bentonite	ton	.....	170,799	.....	211,825
Fireclay	ton	4,266	31,416	4,696	30,607
Kaolin	ton	446	3,771	821	5,775
Other clay	ton	18,242	29,920	30,277	39,204
Fireclay blocks and shapes	.....	.....	225,275	.....	222,430
Firebrick	M	3,466	186,651	3,368	205,849
Brick—Soft mud process—Face	M	5,424	128,762	10,858	223,272
Common	M	21,516	378,884	17,013	347,937
Stiff mud process—Face	M	76,094	2,074,833	106,128	3,050,611
(wire cut) Common	M	51,413	940,266	65,406	1,262,178
Brick—Dry press—Face	M	25,680	636,721	41,573	1,093,612
Common	M	19,993	400,091	31,239	645,252
Fancy or ornamental brick (including special shapes, embossed and enamelled brick)	M	81	5,806	1	82
Sewer brick	M	41	816	171	4,573
Paving brick	M	206	12,010	53	3,681
Structural tile—					
Hollow blocks (including fireproofing and load-bearing tile)	ton	94,244	998,210	129,694	1,453,549
Roofing tile	M	.....	.....	1	97
Floor tile (quarries)	.....	.....	46,365	.....	50,699
Drain tile	M	13,393	495,875	18,051	677,564
Sewer pipe (including copings, flue linings, conduits, etc.)	.....	.....	1,178,141	.....	1,354,839
Pottery, glazed or unglazed (including coarse earthenware, sanitary ware, stoneware, flower pots, and all other pottery)	.....	.....	930,567	.....	1,195,478
Other products	.....	.....	37,913	.....	128,253
Total	.....	.....	**8,913,092**	.....	**12,207,367**

In addition to the clays recorded in the above table, there were 227,645 tons of ordinary clay consumed in Canada during 1946 in the production of Portland cement; the corresponding consumption in 1945 was 161,980 tons. Also consumed by the Canadian cement industry in 1946 were 99,355 tons of shale.

Table 361.—Production (Sales) (a) of Building Brick in Canada, 1937-1946

Year	Quantity	$	Average value per M (b)	Year	Quantity	$	Average value per M (b)
	M		$		M		$
1937	153,770	2,375,276	15·45	1942	169,317	3,018,375	17·83
1938	148,807	2,341,443	15·73	1943	138,678	2,898,764	20·25
1939	165,024	2,676,634	16·22	1944	154,785	3,155,380	20·38
1940	191,213	3,277,187	17·14	1945	200,241	4,566,179	22·82
1941	208,871	3,765,493	18·00	1946	272,389	6,627,517	24·33

(a) Totals comparable with those in Table 362.
(b) Based on shipments of all grades and the value per M should be interpreted as the value of pressed, common and other varieties 'en masse' and not the value of any one particular type of brick.

Table 362.—Production (Sales) of Building Brick(*) in Canada, by Provinces, 1944-1946

Province	1944		1945		1946	
	M	$	M	$	M	$
Nova Scotia	5,987	96,411	6,827	110,065	8,167	160,492
New Brunswick	6,407	109,983	7,895	165,104	9,560	223,688
Quebec	65,103	1,303,666	82,319	1,896,738	113,695	2,642,891
Ontario	56,654	1,323,651	74,446	1,944,335	104,078	2,800,236
Manitoba	1,566	37,115	4,212	100,366	6,384	165,348
Saskatchewan	536	9,230	753	15,820	4,148	92,186
Alberta	15,590	197,940	19,377	292,350	21,360	377,573
British Columbia	2,942	77,384	4,412	130,371	4,997	165,103
Canada	**154,785**	**3,155,380**	**200,241**	**4,566,179**	**272,389**	**6,627,517**
Average value per M	.....	20·38	.....	22·82	.....	24·33

(*) Includes fancy and sewer brick.

Table 363.—Value(*) of Drain Tile and Sewer Pipe Produced (Sales) in Canada from Domestic Clays, by Provinces, 1944-1946

Province	1944	1945	1946
	$	$	$
Nova Scotia	165,106	178,587	315,661
New Brunswick	5,269	3,495	2,638
Quebec	206,338	231,208	212,646
Ontario	621,326	092,873	848,961
Manitoba	.....	.....	.....
Saskatchewan	3,400	4,050	7,500
Alberta	253,679	357,920	381,133
British Columbia	135,339	205,883	263,864
Canada	**1,390,457**	**1,674,016**	**2,032,403**

(*) Includes value of copings, flue linings, etc.

Table 364.—Value(*) of Drain Tile and Sewer Pipe Produced in Canada, 1937-1946

Year	Value	Year	Value
	$		$
1937	1,089,180	1942	1,721,580
1938	1,100,881	1943	1,507,223
1939	1,167,181	1944	1,390,457
1940	1,430,154	1945	1,674,016
1941	1,755,753	1946	2,032,403

(*) Includes value of copings, flue linings, etc.

Table 365.—Production (Sales) of Fireclay Blocks and Shapes and Firebrick from Domestic Clays, by Provinces, 1946

Province	Fireclay		Fireclay blocks and shapes	Firebrick	
	Short tons	$	$	M	$
Nova Scotia	2,823	10,819	1,101	14	653
New Brunswick	.....	.....	.....	.....	.....
Ontario	.....	.....	.....	.....	.....
Saskatchewan	1,066	8,906	180,098	.....	.....
British Columbia	807	10,882	40,631	3,353	205,196
Canada	**4,696**	**30,607**	**222,430**	**3,367**	**205,849**

Table 366.—Production (Sales) of Fireclay, Fireclay Blocks and Shapes, and Firebrick from Domestic Clay, 1937-1946

Year	Fireclay		Fireclay blocks and shapes	Firebrick	
	Short tons	$	$	M	$
1937	4,123	26,081	75,431	2,950	142,827
1938	2,344	17,243	73,512	2,213	113,581
1939	3,785	22,504	95,256	2,331	119,346
1940	4,881	30,564	85,127	3,167	165,525
1941	5,431	35,475	190,497	3,643	183,897
1942	5,601	40,722	210,246	3,816	197,830
1943	5,653	42,122	256,655	3,644	192,618
1944	7,630	38,433	221,251	3,180	164,837
1945	4,266	31,416	225,275	3,466	186,651
1946	4,696	30,607	222,430	3,367	205,849

NOTE.—Firebrick and fireclay blocks and shapes are made also from imported clays; see table 384.

Table 367.—Production (Sales) of Pottery from Domestic Clays, 1937-1946

Year	Value	Year	Value
	$		$
1937	232,209	1942	646,088
1938	235,890	1943	701,144
1939	(*) 282,712	1944	838,544
1940	474,452	1945	930,567
1941	502,212	1946	1,195,478

(*) Includes value of sanitaryware.

Table 368.—Production (Sales) of Pottery from Domestic Clays, by Provinces, 1944-1946

Province	1944	1945	1946
	$	$	$
New Brunswick	75,288	46,792	68,929
Quebec	82,000	147,388	157,413
Ontario	60,000	69,182	77,800
Alberta	617,326	663,960	888,525
British Columbia	3,930	3,245	2,811
Canada	**838,544**	**930,567**	**1,195,478**

Table 369.—Production of Structural Tile in Canada, by Provinces, 1946

Province	Hollow Blocks (*)		Roofing Tile	Floor Tile (Quarries)	
	Short tons	$	$	Sq. ft.	$
Nova Scotia	18,199	182,073	.....	.....	.....
New Brunswick	4,675	41,716	.....	.....	.....
Quebec	37,862	405,814	.....	.....	.....
Ontario	39,479	476,272	97	203,750	50,649
Manitoba	.....	.....	.....	.....	.....
Saskatchewan	6,615	85,043	.....	.....	.....
Alberta	16,059	157,487	.....	.....	.....
British Columbia	6,805	105,144	.....	2,200	50
Canada	**129,694**	**1,453,549**	**97**	**205,950**	**50,699**

(*) Including fireproofing and load-bearing title.

Table 370.—Production of Structural Tile in Canada, 1937-1946

Year	Hollow Blocks (*)		Roofing Tile		Floor Tile (Quarries)	
	Short tons	$	Number	$	Sq. ft.	$
1937	64,526	533,843	60,542	3,302	73,191	12,169
1938	70,648	591,416	150,504	5,196	100,958	15,330
1939	86,120	714,291	148,291	4,964	90,812	15,233
1940	105,073	788,478	41,772	1,839	.....	13,631
1941	117,530	1,063,120	.....	750	.....	21,349
1942	109,905	1,082,573	.....	32	.....	23,705
1943	84,469	819,535	.....	827	.....	26,949
1944	87,820	811,558	.....	.....	212,805	43,817
1945	94,244	998,210	.....	.....	197,164	46,365
1946	129,694	1,453,549	.....	97	205,950	50,699

(*) Including fireproofing and load-bearing tile.

Table 371.—Production (Sales) of Bentonite and Kaolin in Canada, by Provinces 1937-1946

Year	Bentonite								Kaolin (a)	
	Manitoba		Alberta		British Columbia		Canada		Tons	$
	Tons	$	Tons	$	Tons	$	Tons	$		
1937	132	1,154	.....	.....	31	817	163	1,971	.....	.....
1938	.....	.....	1,136	3,444	43	215	1,179	3,659	.....	.....
1939	99	591	889	2,850	.....	.....	988	3,141	.....	.....
1940	710	2,023	714	2,240	45	225	1,469	4,488	.....	.....
1941	760	1,330	1,317	5,882	95	618	2,172	7,830	2	30
1942	660	38,800	956	5,404	.....	.....	1,616	44,204	408	6,130
1943	.....	110,428	.....	5,262	.....	1,357	(b)	117,047	93	1,531
1944	.....	160,268	.....	2,076	.....	1,504	(b)	163,848	424	5,758
1945	.....	169,551	.....	1,248	.....	.....	(b)	170,799	446	3,771
1946	.....	207,572	.....	4,253	.....	.....	(b)	211,825	821	5,775

(a) All from Quebec.
(b) Quantity not available for publication.

Table 372.—Fuller's Earth Used in Canada in the Manufacture of Soaps and Washing Compounds and in the Petroleum Products Industry, 1937-1946

Year	Petroleum Products Industry		Soaps and Washing Compounds	
	Pounds (*)	$	Pounds	$
1937	18,843,458	240,309	1,167,768	20,393
1938	19,687,467	281,688	1,195,208	19,575
1939	19,814,473	304,214	1,586,163	30,924
1940	23,828,660	406,185	1,651,471	40,695
1941	30,155,750	571,010	1,486,000	39,332
1942	24,162,091	528,350	1,350,000	37,831
1943	25,390,653	601,283	2,410,000	83,233
1944	27,569,500	646,708	1,181,020	35,047
1945	28,604,000	685,761	750,000	24,351
1946	25,623,347	570,819	100,500	1,647

(*) Includes all clays.

Table 373.—Producers' Sales of Products Made from Canadian Clays, by Months, 1946 and 1947

Month	Building Brick		Structural Tile (a)		Drain Tile		Sewer Pipe	Fireclay blocks and shapes	Pottery (b)	Other Clay Products (c)	Total
	M	$	Ton	$	M	$	$	$	$	$	$
1946											
January	15,421	376,268	8,428	91,857	611	23,017	93,006	19,798	111,907	50,013	765,866
February	13,079	318,875	7,117	76,761	476	19,459	85,859	14,324	111,184	44,739	671,201
March	16,980	408,222	9,387	96,961	522	20,122	97,906	15,936	99,935	42,694	781,776
April	17,829	430,449	10,250	111,298	612	22,313	115,683	13,489	97,996	47,741	838,969
May	21,347	523,303	13,968	154,911	1,187	45,089	115,063	15,723	103,676	51,651	1,009,416
June	23,341	580,208	12,470	138,725	1,503	55,988	112,984	14,741	74,867	44,003	1,021,516
July	27,356	676,868	15,000	170,567	1,586	59,971	135,528	18,011	112,459	48,337	1,221,741
August	28,171	691,093	13,161	150,931	1,664	62,600	111,141	24,209	86,541	54,387	1,180,902
September	26,131	647,186	11,351	124,767	1,595	61,383	109,935	20,065	96,480	52,321	1,112,137
October	28,579	701,468	12,156	140,042	1,929	75,085	121,284	22,117	116,263	54,876	1,231,135
November	26,447	633,869	11,788	134,543	1,274	51,401	122,626	29,189	112,587	43,185	1,127,400
December	19,040	469,544	9,079	108,366	1,240	47,369	93,109	14,023	81,176	53,914	867,501
Total	**263,721**	**6,457,353**	**134,155**	**1,499,729**	**14,199**	**543,797**	**1,314,124**	**221,625**	**1,205,071**	**587,861**	**11,829,560**
1947											
January	17,433	432,358	9,293	108,239	837	31,289	92,239	18,035	115,544	65,562	863,266
February	16,876	445,666	8,458	112,508	760	31,056	113,239	8,779	114,333	49,874	875,455
March	19,347	510,626	10,772	148,365	498	23,030	113,871	21,526	128,405	60,855	1,006,678
April	19,051	514,236	12,471	164,744	479	24,861	117,462	23,202	95,462	59,840	999,807
May	23,224	643,680	12,370	168,476	1,567	62,688	187,299	20,556	105,772	39,845	1,228,316
June	24,039	659,723	16,568	189,676	1,335	56,338	142,654	18,940	89,386	50,369	1,207,086
July	27,748	775,549	13,252	190,733	1,445	65,666	145,061	22,517	78,587	62,941	1,341,051
August	25,098	695,912	13,189	171,134	1,542	62,188	145,186	39,723	70,621	67,408	1,252,172
September	28,440	754,445	15,568	193,277	1,742	71,862	164,548	31,250	66,924	50,924	1,333,230
October	29,148	804,802	15,042	210,092	2,408	100,770	148,406	26,052	53,852	70,088	1,414,062
November	24,189	671,354	14,025	189,876	2,559	120,484	157,052	31,317	74,664	57,718	1,302,465
December	23,563	658,098	11,914	163,402	1,341	60,122	119,863	16,371	82,395	50,139	1,150,390
Total	**278,156**	**7,566,449**	**152,902**	**2,010,522**	**16,513**	**710,354**	**1,646,880**	**278,268**	**1,075,945**	**685,563**	**13,973,981**

(a) Includes floor tile.
(b) Includes flower pots, stoneware, etc.
(c) Includes firebrick, fireclay, china clay, etc.

Table 374.—China Clay (Kaolin) Used in the Manufacture of Paper in Canada, 1937-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1937	41,738	578,223	1942	28,734	578,190
1938	34,968	488,147	1943	26,374	561,285
1939	32,769	430,092	1944	47,995	987,488
1940	36,931	558,659	1945	45,571	954,659
1941	32,844	588,585	1946	36,379	788,472

Table 375.—Clays and Earths Used in Canadian Rubber Goods Industry, 1937-1946

Year	Tons	Value	Year	Tons	Value
		$			$
1937	3,614	79,300	1942	1,523	37,186
1938	2,942	81,935	1943	1,257	35,266
1939	3,438	80,745	1944	1,909	51,942
1940	3,586	90,867	1945	3,953	102,182
1941	4,059	101,441	1946	4,333	107,710

Table 376.—Firebrick, Fireclay and Cupola Blocks used in the Manufacture of Iron and Steel and their Products in Canada, 1937-1946

Year	Cost at Works	Year	Cost at Works
	$		$
1937	1,058,787	1942	3,268,181
1938	838,012	1943	3,717,826
1939	939,495	1944	3,195,751
1940	1,597,898	1945	3,088,142
1941	2,581,813	1946	2,280,172

Table 377.—Fuller's Earth and Infusorial Earth Used in Specified Canadian Industries, 1937-1946

Year	Sugar Refineries		Vegetable Oil Mills	
	Pounds (a)	$	Pounds	$
1937	4,586,786	95,532	(c) 212,997	9,349
1938	4,908,597	101,473	190,253	9,063
1939	4,819,811	105,711	(b) 207,105	10,166
1940	4,984,362	112,369	(b) 216,254	7,731
1941	5,333,131	133,129	(b) 275,290	10,604
1942	3,007,180	75,295	(b) 437,120	20,154
1943	3,451,142	89,075	(b) 484,380	20,302
1944	4,375,201	115,053	(b) 431,820	17,991
1945	3,983,325	102,961	207,950	6,794
1946	4,391,733	104,794	27,260	145

(a) Infusorial earth.

(b) Fuller's earth, in 1942, includes 97,785 pounds clarex earth valued at $4,657; in 1943 it includes 164,130 pounds valued at $7,836; in 1944 it includes 20,000 pounds valued at $1,100, and in 1945 and 1946 nil.

(c) Includes other earth.

Table 378.—Employees, Salaries and Wages in the Clay Products Industry in Canada, 1940-1946

Year	Number of Employees					Salaries	Wages	Total salaries and wages
	On Salaries		On Wages		Total employees			
	Male	Female	Male	Female				
						$	$	$
1940	261	35	2,261	.....	2,557	605,913	2,069,338	2,675,251
1941	241	41	2,599	.....	2,881	602,549	2,625,236	3,227,785
1942	227	54	2,082	160	2,523	590,545	2,482,466	3,073,011
1943	190	58	1,718	207	2,173	570,300	2,339,541	2,909,841
1944	195	58	1,786	208	2,247	594,282	2,582,522	3,176,804
1945	225	66	2,188	209	2,688	652,758	3,175,448	3,828,206
	Administration		Workmen					
1946	138	41	2,987	271	3,437	385,133	4,730,829	5,115,962

Table 379.—Workmen in the Clay Products Industry in Canada, by Months, 1945 and 1946

Month	1945				1946			
	Pit	Plant		Total	Pit	Plant		Total
	Male	Male	Female		Male	Male	Female	
January	140	1,579	185	1,904	108	2,127	251	2,486
February	138	1,570	188	1,896	113	2,194	251	2,558
March	142	1,589	204	1,935	125	2,356	241	2,722
April	187	1,720	218	2,125	152	2,604	252	3,008
May	246	1,863	205	2,314	241	2,899	278	3,418
June	271	2,030	203	2,504	263	3,037	271	3,571
July	283	2,132	205	2,620	264	3,259	305	3,828
August	288	2,236	202	2,726	270	3,180	274	3,724
September	262	2,155	193	2,610	209	3,156	268	3,693
October	259	2,218	218	2,695	226	3,042	283	3,551
November	217	2,262	209	2,688	189	2,897	282	3,368
December	188	2,175	253	2,616	140	2,601	284	3,025
Average	**225**	**1,963**	**209**	**2,397**	**207**	**2,780**	**271**	**3,258**

II. Products from Imported Clays

This industry covers the operations of Canadian plants which were occupied chiefly in making ceramic products from imported clays. Products made in these plants during 1946 included high tension insulators, vitreous china sanitary ware, china dinnerware, firebrick, sewer pipe, floor and wall tile, refractory cements, electrical porcelains, etc.

Thirty-two plants reported in this group for 1946 and their output was valued at $7,073,371 against last year's total of $5,327,282 and the 1944 figure of $4,424,565. The average number of workers was 1,913 and payments for salaries and wages totalled $2,870,543. Fuel and electricity cost $440,771 and materials for use in manufacturing processes cost $1,674,391.

Table 380.—Principal Statistics of the Imported Products Industry, 1945 and 1946

	1945	1946
Number of plants	28	32
Average number of employees	1,427	1,913
Salaries and wages $	2,064,645	2,870,543
Cost of fuel and electricity $	345,127	440,771
Cost of materials at works $	1,167,283	1,674,391
Gross selling value of products at works $	5,327,282	7,073,371

NOTE.—Profits or losses cannot be calculated from above figures as data are not available for general expense items, such as interest, rent, depreciation, taxes, insurance, advertising, etc.

Table 381.—Imports into Canada and Exports of Clay and Clay Products, 1945 and 1946

—		1945		1946	
		Quantity	$	Quantity	$
Imports					
Building brick	ton	3,815	51,814	3,112	57,448
Building blocks and fireproofing tile		.....	55,728	.....	94,175
Clays—China	cwt.	1,273,203	712,546	1,223,234	750,089
Fire	cwt.	1,457,888	286,916	1,375,781	289,803
Pipe	cwt.	144,928	18,528	170,180	23,554
Other clays, n.o.p.		.....	165,387	.....	222,890
Activated clay to refine oil		.....	347,823	.....	267,519
Zirconium silicate		.....	19,467	.....	26,299
Zirconium oxide		.....	41,120	.....	54,455
Drain tile, unglazed		.....	1,513	.....	1,148
Drain, sewer pipe and earthenware fittings therefor, chimney linings or vents, chimney tops or inverted blocks, glazed or unglazed, n.o.p.		.....	42,139	.....	101,761
Tiles or blocks of earthenware or stone prepared for mosaic flooring		.....	63,006	.....	110,140
Tiles, earthenware, for roofing purposes		.....	1,209	.....	9,806
Tiles, earthenware, n.o.p.		.....	248,176	.....	340,858
Insulators, electric, porcelain		.....	281,611	.....	397,225
Pottery, chinaware and earthenware, n.o.p.		.....	5,629,055	.....	7,978,548
Brick, fire, other, valued at not less than $100 per M, rectangular shaped, the dimensions of each not to exceed 125 cubic inches for use exclusively in the construction or repair of a furnace, kiln, etc.		.....	12,627	.....	26,947
Brick, fire, n.o.p., for use exclusively in the construction or repair of a furnace, kiln or other equipment of a manufacturing establishment (not made in Canada)		.....	1,573,134	.....	1,708,588
Firebrick, n.o.p.		.....	1,230,274	.....	1,680,976
Firebrick, chrome		.....	448,440	.....	470,288
Magnesite brick (fire)		.....	305,141	.....	433,327
Silica brick (containing not less than 90 per cent silica)		.....	741,394	.....	579,075
Paving brick	ton	2,617	25,686	3,998	36,832
Artificial teeth, not mounted		.....	818,235	.....	1,038,793
Baths, bathubs, basins, laundry tubs, etc., of earthenware, cement or clay, n.o.p.		.....	254,050	.....	741,070
Saggars		.....	26,143	.....	48,733
Crucibles, clay or sand		.....	41,766	.....	46,199
Other manufactures of clay, n.o.p.		.....	189,885	.....	216,074
Grog for refractory materials	ton	4,439	47,766	.....	72,663
Total		.....	**13,680,579**	.....	**17,825,283**
Exports					
Building brick	M	3,708	75,963	6,114	150,110
Bricks, fire		.....	165,940	.....	308,075
Clay, manufactures of		.....	25,292	.....	42,823
Clays, unmanufactured	cwt.	23,434	6,260	.....	15,528
Earthenware		.....	67,860	.....	91,957
Porcelain insulators		.....	285,933	.....	443,097
Total		.....	**627,248**	.....	**1,051,590**

Table 382.—Materials Used in the Imported Clay Products Industry, 1945 and 1946

Material	1945		1946	
	Short tons	Total cost at works	Short tons	Total cost at works
		$		$
Imported clays—				
Ball clay	3,209	58,835	4,825	100,154
China clay	3,183	73,750	4,641	99,502
Fireclay	27,892	227,826	29,833	239,088
Sagger clay	648	11,157	769	15,856
Other imported clays	1,090	23,258	1,327	26,852
Canadian clays—				
China clay	12	540	16	660
Fireclay	35	735	43	1,312
Other Canadian clays	10	165	232	2,445
Firebrick, ground or broken (grog), including scrap brick	6,237	91,504	.....	98,095
Feldspar	2,747	58,135	3,806	87,439
Silica sand and ground quartz	3,659	52,946	4,554	53,215
Sodium silicate	177	5,320	427	12,325
Talc	713	12,392	1,107	19,542
Other glazing materials	.....	21,811	.....	36,085
Insulator hardware	.....	215,620	.....	461,850
Shipping containers and packing materials	.....	165,470	.....	245,164
All other materials and process supplies	.....	147,819	.....	174,807
Total	.....	**1,167,283**	.....	**1,671,391**

Table 383.—Products Made in the Imported Clay Products Industry, 1945 and 1946

Product	1945 Gross selling value at works	1946 Gross selling value at works
	$	$
Firebrick and stove linings—Rigid	452,110	488,562
Plastic	277,019	381,455
High temperature cements	125,425	126,306
Electrical porcelains (high tension insulators and other electrical porcelains)	1,474,245	2,504,503
Pottery—Artware	2,219,929	475,700
Pottery, other (sanitary ware, tableware, etc.)		2,071,349
All other products (*)	778,554	1,025,496
Total	**5,327,282**	**7,073,371**

(*) Includes sewer pipe, floor tile, wall tile, flue lining, etc.

Table 384.—Total Production in Canada of Refractory Shapes, 1937-1946

Year	From Domestic Clays			Silica Brick		Other (*)	Total
	Fireclay blocks and shapes	Firebrick				Rigid firebrick and stove linings	
		M	$	M	$		
	$					$	$
1937	75,431	2,950	142,827	3,744	181,126	441,341	**840,725**
1938	73,512	2,213	113,581	1,788	100,403	448,494	**735,990**
1939	95,256	2,331	119,346	2,493	124,807	640,376	**979,785**
1940	85,127	3,167	165,525	3,438	182,786	892,072	**1,325,510**
1941	190,497	3,643	183,897	4,111	238,433	1,198,096	**1,810,923**
1942	210,246	3,816	197,830	4,273	263,006	1,302,444	**1,981,615**
1943	262,154	3,644	192,618	4,165	295,505	1,461,484	**2,211,761**
1944	221,251	3,180	164,837	3,764	296,292	1,706,706	**2,389,086**
1945	225,275	3,466	186,651	4,208	317,263	1,484,301	**2,213,490**
1946	222,430	3,367	205,849	2,902	197,804	1,603,185	**2,229,268**

(*) Includes shapes made from imported clays, from magnesite, etc., amounting to 54,800 tons in 1942, to 31,341 tons in 1943, to 29,400 tons in 1944, to 26,532 tons in 1945 and to 28,534 tons in 1946.

THE LIME INDUSTRY

Production of lime in Canada amounted to 840,799 tons valued at $7,074,940 in 1946 compared with 832,253 tons worth $6,525,038 in 1945, an increase of only 1 per cent in tonnage but 8·4 per cent in value. This year's output, which was the first annual production to exceed 7 million dollars in valuation, included 684,674 tons of quicklime and 156,125 tons of hydrated lime valued respectively at $5,778,243 and $1,296,697. About 92 per cent of the quicklime and 49 per cent of the hydrated lime were used by chemical and other industrial plants and 8 per cent and 51 per cent respectively, were used by the building trade and for agriculture.

Stone used in the production of lime in Canada includes calcium, high calcium and dolomitic varieties of limestone. It is estimated that 1,487,000 tons of limestone were consumed in the production of lime in 1946. In addition, a considerable tonnage of lime was recovered as a by-product from chemical and allied plants.

In 1946 there were 41 active plants in this industry and the average number of employees for the year was 918. Expenditures by the operators included $1,616,839 for salaries and wages, $1,955,428 for fuel and electricity, and $456,613 for containers and process supplies.

The imports of lime during 1946 totalled 7,618 tons valued at $50,093 and the exports amounted to 24,673 tons worth $279,620.

Table 385.—Principal Statistics for the Lime Industry in Canada, 1936-1946

Year	Establishments	Employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies and containers	Gross value of products sold during year, including containers (f.o.b. works)
	No.	No.	$	$	$	$
1936	57	799	640,322	743,663	96,316	3,335,970
1937	57	872	781,274	871,131	167,827	3,824,917
1938	53	867	795,068	826,230	113,759	3,542,652
1939	59	937	849,468	944,502	107,510	4,003,514
1940	55	962	1,003,671	1,424,047	260,321	(*) 5,277,377
1941	50	1,105	1,321,571	2,008,142	188,387	6,357,941
1942	48	1,022	1,312,320	2,421,292	177,268	6,530,839
1943	45	898	1,408,393	1,747,012	177,470	6,832,992
1944	42	815	1,414,426	1,752,723	293,827	(*) 7,051,785
1945	44	856	1,473,829	1,644,077	424,412	(*) 6,732,348
1946	41	918	1,616,839	1,955,428	456,613	(*) 7,322,168

(*) 1940, 1944, 1945 and 1946 are the only years in which the value of containers is available.

Table 386.—Production of Lime in Canada, 1931-1946

Year	Sold or Used (*)		Year	Sold	Used by producer	Total Value
	Short tons	Value		Short tons	Short tons	
		$				$
1931	344,785	2,764,415	1939	288,252	263,957	4,003,514
1932	320,650	2,394,537	1940	359,180	357,550	5,194,555
1933	323,540	2,432,306	1941	451,361	409,524	6,357,941
1934	368,113	2,745,797	1942	470,882	413,948	6,530,839
1935	405,419	2,925,791	1943	484,177	423,591	6,832,992
1936	468,401	3,335,970	1944	470,035	415,107	6,926,844
1937	549,353	3,824,917	1945	416,030	416,223	6,525,038
1938	486,922	3,542,652	1946	477,565	363,234	7,074,940

(*) Separate data for Sold and Used not available until 1939.

Table 387.—Production of Lime in Canada, by Provinces, Showing Purposes for which Used(*) or Sold, 1946

—	Nova Scotia and New Brunswick	Quebec	Ontario	Manitoba and Alberta	British Columbia	Total Canada
	(1 ton=2,000 pounds)					
QUICKLIME						
BUILDING TRADES—						
Finishing lime ... ton	...	...	7,413	7,918	...	15,331
$	...	...	65,533	74,170	...	139,703
Masons' lime ... ton	1,139	17,283	9,028	1,619	2,470	31,539
$	16,764	229,667	99,454	21,751	28,145	395,781
AGRICULTURE ... ton	...	...	70	...	459	529
$	...	...	755	...	4,678	5,433
INDUSTRIAL—						
Non-ferrous smelters ... ton	...	2,172	1,016	2,138	...	5,326
$	...	17,376	7,115	17,104	...	41,595
Iron and steel furnaces† ... ton	1,102	3,278	23,493	1,335	3,147	32,355
$	16,220	27,960	170,896	12,146	35,888	263,110
Cyanide and flotation mills ... ton	...	546	6,631	6,024	510	13,711
$	...	4,444	51,224	56,456	6,402	118,526
Pulp and paper mills ... ton	14,357	104,931	18,696	14,815	32,146	184,945
$	175,354	854,921	130,699	118,673	375,119	1,654,766
Glass works ... ton	...	...	7,448	...	...	7,448
$	...	...	63,135	...	...	63,135
Sugar refineries ... ton	171	125	6,054	11,033	...	17,383
$	2,516	1,322	55,291	91,475	...	150,604
Tanneries ... ton	7	1,383	2,827	...	...	4,217
$	101	12,805	18,208	...	...	31,114
Sand-lime brick ... ton	...	2,490	4,508	1,183	...	8,181
$	...	17,206	32,483	11,827	...	61,516
Insecticide plants ... ton	...	...	1,002	...	...	1,002
$	...	...	7,015	...	...	7,015
Other industrial works ... ton	27	77,365	274,052	3,000	745	355,189
$	394	708,550	2,003,509	25,000	9,351	2,746,804
OTHER CONSUMERS ... ton	1,766	...	660	75	5,017	7,518
$	31,594	...	6,833	600	60,114	99,141
Total Quicklime ... ton	**18,569**	**209,573**	**362,898**	**49,140**	**44,494**	**684,674**
$	**242,943**	**1,874,251**	**2,712,150**	**429,202**	**519,697**	**5,778,243**
HYDRATED LIME						
BUILDING TRADES—						
Finishing lime ... ton	...	1,392	30,411	8,024	...	39,827
$	...	13,659	405,882	137,550	...	557,091
Masons' lime ... ton	1,009	22,973	8,121	...	...	32,103
$	13,105	157,380	85,528	...	...	256,013
AGRICULTURE ... ton	...	324	933	...	2,508	3,765
$	...	3,425	10,128	...	26,729	40,282
INDUSTRIAL—						
Non-ferrous smelters ... ton	...	49,452	495	50	...	49,997
$	...	149,210	5,197	500	...	154,907
Iron and steel furnaces ... ton	...	8	133	...	...	141
$	...	112	1,401	...	...	1,513
Cyanide and flotation mills ... ton	...	1,375	249	105	50	1,779
$	...	10,858	2,513	1,050	1,035	15,456
Pulp and paper mills ... ton	1,725	6,958	1,655	...	50	10,388
$	22,407	65,791	17,197	...	1,035	106,430
Glass works ... ton	...	...	150	...	...	150
$	...	...	1,575	...	...	1,575
Sugar refineries ... ton	31	...	...	3,598	...	3,629
$	402	...	...	25,901	...	26,303
Tanneries ... ton	...	275	1,820	...	...	2,095
$	...	2,543	19,093	...	...	21,636
Sand-lime brick ... ton	...	...	240	...	...	240
$	...	...	2,520	...	...	2,520
Insecticide plants ... ton	352	...	26	...	...	378
$	4,571	...	246	...	...	4,817
Other industrial works ... ton	229	4,031	3,415	228	198	8,101
$	2,973	26,802	36,498	3,027	2,178	71,478
OTHER CONSUMERS ... ton	...	132	1,625	...	1,775	3,532
$	...	795	16,303	...	19,578	36,676
Total Hydrated Lime ... ton	**3,346**	**86,920**	**49,273**	**12,005**	**4,581**	**156,125**
$	**43,458**	**430,575**	**604,081**	**168,028**	**50,555**	**1,296,697**
Grand Total ... ton	**21,915**	**296,493**	**412,171**	**61,145**	**49,075**	**840,799**
$	**286,401**	**2,304,826**	**3,316,231**	**597,230**	**570,252**	**7,074,940**

(†) Includes calcined dolomite used as a refractory material.
(*) Not necessarily consumed in provinces where produced; includes by-product lime.

NOTE.—Of the total quantity of 840,799 tons of lime produced, 363,234 tons were consumed by the producers themselves.

Table 388.—Lime Sold or Used for Chemical and Other Purposes in Canada, 1931-1946

Year	Lime sold or used for chemical and industrial purposes				Lime sold or used for building or other non-industrial purposes			
	Quicklime		Hydrated Lime		Quicklime		Hydrated Lime	
	Short tons	$	Short tons	$	Short tons	$	Short tons	$
1931	213,782	1,469,434	18,055	167,885	65,726	595,550	47,222	531,546
1932	234,342	1,627,720	21,130	131,178	33,926	287,795	31,252	347,844
1933	207,403	1,496,271	28,347	168,675	60,464	459,451	27,266	307,909
1934	201,609	1,440,221	28,297	158,685	106,513	798,035	31,694	348,856
1935	229,597	1,596,518	31,288	179,139	112,450	828,904	32,084	321,230
1936	349,940	2,499,074	39,384	171,192	41,559	290,898	37,518	374,806
1937	421,867	2,922,482	44,929	189,665	44,671	329,901	37,886	382,869
1938	373,278	2,587,329	30,547	159,598	42,483	365,762	40,614	429,963
1939	424,287	2,887,244	30,861	172,062	50,466	439,403	46,595	504,805
1940	568,479	3,944,748	44,421	256,570	55,324	477,010	48,506	516,227
1941	665,319	4,797,078	86,202	496,531	58,545	490,633	50,819	573,699
1942	712,307	5,314,653	89,252	386,809	36,975	331,396	46,296	497,981
1943	730,499	5,642,420	94,224	381,250	35,648	347,668	47,397	461,654
1944	700,708	5,545,695	89,576	413,573	37,494	402,384	57,364	565,192
1945	671,341	5,159,761	60,926	323,484	36,832	420,107	63,154	621,686
1946	629,757	5,138,185	76,898	406,635	54,917	640,058	79,227	890,062

Table 389.—Imports into Canada and Exports of Lime, 1945 and 1946

—	1945		1946	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
IMPORTS				
Lime—United States	6,354	35,766	7,618	50,093
Total	**6,354**	**35,766**	**7,618**	**50,093**
EXPORTS				
Building Lime—Greenland	3	69	.....	.....
Newfoundland	21	338	114	2,588
United States	135	1,687	132	2,107
Total	**159**	**2,094**	**246**	**4,695**
Lime N.O.P.—British Guiana	.....	.....	1	27
Jamaica	10	220	5	125
Newfoundland	106	1,580	356	4,933
Greenland	3	45	.....	.....
St. Pierre	1	40	6	203
Nicaragua	.....	.....	60	750
United States	20,722	233,477	24,245	273,582
Total	**20,842**	**235,362**	**24,673**	**279,620**

Table 390.—Employees and Earnings in the Lime Industry in Canada, 1940-1946

Year	Number of Employees					Salaries	Wages	Total salaries and wages
	On Salaries		On Wages		Total employees			
	Male	Female	Male	Female				
						$	$	$
1940	67	10	885	.....	**962**	127,943	875,728	**1,003,671**
1941	76	16	1,013	.....	**1,105**	150,695	1,170,876	**1,321,571**
1942	80	18	924	.....	**1,022**	161,777	1,150,543	**1,312,320**
1943	78	21	797	2	**898**	158,629	1,249,764	**1,408,393**
1944	80	22	713	.....	**815**	178,802	1,235,624	**1,414,426**
1945	81	19	748	8	**856**	194,191	1,279,638	**1,473,829**
	Administration		Workmen			Administration earnings	Workmen's earnings	
1946	49	11	850	8	**918**	132,431	1,484,408	**1,616,839**

NOTE.—Administration employees include executives, managers, superintendents, other working officials, and professional and clerical employees.

Table 391.—Workmen in the Lime Industry in Canada, by Months, 1945 and 1946

Month	1945					1946				
	Quarry		Kiln		Total	Quarry		Kiln		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
January	213	1	484	9	707	229	.....	544	7	780
February	217	1	508	8	734	236	.....	551	8	795
March	225	1	528	9	763	243	.....	572	8	823
April	220	1	521	8	750	245	.....	593	8	846
May	211	1	519	7	738	255	.....	620	7	882
June	206	1	499	7	713	246	.....	614	8	868
July	212	1	513	7	733	256	.....	606	8	870
August	224	1	499	5	729	256	.....	603	8	867
September	220	1	514	7	742	256	.....	599	8	863
October	232	1	590	7	830	264	.....	651	8	923
November	264	1	584	8	857	255	.....	642	8	905
December	230	1	537	5	773	250	.....	625	8	883
Average	222	1	526	7	756	248	.....	602	8	858

THE SAND-LIME BRICK INDUSTRY

Five plants in Canada were engaged chiefly in making sand-lime building brick during 1946. Three of these were located in Ontario, 1 in Quebec and 1 in Manitoba. Production, including some building blocks and insulating brick, was valued at $651,781 compared with the 1945 total of $308,652.

An average of 134 people were employed in these works in 1946, and they were paid $236,566 in salaries and wages. Expenditures for fuel and electricity amounted to $47,651 and for processing materials to $211,920.

Production of sand-lime brick amounted to 39,096 M valued at $572,008, a gain in both quantity and value from the output of 15,514 M brick at $260,136 in the previous year. Production of sand-lime building blocks increased to 353 M at $58,333 from 280 M at $44,514 in 1945.

Table 392.—Materials Used in Manufacturing, 1945 and 1946

Materials	Unit of measure	1945		1946	
		Quantity	Cost at works	Quantity	Cost at works
			$		$
Portland cement	bbl.	.....	.....	1,173	2,604
Quicklime	ton	3,870	38,375	8,609	87,060
Sand and gravel	cu. yd.	28,292	44,578	83,802	113,088
Other materials	.....	.....	1,686	.....	9,168
Total	.....	.....	**84,639**	.....	**211,920**

Table 393.—Products Made, 1945 and 1946

Product	1945		1946	
	Quantity	Selling value at works	Quantity	Selling value at works
	M	$	M	$
Sand-lime brick	15,514	260,136	39,096	572,008
Sand-lime building blocks	280	44,514	353	58,333
Other products (*)	.....	4,002	.....	21,440
Total	.....	**308,652**	.....	**651,781**

(*) Includes cement blocks, cinder blocks and insulating brick.

THE SAND AND GRAVEL INDUSTRY

During 1946 the commercial production of sand and gravel in Canada totalled 39,949,994 tons valued at $15,529,700, compared with the previous year's production of 29,750,703 tons valued at $10,568,363. There was an increase of 34·3 per cent in tonnage, and 46·9 per cent in value. The totals included sand and gravel used by railroads as ballast, gravel used by mines as backfill and recoveries of sand by dredges as well as similar materials from other sources.

The leading producers among the provinces continued to be Ontario and Quebec, the former with a tonnage of 14,881,918 and the latter with 12,374,125 tons. Canadian sand and gravel plants washed or screened 6,152,580 tons in 1946 compared with 4,584,018 tons in 1945, and the quantity of bank or pit-run grades amounted to 33,797,414 tons compared with 25,166,685 tons of the preceding year.

Of the total sand and gravel (mixed) output in 1946, there were 26,640,116 tons used for concrete, roads, etc., and 3,421,830 straight-run sand for building, concrete, etc; 32,375 tons for moulding; 2,357 tons as core sand, and 59,444 tons for other purposes. The quantity of crushed gravel produced during the year under review was 3,096,611 tons. Other sand used as mine backfill in 1946 totalled 2,023,129 tons.

Imports of sand and gravel amounted to 70,664 tons valued at $71,101 in 1946 and exports totalled 352,819 tons worth $234,182.

The following extract with regard to sand and gravel in Canada has been taken from the annual review by the Bureau of Mines, Ottawa:

"Deposits of gravel and sand are numerous throughout Eastern Canada; with the exception of Prince Edward Island, where gravels are scarce. Owing to the widespread occurrence of gravels and sands and to their bulk in relation to value, local needs for these materials are usually supplied from the nearest deposits as their cost to the consumer is governed largely by the length of haul; hence the large number of small pits and the small number of large plants. Some grades of sand particularly suitable for certain industries command a much higher price than does ordinary sand.

"By far the greater part of the output of gravel and sand is used in road improvement, concrete works, and railway ballast. Gravel in particular has proved a good material in the building of all weather roads at low cost and its use has steadily increased with the growth of motor traffic. A considerable tonnage of sand and gravel is used in the mines for refilling underground workings. Some mines use several thousand tons a day.

"Most of the gravel used for road work comes from pits worked for that purpose. Usually a portable or semi-portable plant is used to extract enough gravel to supply the immediate need, and then, a sufficient reserve is built up, in the form of stockpiles, for two years' requirements. Gravel in road pits may remain unused for two years or more, and the amount of gravel produced from year to year thus fluctuates, depending upon the program of road construction and improvement. Gravel in railway pits may remain unused for several years. Part of the gravel used is crushed, screened, and in some cases even washed, and the proportion thus processed is increasing steadily. Some provincial highway departments have used crushed instead of pit-run gravel on their main highways for a number of years. Most of the large commercial plants are equipped for producing crushed gravel, a product that can compete with crushed stone.

"Most of the sand is used in the building industry for concrete work, cement and lime mortar, or wall plaster. It must be free from dust, loam, organic matter, or clay, and contain little silt, and is usually obtainable from local deposits. Other important uses of sand are moulding in foundries, filtering of water supply, and glass making, all of which require special grades of sand.

Table 394.—Principal Statistics(*) for the Sand and Gravel Industry in Canada, 1945 and 1946

Province	Establishments	Employees	Salaries and wages	Cost of fuel and electricity	Cost of process supplies and containers	Gross value of products sold during year (f.o.b. works)
	Number	Number	$	$	$	$
1945						
Nova Scotia	4	296	304,914	14,322	5,954	399,771
New Brunswick	4	242	208,575	2,033	2,113	425,926
Quebec	851	836	794,773	40,597	8,730	2,061,657
Ontario	604	328	492,733	216,127	17,657	4,111,329
Manitoba	9	115	263,230	8,253	28,565	470,091
Saskatchewan	6	53	61,705	428	3,921	501,193
Alberta	4	30	67,585	11,208	5,220	379,244
British Columbia	21	174	256,442	47,124	4,138	996,328
Total	**1,503**	**2,074**	**2,449,957**	**310,092**	**76,298**	**9,345,539**
1946						
Nova Scotia	4	291	248,549	1,950	168	450,293
New Brunswick	5	255	256,924	983	420	680,380
Quebec	893	1,102	1,118,710	92,989	11,169	3,189,541
Ontario	620	539	871,116	295,218	23,289	6,342,488
Manitoba	11	230	441,663	19,599	22,008	375,489
Saskatchewan	7	135	80,904	501	11,212	865,249
Alberta	6	36	52,717	20,723	3,595	1,006,354
British Columbia	22	205	343,293	69,504	6,161	1,742,139
Total	**1,568**	**2,793**	**3,413,876**	**501,467**	**78,022**	**14,651,933**

(*) Does not include data on sand and gravel produced by railroads. In 1945, railroad production by 21 operators was 5,177,342 tons valued at $1,222,824. Salaries and wages paid to workers at these pits was $309,249 for the year. In 1946, railroad production by 21 operators was 4,255,306 tons valued at $877,767 and salaries and wages totalled $186,921.

Table 395.—Production(*) of Sand and Gravel in Canada, 1935-1946

Year	Tons	$	Year	Tons	$
1935	21,213,489	6,389,440	1941	31,604,806	10,375,723
1936	22,124,160	6,921,399	1942	26,349,907	9,005,414
1937	27,001,301	10,492,696	1943	25,744,469	9,005,857
1938	32,223,882	12,002,554	1944	28,399,986	10,280,119
1939	31,294,341	11,241,102	1945	29,750,703	10,568,363
1940	31,375,415	11,759,245	1946	39,949,994	15,529,700

(*) Does not include production of natural silica sand or of silica sand manufactured from quartz or silica rock; production of these are recorded under quartz. Also, does not include sand used for back filling at mines prior to 1936.

Table 396.—Production in Canada of Sand and Gravel, 1945 and 1946

—	Washed or screened	Bank or pit run	Total Value
	Tons	Tons	$
1945			
PRODUCTION (*)—			
Sand—			
Moulding sand	20,501	11,110	57,842
Building sand and sand for concrete, roadwork, etc.	1,722,803	525,084	918,739
Core sand	1,374	.....	2,121
Mine filling	5,530	1,969,355	376,935
Other sand (including blast sands, engine sands, etc.)	145,446	44,690	66,347
Sand and Gravel—			
Sand and gravel for railway ballast	689,297	3,936,216	1,116,787
Sand and gravel for concrete, road-building, etc.	1,643,085	15,939,601	6,573,527
Crushed gravel	355,982	2,740,629	1,456,555
Total	**4,584,018**	**25,166,685**	**10,568,363**
1946			
PRODUCTION (*)—			
Sand—			
Moulding sand	24,411	7,964	61,419
Building sand and sand for concrete, roadwork, etc.	2,558,531	863,299	1,681,572
Core sand	918	1,439	4,091
Mine filling	52,956	1,971,073	426,063
Other sand (including blast sands, engine sands, etc.)	8,807	50,637	15,026
Sand and Gravel—			
Sand and gravel for railway ballast	207,229	3,760,894	867,616
Sand and gravel for concrete, road-building, etc.	2,383,513	24,256,603	10,530,718
Crushed gravel	916,215	2,885,505	1,943,195
Total	**6,152,580**	**33,797,414**	**15,529,700**

(*) Does not include production of natural silica sand or of silica sand manufactured from quartz or silica rock; production of these are recorded under quartz in the bulletin "The Feldspar and Quartz Mining Industry".

Table 397.—Production of Sand and Gravel, by Provinces, 1942-1946

Province		1942	1943	1944	1945	1946
Prince Edward Island		(*)	(*)	(*)	(*)	(*)
		(*)	(*)	(*)	(*)	(*)
Nova Scotia	Tons	775,795	917,376	911,970	1,308,848	1,105,980
	$	371,970	585,007	411,041	555,809	484,585
New Brunswick	Tons	923,020	719,531	1,960,382	1,627,371	2,203,646
	$	540,541	372,936	958,524	886,267	807,045
Quebec	Tons	11,026,249	10,601,376	8,541,400	8,971,960	12,374,125
	$	2,485,853	2,362,635	2,140,856	2,279,537	3,313,103
Ontario	Tons	8,420,358	8,285,309	9,529,803	10,466,891	14,881,918
	$	3,433,986	3,620,852	4,417,427	4,466,862	6,738,595
Manitoba	Tons	1,443,001	1,048,673	1,102,448	1,497,062	1,333,890
	$	427,150	293,938	296,086	516,380	416,431
Saskatchewan	Tons	679,979	1,288,263	1,163,097	1,237,595	1,732,731
	$	435,798	583,687	533,175	563,276	910,661
Alberta	Tons	481,644	626,157	833,524	919,736	1,812,468
	$	218,914	309,389	328,151	433,436	1,060,703
British Columbia	Tons	2,599,861	2,257,784	4,357,362	3,721,240	4,505,236
	$	1,091,202	877,413	1,194,859	1,066,796	1,798,577

(*) No commercial production reported.

Table 398.—Production of Washed and Screened and Pit Run Grades, by Provinces, 1946

Province	Washed or screened	Bank or pit run	Total Value
	Tons	Tons	$
Nova Scotia	13,500	1,092,480	484,585
New Brunswick	21,984	2,181,662	807,045
Quebec	968,320	11,405,805	3,313,103
Ontario	3,247,047	11,634,871	6,738,595
Manitoba	249,488	1,084,402	416,431
Saskatchewan	.....	1,732,731	910,661
Alberta	243,204	1,569,264	1,060,703
British Columbia	1,409,037	3,096,199	1,798,577
Total	**6,152,580**	**33,797,414**	**15,529,700**

Table 399.—Production of Sand for Building and for Concrete, Roads, Etc., and Sand and Gravel for Railway Ballast and for Concrete, Roads, Etc., 1937-1946

Year	Sand		Sand and Gravel			
	For building, concrete, roads, etc. (*)		For railway ballast		For concrete, roads, etc.	
	Tons	$	Tons	$	Tons	$
1937	1,356,269	476,824	2,764,639	533,876	19,453,188	8,340,764
1938	1,750,187	685,976	2,359,703	443,936	22,513,256	9,101,882
1939	1,169,899	364,829	3,223,718	603,288	22,899,751	8,988,114
1940	1,961,604	537,937	3,834,904	699,518	21,465,961	9,100,612
1941	2,192,405	729,901	4,836,908	916,979	19,769,798	7,135,258
1942	2,535,366	934,777	4,610,323	957,781	16,139,859	6,010,412
1943	1,970,316	775,392	3,837,113	712,140	16,060,686	6,155,625
1944	1,605,514	743,191	4,428,721	900,610	16,648,511	6,898,582
1945	2,247,887	918,739	4,625,513	1,116,297	17,582,686	6,573,527
1946—						
Nova Scotia	.....	.....	144,260	21,372	878,486	439,243
New Brunswick	188,278	30,514	108,545	21,352	1,714,906	638,206
Quebec	1,341,025	607,294	421,814	88,509	8,294,378	1,686,382
Ontario	1,649,580	924,734	2,217,948	531,038	9,399,512	4,443,831
Manitoba	42,632	18,947	274,485	53,476	939,435	299,176
Saskatchewan	765	158	273,004	46,831	1,458,607	863,578
Alberta	46,954	36,298	288,575	52,170	1,335,601	875,083
British Columbia	152,590	63,627	239,492	52,868	2,019,191	1,285,219
Canada, 1946	**3,421,830**	**1,681,572**	**3,968,123**	**867,616**	**26,640,116**	**10,530,718**

(*) Exclusive of engine and other sands and mine fill.

Table 400.—Production of Moulding and Core Sand and Crushed Gravel, by Provinces, 1946

Province	Moulding Sand		Core Sand		Crushed Gravel	
	Tons	$	Tons	$	Tons	$
Nova Scotia	893	3,550	.....	.....	82,341	20,420
New Brunswick	.....	.....	.....	.....	191,917	116,973
Quebec	.....	.....	.....	.....	2,289,285	923,173
Ontario	31,114	57,476	2,357	4,091	782,682	588,090
Manitoba	348	348	.....	.....	73,757	42,927
Saskatchewan	20	45	.....	.....	.....	.....
Alberta	.....	.....	.....	.....	135,114	95,143
British Columbia	.....	.....	.....	.....	246,624	156,469
Canada, 1946	**32,375**	**61,419**	**2,357**	**4,091**	**3,801,720**	**1,943,195**
Canada, 1945	**31,611**	**57,842**	**1,374**	**2,121**	**3,096,611**	**1,456,555**

Table 401.—Workmen(*) in the Sand and Gravel Industry in Canada, by Months, 1945 and 1946

Month	1945			1946		
	Male	Female	**Total**	Male	Female	**Total**
January	440	.....	**440**	648	4	**652**
February	422	.....	**422**	660	4	**664**
March	466	.....	**466**	771	4	**775**
April	606	1	**607**	871	8	**879**
May	2,432	1	**2,433**	3,226	10	**3,236**
June	5,799	1	**5,800**	7,520	13	**7,533**
July	5,826	1	**5,827**	7,698	14	**7,712**
August	2,552	1	**2,553**	3,814	14	**3,828**
September	2,524	2	**2,526**	3,419	14	**3,433**
October	851	2	**853**	1,286	14	**1,300**
November	791	2	**793**	1,093	11	**1,104**
December	617	1	**618**	830	6	**836**
Average	**1,976**	**2**	**1,978**	**2,658**	**12**	**2,670**

(*) This report does not include employment data relating to the production of sand and gravel by railroads owing to the difficulty of separating statistics pertaining to part-time work conducted by railroad maintenance employees and work done by contractors. In 1946 the combined amount paid by railroads to contractors and wages paid railroad employees for the production of sand and gravel totalled $186,921.

Table 402.—Sand, Gravel, and Crushed Stone Prices, 1945 and 1946

—	Montreal		Toronto		Winnipeg		Vancouver	
	per ton		per ton		per cu. yd.		per cu. yd.	
	1945	1946	1945	1946	1945	1946	1945	1946
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Sand	1 20	1 28	1 00	1 02	1 00	1 00	1 00	1 01
Gravel	1 10	1 10	1 58	1 55	1 00	1 00	1 00	1 01
Crushed stone	0 97	0 97	1 70	1 67	.....	.....	1 10	1 13

THE STONE INDUSTRY IN CANADA

The Stone Industry in Canada comprises two main divisions: (1) THE STONE QUARRYING INDUSTRY, including quarries and dressing works operated in conjunction with quarries; (2) THE STONE PRODUCTS INDUSTRY, comprising the operations of firms having no quarries but who operate dressing works where stone for building and monumental purposes is cut, polished or otherwise finished. In the Census of Industry, statistics on the stone quarrying industry are included under Mining, while statistics of the stone products industry are included under Manufactures. For convenience, this chapter carries data for both of these industries.

Production by these industries during the year totalled $20,849,606, which figure includes the value of the quarry output and the value added by manufacturing in the secondary stone industry. Salaried employees and wage-earners employed in 1946 numbered 4,261, and their combined earnings amounted to $6,613,702.

The two industries are treated separately in the following review.

I. Primary Production—The Stone Quarrying Industry

The kinds of stone quarried in Canada include granite (trap rock, syenite and other igneous rock), limestone, marble, sandstone, and slate. Rocks of the igneous areas of British Columbia, Manitoba, Ontario, Quebec and the Maritime Provinces exhibit a wide range of physical characteristics, some varieties being especially noted for their richness of colour and beauty of crystallization. Sedimentary rocks, including limestones, sandstones and marbles are worked at various locations and the quarries operating in these different formations not only yield high class structural and decorative products but also provide materials for the chemical and allied industries.

The gross value of all varieties of new stone produced in Canada during 1946 amounted to $11,185,711 compared with $8,166,700 in 1945. The tonnage shipped in 1946 included 319,354 tons of granite (igneous rock) valued at $2,006,297; 7,217,600 tons of limestone worth $8,178,513; 21,796 tons of marble valued at $201,817; 495,777 tons of sandstone valued at $778,213; and 1,733 tons of slate valued at $20,871. Of the total value of production, the quarries of Quebec contributed 50·3 per cent; Ontario accounted for 35·1 per cent; Nova Scotia for 4·6 per cent; British Columbia for 3·9 per cent; New Brunswick for 3·5 per cent; Manitoba for 2·1 per cent and Alberta for 0·5 per cent.

Table 403.—Principal Statistics of the Stone Quarrying Industry in Canada, 1944-1946

—		1944	1945	1946
Number of firms		405	361	411
Number of employees—On salary		255	242	179
On wages		1,909	1,912	2,541
Total		**2,164**	**2,154**	**2,720**
Salaries and wages—Salaries	$	441,257	412,711	316,722
Wages	$	2,713,432	2,701,936	3,653,682
Total	$	**3,154,689**	**3,114,647**	**3,970,404**
Selling value of products (Gross)	$	7,159,177	8,166,700	11,185,711
Cost of fuel and electricity	$	671,056	711,111	834,824
Process supplies used	$	826,824	740,604	856,774
Selling value of products (Net)	$	5,661,297	6,714,985	9,494,113

Table 404.—Principal Statistics of the Stone Quarrying Industry, by Provinces, 1945 and 1946

Province	Number of quarries	Average number of employees	Salaries and wages	Cost of fuel and electricity	Process supplies	Gross value of production
			$	$	$	$
1945						
Nova Scotia	36	100	77,076	12,450	9,229	315,170
New Brunswick	9	68	75,003	7,106	1,926	328,509
Quebec	140	1,274	1,738,960	406,695	440,339	4,056,272
Ontario	169	604	1,050,331	269,411	272,711	2,926,694
Manitoba	7	24	32,194	5,992	6,082	85,798
Saskatchewan	.....	.....	.....	.....	.....	.....
Alberta	3	.....	.....	.....	.....	54,962
British Columbia	65	84	141,083	9,457	10,317	399,286
Canada	**429**	**2,154**	**3,114,647**	**711,111**	**740,604**	**8,166,700**
1946						
Nova Scotia	28	104	126,299	30,571	31,783	515,453
New Brunswick	8	104	132,394	30,781	9,409	386,984
Quebec	142	1,648	2,306,845	473,611	483,599	5,630,265
Ontario	213	685	1,126,996	271,872	316,368	3,923,972
Manitoba	9	86	119,015	14,564	2,652	242,470
Saskatchewan	.....	.....	.....	.....	.....	.....
Alberta	3	.....	.....	.....	.....	55,286
British Columbia	83	93	158,945	13,425	12,963	431,281
Canada	**486**	**2,720**	**3,970,494**	**834,824**	**856,774**	**11,185,711**

Table 405.—Production (Sales) of Stone from Canadian Quarries, by Kinds and by Provinces, 1945 and 1946

Province		Granite (a)	Limestone (b)	Marble	Sandstone	Slate	Total
1945							
Nova Scotia	Tons	379	60,387	.....	62,668	.....	123,434
	$	25,695	158,644	.....	130,840	.....	315,179
New Brunswick	Tons	4,669	84,639	.....	10,020	.....	99,328
	$	41,983	198,326	.....	88,200	.....	328,509
Quebec	Tons	77,145	2,372,758	7,410	211,902	946	2,670,161
	$	887,113	2,877,684	65,556	224,352	1,567	4,056,272
Ontario	Tons	109,286	2,833,573	5,818	3,680	.....	2,952,357
	$	279,105	2,582,663	45,081	19,845	.....	2,926,694
Manitoba	Tons	425	62,201	.....	.....	.....	62,626
	$	6,130	79,668	.....	.....	.....	85,798
Alberta	Tons	.....	13,528	.....	.....	.....	13,528
	$	.....	54,962	.....	.....	.....	54,962
British Columbia	Tons	29,726	250,106	160	3,160	969	281,121
	$	44,722	332,432	2,700	3,160	16,272	399,286
Canada	**Tons**	**221,630**	**5,677,192**	**13,388**	**291,430**	**1,915**	**6,205,555**
	$	**1,284,748**	**6,284,379**	**113,337**	**466,397**	**17,839**	**8,166,700**
1946							
Nova Scotia	Tons	8,394	84,805	.....	90,534	.....	183,733
	$	49,176	215,257	.....	251,020	.....	515,453
New Brunswick	Tons	358	115,565	.....	5,200	.....	121,123
	$	27,683	283,301	.....	76,000	.....	386,984
Quebec	Tons	109,443	2,982,747	13,134	380,318	617	3,486,259
	$	1,408,618	3,683,271	138,564	398,858	954	5,630,265
Ontario	Tons	122,562	3,747,948	8,402	11,365	.....	3,890,277
	$	406,403	3,415,261	58,333	43,975	.....	3,923,972
Manitoba	Tons	256	64,876	.....	.....	.....	65,132
	$	3,766	238,704	.....	.....	.....	242,470
Alberta	Tons	.....	13,417	.....	.....	.....	13,417
	$	.....	55,286	.....	.....	.....	55,286
British Columbia	Tons	78,341	208,242	260	8,360	1,116	296,319
	$	110,651	287,433	4,920	8,360	19,917	431,281
Canada	**Tons**	**319,354**	**7,217,600**	**21,796**	**495,777**	**1,733**	**8,056,260**
	$	**2,006,297**	**8,178,513**	**201,817**	**778,213**	**20,871**	**11,185,711**

(a) All igneous rocks included.

(b) Includes dolomite, also marl for agricultural purposes.

NOTE.—Not included in the above limestone statistics are 2,525,653 tons of limestone consumed in the cement industry in 1946 and 1,849,258 tons in 1945. Also, the limestone used in the lime industry is not included; it is estimated that approximately 1,487,140 tons of limestone were burned in the manufacture of lime in 1946 and 1,482,077 tons in 1945.

Table 406.—Production (Sales) of Stone(*) from Canadian Quarries, by Provinces, Showing Purposes for which Used, 1945 and 1946

For use as follows:		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada
1945									
Building stone—Rough	Tons	600	67	6,568	29,194	271	.....	2,319	39,019
	$	6,348	101	33,278	44,808	2,309	.....	6,324	93,668
Dressed	Tons	.....	1,040	11,225	5,058	359	.....	10	17,692
	$	.....	80,000	485,918	75,580	15,821	.....	414	657,733
Monumental and ornamental stone—Rough	Tons	50	336	8,213	91	.....	.....	1,600	10,290
	$	800	3,063	121,096	2,957	.....	.....	16,000	143,916
Dressed	Tons	329	190	5,223	.....	150	.....	47	5,939
	$	24,895	27,766	575,912	.....	5,700	.....	8,214	642,487
Flagstone	Tons	.....	20	540	1,710	65	.....	.....	2,335
	$	.....	200	2,700	7,662	395	.....	.....	10,957
Curbstone	Tons	.....	.....	90	.....	.....	.....	.....	90
	$	.....	.....	668	.....	.....	.....	.....	668
Paving blocks	Tons	.....	.....	411	300	.....	.....	.....	711
	$	.....	.....	3,126	3,600	.....	.....	.....	6,726
Lining open-hearth furnaces	Tons	14,760	.....	.....	.....	.....	.....	.....	14,760
	$	28,042	.....	.....	.....	.....	.....	.....	28,042
Chemical—									
Flux in iron and steel furnaces	Tons	.....	.....	168	385,662	3,966	800	10	390,606
	$	.....	.....	168	341,165	6,603	2,000	200	350,136
Flux in non-ferrous smelters	Tons	.....	.....	3,110	99,861	.....	.....	45,221	148,192
	$	.....	.....	2,872	74,869	.....	.....	61,178	138,919
Glass factories	Tons	.....	.....	1,192	.....	.....	4,346	.....	5,538
	$	.....	.....	5,673	.....	.....	17,380	.....	23,053
Pulp and paper mills	Tons	3,650	3,077	128,895	27,561	1,860	.....	47,008	212,051
	$	18,714	5,693	189,567	85,114	2,044	.....	111,923	413,055
Sugar refineries	Tons	.....	11	.....	8,213	.....	.....	1	8,225
	$	.....	52	.....	6,981	.....	.....	12	7,045
Other chemical uses	Tons	.....	.....	.....	257,376	.....	.....	29,526	286,902
	$	.....	.....	.....	253,435	.....	.....	29,526	282,961
Pulverized Stone—									
Whiting (substitute)	Tons	.....	.....	3,662	4,309	.....	.....	232	8,203
	$	.....	.....	36,617	26,165	.....	.....	2,702	65,484
Asphalt filler	Tons	1	.....	6,023	4,310	.....	.....	517	10,851
	$	29	.....	21,581	14,973	.....	.....	2,585	39,168
Dusting coal mines	Tons	.....	.....	.....	.....	.....	2,992	313	3,305
	$	.....	.....	.....	.....	.....	11,970	2,112	14,082
Agricultural purposes and fertilizer plants.	Tons	41,067	81,319	258,828	31,649	1,664	1,480	3,572	419,579
	$	109,277	192,400	495,851	74,579	3,730	5,920	10,045	891,802
Other uses	Tons	869	.....	10,846	13,769	3,391	.....	30	28,905
	$	2,173	.....	39,704	44,252	3,411	.....	270	89,810
Crushed stone for manufacture of artificial stone.	Tons	.....	.....	394	668	.....	.....	.....	1,062
	$	.....	.....	2,330	2,489	.....	.....	.....	4,819
Roofing granules	Tons	.....	.....	100	43,261	.....	.....	969	44,330
	$	.....	.....	150	125,016	.....	.....	16,272	141,438
Poultry grit	Tons	40	.....	1,243	7,178	.....	3,490	1,617	13,568
	$	409	.....	5,374	39,883	.....	16,960	8,280	70,906
Stucco dash	Tons	.....	.....	1,350	291	.....	.....	1,488	3,129
	$	.....	.....	9,500	2,778	.....	.....	17,307	29,585
Terrazzo chips	Tons	.....	.....	2,657	2,127	.....	.....	.....	4,784
	$	.....	.....	17,106	21,724	.....	.....	.....	38,830
Rock wool	Tons	.....	.....	.....	1,423	.....	.....	.....	1,423
	$	.....	.....	.....	1,886	.....	.....	.....	1,886
Rubble and riprap	Tons	1,168	13,268	125,004	73,598	120	.....	28,622	241,780
	$	2,192	19,234	124,469	76,480	240	.....	14,403	237,018
Crushed stone—									
Concrete aggregate	Tons	.....	.....	1,302,572	567,811	37,657	420	.....	1,908,460
	$	.....	.....	1,142,020	417,242	36,262	732	.....	1,596,256
Road metal	Tons	60,900	.....	430,226	931,143	12,711	.....	117,859	1,552,839
	$	121,800	.....	426,000	822,998	8,888	.....	88,359	1,468,045
Railroad ballast	Tons	.....	.....	361,621	455,794	412	.....	3,160	820,987
	$	.....	.....	314,592	360,058	395	.....	3,160	678,205
Total Canada	**Tons**	**123,434**	**99,328**	**2,670,161**	**2,952,357**	**62,626**	**13,528**	**284,121**	**6,205,555**
	$	**315,179**	**328,569**	**4,056,272**	**2,926,694**	**85,798**	**54,962**	**399,286**	**8,166,700**
Per cent of total	Quantity	1·98	1·60	43·03	47·58	1·01	0·22	4·58	100·00
	Value	3·86	4·02	49·67	35·84	1·05	0·67	4·89	100·00
1946									
Building stone—Rough	Tons	581	303	21,382	12,852	171	.....	1,433	36,722
	$	6,465	455	98,637	90,359	1,369	.....	6,956	204,241
Dressed	Tons	30	1,236	23,118	7,108	2,714	.....	.....	34,206
	$	2,101	73,430	875,399	88,730	167,397	.....	.....	1,207,057
Monumental and ornamental stone—Rough	Tons	105	59	11,448	53	.....	.....	2,501	14,166
	$	1,857	1,180	206,003	800	.....	.....	28,150	237,990
Dressed	Tons	289	163	7,431	.....	150	.....	34	8,067
	$	31,319	23,073	823,135	.....	7,720	.....	5,809	891,056

(*) Includes the production of slate and marl.

Table 406.—Production (Sales) of Stone(*) from Canadian Quarries, by Provinces, Showing Purposes for which Used, 1945 and 1946—Concluded

For use as follows:		Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Canada
1946—Concluded									
Chemical—Concluded									
Flagstone	Tons	.....	100	1,186	7,221	80	.....	.....	8,587
	$	.....	1,000	14,754	8,495	470	.....	.....	24,719
Curbstone	Tons	.....	.....	881	.....	.....	.....	.....	881
	$	.....	.....	8,850	.....	.....	.....	.....	8,850
Paving blocks	Tons	.....	.....	621	200	.....	.....	.....	821
	$	.....	.....	5,894	1,000	.....	.....	.....	6,894
Lining open-hearth furnaces	Tons	24,459	.....	.....	.....	.....	.....	.....	24,459
	$	46,472	.....	.....	.....	.....	.....	.....	46,472
Chemical—									
Flux in iron and steel furnaces	Tons	.....	6	1,716	297,044	4,833	.....	10	303,609
	$	.....	9	1,737	257,645	7,715	.....	120	267,226
Flux in non-ferrous smelters	Tons	.....	.....	2,959	62,051	51	25	46,694	111,780
	$	.....	.....	2,854	57,470	91	50	42,383	102,848
Glass factories	Tons	.....	.....	80	.....	.....	3,887	.....	3,967
	$	.....	.....	420	.....	.....	15,550	.....	15,970
Pulp and paper mills	Tons	3,782	4,829	127,042	61,619	2,414	.....	47,702	247,388
	$	14,139	10,000	222,368	127,948	2,757	.....	100,862	478,074
Sugar refineries	Tons	.....	12	1,500	7,626	.....	.....	.....	9,138
	$	.....	60	2,025	6,483	.....	.....	.....	8,568
Other chemical uses	Tons	.....	.....	.....	171,407	.....	.....	23,859	195,266
	$	.....	.....	.....	179,300	.....	.....	12,079	191,379
Pulverized Stone—									
Whiting (substitute)	Tons	.....	.....	6,760	4,095	.....	.....	266	11,121
	$	.....	.....	67,600	22,099	.....	.....	3,392	93,091
Asphalt filler	Tons	67	.....	3,775	8,905	.....	.....	558	13,305
	$	1,947	.....	13,669	30,769	.....	.....	3,348	49,733
Dusting coal mines	Tons	.....	.....	.....	.....	.....	4,700	350	5,050
	$	.....	.....	.....	.....	.....	18,800	2,363	21,163
Agricultural purposes and fertilizer plants.	Tons	55,481	107,135	262,503	48,125	2,098	980	4,315	480,639
	$	149,810	266,301	506,215	104,226	3,698	3,920	10,481	1,044,651
Other uses	Tons	980	.....	21,985	21,536	2,574	.....	80	47,155
	$	2,450	.....	84,638	68,332	2,248	.....	720	158,388
Crushed stone for manufacture of artificial stone.	Tons	.....	.....	336	1,600	.....	.....	.....	1,936
	$	.....	.....	1,811	5,803	.....	.....	.....	7,614
Roofing granules	Tons	.....	.....	50	67,139	.....	.....	1,116	68,305
	$	.....	.....	75	292,222	.....	.....	19,917	312,214
Poultry grit	Tons	36	.....	867	7,963	.....	3,530	2,537	14,933
	$	439	.....	3,697	41,234	.....	16,720	12,700	71,790
Stucco dash	Tons	.....	.....	2,720	1,372	.....	.....	2,100	6,192
	$	.....	.....	18,800	7,414	.....	.....	23,364	49,578
Terrazzo chips	Tons	.....	.....	3,275	4,000	.....	.....	.....	7,275
	$	.....	.....	23,965	30,000	.....	.....	.....	53,965
Rock wool	Tons	.....	.....	.....	1,576	.....	.....	.....	1,576
	$	.....	.....	.....	2,207	.....	.....	.....	2,207
Rubble and riprap	Tons	517	4,057	140,498	91,003	1,120	.....	80,070	326,265
	$	1,335	5,030	139,341	61,445	3,600	.....	75,391	286,142
Crushed stone—									
Concrete aggregate	Tons	.....	.....	1,731,756	715,456	25,911	295	225	2,473,643
	$	.....	.....	1,518,969	611,937	22,456	246	461	2,154,069
Road metal	Tons	97,406	3,223	556,853	1,712,600	21,842	.....	80,109	2,472,033
	$	257,119	6,446	498,761	1,350,749	21,667	.....	80,425	2,215,167
Railroad ballast	Tons	.....	.....	546,515	577,726	1,174	.....	2,360	1,127,775
	$	.....	.....	490,648	477,305	1,282	.....	2,360	971,595
Total Canada	**Tons**	**183,733**	**124,123**	**3,486,259**	**3,890,277**	**65,132**	**13,417**	**296,319**	**8,056,260**
	$	**515,453**	**386,984**	**5,630,265**	**3,923,972**	**242,470**	**55,286**	**431,281**	**11,185,711**
Per cent of total	Quantity	2·28	1·50	43·27	48·29	0·81	0·17	3·68	100·00
	Value	4·61	3·46	50·33	35·08	2·17	0·49	3·86	100·00

(*) Include in production of slate and marl.

Table 407.—Production (Sales) of Stone from Canadian Quarries, by Kinds, Showing Purposes for which Used, 1945 and 1946

For use as follows:		Granite (a)	Limestone (b)	Marble	Sandstone	Slate	Total
1945							
Building stone—Rough	Tons	3,117	33,431	135	2,336	.....	39,019
	$	14,198	57,930	8,809	12,731	.....	93,668
Dressed	Tons	1,267	15,056	119	1,250	.....	17,692
	$	97,098	464,411	18,224	78,000	.....	657,733

For footnotes, see end of table, p. 329.

Table 407.—Production (Sales) of Stone from Canadian Quarries, by Kinds, Showing Purposes for which Used, 1945 and 1946—Continued

For use as follows:		Granite (a)	Limestone (b)	Marble	Sandstone	Slate	Total
1945—Concluded							
Monumental and ornamental stone—							
Rough	Tons	10,199		91			10,290
	$	140,959		2,957			143,916
Dressed	Tons	5,789	150				5,939
	$	636,787	5,700				642,487
Flagstone	Tons		1,071		1,264		2,335
	$		3,845		7,112		10,957
Curbstone	Tons	90					90
	$	668					668
Paving blocks	Tons	411			300		711
	$	3,126			3,600		6,726
Lining open-hearth furnaces	Tons		14,760				14,760
	$		28,042				28,042
Chemical—							
Flux in iron and steel furnaces	Tons		390,596	10			390,606
	$		349,936	200			350,136
Flux in non-ferrous smelters	Tons		148,192				148,192
	$		138,919				138,919
Glass factories	Tons		4,496	1,042			5,538
	$		17,943	5,110			23,053
Pulp and paper mills	Tons		212,051				212,051
	$		413,055				413,055
Sugar refineries	Tons		8,225				8,225
	$		7,045				7,045
Other chemical uses	Tons		286,902				286,902
	$		282,961				282,961
Pulverized stone—							
Whiting (substitute)	Tons		8,153	50			8,203
	$		64,984	500			65,484
Asphalt filler	Tons		10,851				10,851
	$		39,168				39,168
Dusting coal mines	Tons		3,305				3,305
	$		14,082				14,082
Agricultural purposes and fertilizer plants.	Tons		419,579				419,579
	$		891,802				891,802
Other uses	Tons		28,305	600			28,905
	$		87,410	2,400			89,810
Crushed stone for manufacture of artificial stone.	Tons		668	394			1,062
	$		2,489	2,330			4,819
Roofing granules	Tons	43,261	100			969	44,330
	$	125,016	150			16,272	141,438
Poultry grit	Tons	485	9,000	4,083			13,568
	$	4,445	43,862	22,599			70,906
Stucco dash	Tons	240	1,439	1,450			3,129
	$	2,526	15,559	11,500			29,585
Terrazzo chips	Tons		520	4,264			4,784
	$		1,560	37,270			38,830
Rock wool	Tons		1,423				1,423
	$		1,886				1,886
Rubble and riprap	Tons	40,231	186,561	1,150	12,892	946	241,780
	$	31,530	182,907	1,438	19,576	1,567	237,018
Crushed stone—							
Concrete aggregate	Tons	38,871	1,849,865		19,724		1,908,460
	$	61,977	1,502,390		31,889		1,596,256
Road metal	Tons	77,669	1,392,566		82,604		1,552,839
	$	166,418	1,143,079		158,548		1,468,045
Railroad ballast	Tons		649,927		171,060		820,987
	$		523,264		154,941		678,205
Total Canada (b)	**Tons**	**221,630**	**5,677,192**	**13,388**	**291,430**	**1,915**	**6,205,555**
	$	**1,284,748**	**6,284,379**	**113,337**	**466,397**	**17,839**	**8,166,[illegible]**
1946							
Building stone—Rough	Tons	4,653	25,685	269	6,115		36,722
	$	34,650	101,074	13,355	55,162		204,241
Dressed	Tons	4,856	27,911	109	1,330		34,206
	$	232,835	883,937	17,184	73,101		1,207,057
Monumental and ornamental stone—							
Rough	Tons	14,166					14,166
	$	237,990					237,990
Dressed	Tons	7,917	150				8,067
	$	883,336	7,720				891,056
Flagstone	Tons		4,226		4,361		8,587
	$		18,184		6,535		24,719
Curbstone	Tons	881					881
	$	8,850					8,850
Paving blocks	Tons	621			200		821
	$	5,894			1,000		6,894
Lining open-hearth furnaces	Tons		24,459				24,459
	$		46,472				46,472

For footnotes, see end of table, p. 329.

Table 407.—Production (Sales) of Stone from Canadian Quarries, by Kinds, Showing Purposes for which Used, 1945 and 1946—Concluded

For use as follows:		Granite (a)	Limestone (b)	Marble	Sandstone	Slate	Total
1946—Concluded							
Chemical—							
Flux in iron and steel furnaces	Tons	.....	303,599	10	.....	.....	303,609
	$	.....	267,106	120	.....	.....	267,226
Flux in non-ferrous smelters	Tons	.....	111,780	.....	.....	.....	111,780
	$	.....	102,848	.....	.....	.....	102,848
Glass factories	Tons	.....	3,887	80	.....	.....	3,967
	$	.....	15,550	420	.....	.....	15,970
Pulp and paper mills	Tons	.....	247,388	.....	.....	.....	247,388
	$	.....	478,074	.....	.....	.....	478,074
Sugar refineries	Tons	.....	9,138	.....	.....	.....	9,138
	$	.....	8,568	.....	.....	.....	8,568
Other chemical uses	Tons	.....	195,266	.....	.....	.....	195,266
	$	.....	191,379	.....	.....	.....	191,379
Pulverized stone—							
Whiting (substitute)	Tons	.....	4,311	6,810	.....	.....	11,121
	$	.....	24,691	68,400	.....	.....	93,091
Asphalt filler	Tons	.....	13,305	.....	.....	.....	13,305
	$	.....	49,733	.....	.....	.....	49,733
Dusting coal mines	Tons	.....	5,050	.....	.....	.....	5,050
	$	.....	21,163	.....	.....	.....	21,163
Agricultural purposes and fertilizer plants.	Tons	.....	480,639	.....	.....	.....	480,639
	$	.....	1,044,651	.....	.....	.....	1,044,651
Other uses	Tons	.....	47,155	.....	.....	.....	47,155
	$	.....	158,388	.....	.....	.....	158,388
Crushed stone for manufacture of artificial stone.	Tons	.....	700	1,236	.....	.....	1,936
	$	.....	2,203	5,411	.....	.....	7,614
Roofing granules	Tons	66,779	50	360	.....	1,116	68,305
	$	290,422	75	1,800	.....	19,917	312,214
Poultry grit	Tons	2	11,234	3,697	.....	.....	14,933
	$	25	53,493	21,272	.....	.....	74,790
Stucco dash	Tons	545	2,727	2,920	.....	.....	6,192
	$	5,497	21,281	22,800	.....	.....	49,578
Terrazzo chips	Tons	.....	970	6,305	.....	.....	7,275
	$	.....	2,910	51,055	.....	.....	53,965
Rock wool	Tons	.....	1,576	.....	.....	.....	1,576
	$	.....	2,207	.....	.....	.....	2,207
Rubble and riprap	Tons	109,779	183,580	.....	32,289	617	326,265
	$	111,599	138,784	.....	34,805	954	286,142
Crushed stone—							
Concrete aggregate	Tons	26,003	2,428,125	.....	19,515	.....	2,473,643
	$	50,235	2,062,970	.....	40,864	.....	2,154,069
Road metal	Tons	83,152	2,285,474	.....	103,407	.....	2,472,033
	$	144,964	1,800,701	.....	269,502	.....	2,215,167
Railroad ballast	Tons	.....	799,215	.....	328,560	.....	1,127,775
	$	.....	674,351	.....	297,244	.....	971,595
Total Canada (b)	**Tons**	**319,354**	**7,217,600**	**21,796**	**495,777**	**1,733**	**8,056,260**
	$	**2,606,297**	**8,178,513**	**201,817**	**778,213**	**20,871**	**11,185,711**

(a) Includes all igneous rock.
(b) Does not include limestone used in Canadian lime and cement industries but includes marl used for agricultural purposes.

Table 408.—Production of Stone for Building Purposes, Chemical Use, Cement Manufacture, Concrete Aggregate, Road Metal and Railroad Ballast, 1937-1946

Year		Building stone (a)	For chemical purposes (b)	For concrete aggregate	For road metal	For railroad ballast	For cement manufacture (c)
1937	Tons	49,098	693,947	1,497,655	3,169,136	642,248	1,465,168
	$	746,370	626,297	1,214,181	2,522,080	570,606	.....
1938	Tons	49,666	551,737	981,739	2,721,922	86,019	1,358,690
	$	725,402	468,000	791,971	2,347,010	58,816	.....
1939	Tons	71,288	577,278	1,344,636	2,131,306	600,266	1,407,099
	$	1,344,340	523,579	1,109,028	1,773,337	522,882	.....
1940	Tons	97,336	725,685	2,673,078	2,300,613	896,408	1,784,291
	$	722,514	681,796	2,171,487	1,885,744	741,772	.....
1941	Tons	54,262	965,690	2,581,583	2,958,613	446,505	2,113,618
	$	653,077	889,574	1,986,226	2,484,393	322,348	.....
1942	Tons	24,897	1,236,044	2,924,737	2,275,706	683,317	2,186,248
	$	361,781	1,651,082	2,424,357	1,877,473	527,814	.....
1943	Tons	17,087	1,329,226	1,981,222	2,108,428	852,928	1,994,202
	$	314,428	1,330,127	1,727,889	1,989,509	704,389	.....
1944	Tons	23,142	1,109,362	1,852,335	1,498,258	869,042	1,939,900
	$	396,202	1,170,372	1,600,692	1,352,796	688,471	.....
1945	Tons	56,711	1,051,514	1,908,460	1,552,839	820,987	1,919,858
	$	751,401	1,215,169	1,596,256	1,468,045	678,205	.....
1946	Tons	70,928	871,148	2,473,643	2,472,033	1,127,775	2,625,008
	$	1,411,298	1,064,065	2,154,069	2,215,167	971,595	.....

(a) Does not include monumental or ornamental stone.
(b) Does not include limestone used in Canadian lime industry which totalled 1,487,140 tons in 1946.
(c) Includes shale in 1938-1946; 1938—13,821 tons; 1939—27,241 tons; 1940—18,347 tons; 1941—26,837 tons; 1942—30,498 tons; 1943—75,460 tons; 1944—74,303 tons; 1945—70,600 tons; 1946—99,355 tons.

Table 409.—Imports into Canada and Exports of Stone, by Kinds, 1945 and 1946

—		1945		1946	
		Quantity	Value	Quantity	Value
Imports			$		$
Building stone, n.o.p.	cwt.	106,159	48,997	293,352	144,722
Curling stones and handles therefor	pair	231	5,982	1,084	28,740
Granite, rough, not hammered or chiselled		.....	42,942	.....	158,556
Granite, sawn only		.....	22,964	.....	44,169
Granite, monuments		.....	.....	.....	.....
Granite, manufactures of, n.o.p.		.....	9,877	.....	16,811
Marble, rough, not hammered or chiselled		.....	9,139	.....	43,343
Marble, sawn or sand rubbed, not polished		.....	41,220	.....	91,077
Marble, not further manufactured than sawn for tombstones		.....	62,045	.....	53,068
Marble, manufactures of, n.o.p.		.....	10,252	.....	6,560
Refuse stone	ton	705,716	481,348	614,573	567,865
Slate roofing	square	439	5,276	436	8,461
Slate mantels and manufactures of slate, n.o.p.		.....	26,131	.....	39,754
Chalk, china, cornwall or cliff stone and mica schist		.....	16,967	.....	58,645
Mineral wool	ton	4,495	460,677	5,866	464,880
Whiting, gilders' whiting and Paris white	ton	14,159	307,201	18,038	359,693
Manufactures of stone, n.o.p.		.....	27,010	.....	41,518
Chalk, prepared		.....	6,425	.....	5,445
Pumice and pumice stone and lava tufa		.....	45,041	.....	71,607
Grindstones, not mounted and not less than 36 inches in diameter	No.	466	45,494	675	65,814
Grindstones, n.o.p.	No.	549	2,381	2,304	6,500
Burrstones, rough, in blocks	No.	27	779	6	112
Ganister	ton	425	3,384	5,184	3,367
Total		.....	**1,681,541**	.....	**2,280,707**
Exports					
Crushed stone	ton	904	858	777	2,083
Granite and marble, unwrought	ton	3,835	48,606	5,277	82,008
Dressed stone of all kinds		.....	7,331	.....	6,311
Grindstones, manufactured		.....	19,519	.....	35,204
Total		.....	**76,314**	.....	**125,606**

Table 410.—Average Number of Wage-Earners, by Months, 1945 and 1946

Month	1945				1946			
	Quarry		Dressing Works		Quarry		Dressing Works	
	Male	Female	Male	Female	Male	Female	Male	Female
January	990	1	263	3	1,155	1	455	1
February	990	1	264	3	1,159	2	479	1
March	1,076	1	315	3	1,287	2	527	1
April	1,353	1	293	3	1,767	2	570	2
May	1,717	1	323	3	2,242	3	653	2
June	1,810	1	331	3	2,397	3	648	2
July	1,837	1	369	3	2,454	3	640	2
August	1,915	1	346	3	2,455	4	649	2
September	1,943	1	341	3	2,378	4	666	2
October	1,994	1	386	3	2,303	4	631	2
November	1,719	1	382	3	2,053	4	626	2
December	1,316	1	373	3	1,580	4	583	2
Average	**1,572**	**1**	**336**	**3**	**1,938**	**3**	**601**	**2**

Table 411.—Production of Granite (*) in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	1,135,099	1,827,433	1942	1,366,425	1,046,249
1938	705,307	1,379,417	1943	780,422	1,522,072
1939	1,102,395	2,119,501	1944	269,964	1,303,790
1940	1,147,747	1,884,410	1945	221,630	1,284,748
1941	600,922	1,498,786	1946	319,354	2,006,297

(*) Includes all igneous rock.

The annual review by the Bureau of Mines gives the following information with regard to the quarrying of granite in Canada:

Large areas in Canada are underlain by granite and other related crystalline igneous rocks, and in a number of localities quarries in such rocks have been opened up for the production of building stone, monumental stock, riprap, etc. More than 90 percent of the Canadian output of granite in 1945 was supplied by Ontario and Quebec, and the remainder came from Nova Scotia, New Brunswick, Manitoba and British Columbia.

Prior to the war most of the Canadian production of granite was used for riprap and crushed stone and in the construction of public and semi-public buildings, and smaller quantities for monumental stock, but during the war there was little demand for dimensioned stone for building so that many of the quarries producing only this type of stone were forced to close. There was sufficient demand, however, for monumental stock for the domestic market and for export to enable a number of firms to keep their dressing sheds in operation on a small scale, and some of the larger quarries favourably situated were able to supply any demand for riprap that arose. With the prospects of extensive building construction, these companies can turn again to the production of building stone with little loss of time.

Many of the Canadian granites are suitable for monumental use, and prior to the war much of this material was used within a limited radius of various quarries, but appreciable quantities of special monumental stock such as 'reds' and 'black granites' were imported from the Scandinavian countries, notably Finland and Sweden. When shipments were cut off, Canada and the United States had to depend on their own quarries. In Canada a number of quarries produce granite of pleasing characteristics for monumental use and in the past few years there has been a small but steady increase in the domestic demand for such stone. Moreover, numerous requests from the United States for samples have been received by Canadian firms, and exports to that country have shown an appreciable increase.

Quebec continued to furnish most of the granite used in building, road foundation and other heavy construction, the leading producing areas being Stanstead, Stanstead county; Saint-Samuel, Frontenac county; Rivière-à-Pierre, Portneuf county; and Lake St. John district. Granite for monumental use is produced in the Maritime Provinces, and in Quebec, Ontario, Manitoba, and British Columbia. 'Black granite' is produced mainly in the vicinity of Lake St. John and from quarries along the north shore of Lake Superior. A quarry of this type of granite has been recently opened in Rouyn district, Quebec.

In Nova Scotia and New Brunswick the industry was again comparatively quiet. Production in Nova Scotia came from well established firms in Shelburne and Nictaux West areas and most of the material was monumental stock. In New Brunswick, the granite quarry at Hampstead was in production, and two firms at St. George produced for the monumental trade. A few tons of "black granite" was produced from the quarry at Lake Digdequash.

In Quebec, grey granite comprises over half the total output for the province and is quarried mainly in Stanstead district. At Saint-Gédéon and Saint-Joseph-d'Alma in the Lake St. John district. Le Granit National Ltée produces "black granite", which finds a ready market for monumental use and for building trim. Brodies Limited, Montreal, has its new cutting shed, erected to replace the shed destroyed by fire, in full operation. The company obtains its granite from Graniteville, Stanstead county; from Guenette, Labelle county; and from Mount Johnson, near Iberville. Stanstead Granite Quarries Company of Beebe, obtained its grey granite stock from quarries at Graniteville; its rough monumental stock was purchased from various other localities. Prospecting for some of the coloured granites that are in demand for monumental use was active in the province. Granite of deep red colour and pleasing texture is being developed in several districts, notably, near Grenville in Grenville county; and in the vicinity of Donnacona, Portneuf county.

In Ontario, the Ontario Rock Company, Toronto, quarried a trap rock at Havelock, Peterborough county, which is used mainly for road foundations, railroad ballast, and concrete aggregate.

In British Columbia, granite was produced from several well established properties. A large proportion of the B.C. stone production was andesite produced from Heddington Island for the building trade.

LIMESTONE

Table 412.—Production of Limestone(*) in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	5,542,806	4,673,942	1942	6,442,583	6,468,525
1938	4,288,507	3,864,619	1943	6,265,181	6,105,749
1939	4,149,589	3,817,551	1944	5,565,286	5,528,459
1940	6,108,591	5,126,075	1945	5,677,192	6,284,379
1941	7,151,049	6,057,727	1946	7,217,600	8,178,513

(*) Includes dolomite and marl; production of marl totalled 22,913 tons in 1943; 19,848 tons in 1944; 14,148 tons in 1945 and 20,363 tons in 1946.

With the large volume of building construction and with restrictions removed on the construction of the ornamental type of building, the quarrying of structural limestone was more active in 1946 than for many years. The large producers reported a busy season and a great many small operators re-opened quarries that had long been idle in order to supply local demands for cut stone and building rubble. Difficulties were experienced, however, in obtaining experienced stone cutters to work in the quarries and stone dressing plants, because in the 15 years or so that have elapsed since the cut-stone industry was similarly active very few men have learned the trade.

Quarries for the production of limestone for building purposes are worked in Quebec, Ontario, and Manitoba. Modern requirements of the building stone industry call for blocks of stone of large dimensions from which are sawn slabs and blocks of the exact size required for constructing the building. Although limestone is abundant in Canada the heavily bedded variety of desirable texture, free from cracks and other defects, and capable of being carved and otherwise worked, is not plentiful.

In Quebec, the quarries yielding heavily bedded building stone are at Saint-Marc-des-Carrières in Portneuf county, and in the vicinity of Montreal. At both localities a grey limestone is obtained.

In Ontario, heavily bedded silver-grey limestone is quarried from extensive deposits near Queenston in the Niagara Peninsula, and smaller quantities of buff, and of variegated buff and grey limestone are also obtained. At Longford Mills, near Orillia, buff, silver-grey, and brown limestone, suitable for use as building stone and as marble, is available.

In Manitoba, quarries are near Tyndall. They yield mottled buff, mottled grey, and mottled variegated limestone suitable for exteriors of buildings and for use as interior decorative stone. There has been very little production in recent years.

In addition to the large quarries, the products of which normally have a wide shipping range, small quarries producing rough building stone for local use are worked intermittently near Quebec City, Montreal and Hull, in Quebec; and at Ottawa, Kingston and Wiarton in Ontario. Rubble is the chief product.

For industrial use limestone is marketed in a variety of forms ranging from huge squared blocks of dimension stone used in construction to extremely fine dust used chiefly as a mineral filler. For certain uses (in the wood pulp industry, for example) the limestone quarried requires little or no processing, but most of the output is crushed and screened for use as road metal, concrete aggregate, railroad ballast, and as flux in metallurgical plants. Large quantities are used in the manufacture of Portland cement, lime and various chemical products. Most of the limestone used in chemical and metallurgical industries is of the high calcium variety, but dolomite is rapidly increasing in importance as an industrial raw material.

Argillaceous dolomite is used for the manufacture of rock wool, a widely used insulating material. Five new plants, two in British Columbia, and one each in Nova Scotia, Quebec, and Ontario, were being built in 1945 and one in Ontario, previously destroyed by fire, is being rebuilt.

Pure dolomite has become an important source of magnesia, and during the latter years of World War II was an important source of magnesium metal. Magnesia and basic magnesium carbonate are made from calcined dolomite by the Pattinson process.

Dead-burned dolomite is widely used as a refractory material in basic open hearth furnaces in the steel industry. The first Canadian plant to produce dead-burned dolomite was built at Dundas, Ontario, in 1945.

Magnesitic dolomite is processed at Kilmar, Quebec, for the production of refractory products. Brucitic limestone is processed at Wakefield, Quebec, for the production of magnesia and hydrated lime.

The use of limestone in agriculture is capable of very extensive development. Though the necessity for applying limestone or lime to agricultural land to remedy deficiencies of calcium and magnesium, to neutralize soil acidity, and to maintain or increase soil fertility has been emphasized for many years, the quantity so used in Canada is still relatively small, whereas the agricultural use of limestone could well constitute one of its most important uses both from the economic and tonnage viewpoints.

MARBLE

Table 413.—Production of Marble in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	21,642	88,595	1942	13,824	88,209
1938	19,375	87,274	1943	11,848	68,022
1939	14,124	200,054	1944	11,829	85,374
1940	13,739	75,409	1945	13,388	113,337
1941	17,649	126,081	1946	21,796	201,817

The marble industry in Canada, in common with all belligerent countries, was relatively inactive during the war because most of the buildings erected were of the strictly utilitarian type, in which very little marble was used. With the resumption of construction of the ornamental type of buildings the demand for marble is increasing and preparations were made late in 1945 for the reopening in 1946 of quarries that have been closed for several years. Foreign marble, which has always largely dominated the Canadian market, is now obtainable only with difficulty and at higher prices than formerly because of depleted European stocks, damage to quarries and equipment during the war, and because of labour trouble. Thus the outlook for increased production of domestic marble in the near future is good.

Canada is well supplied with deposits of marble, and quarries are operated in Quebec, Ontario, Manitoba, and British Columbia. The products in recent years have been terrazzo chips, stucco dash, poultry grit, marble flour, whiting substitute, rubble and material for making artificial stone, but some squared blocks for sawing into slabs for interior decorative use have also been produced.

In Quebec, clouded grey marbles and also a black marble are obtained in the quarries of Missisquoi Stone and Marble Co. Ltd., at Phillipsburg, near the foot of Lake Champlain. Brown marble for counters and wainscoting is obtained from the building-stone quarries in the Trenton limestone at Saint-Marc-des-Carrières, Portneuf county. Red and green marble for use as terrazzo is quarried by MAB Ltée at Saint-Joseph-de-Beauce. Orford Marble Co. Ltd., a new company, commenced preparations for quarrying a variegated red, green and grey serpentinous marble near North Stukely, Shefford county, late in 1945. White dolomite is quarried and crushed by Canadian Dolomite Company, Limited, at Portage-du-Fort, Pontiac county, for terrazzo chips, stucco dash, artificial stone, and various minor products.

In Ontario, black marble from beds up to 40 inches thick, is produced by Silverton Black Marble Quarries Limited, Ottawa, at St. Albert, 30 miles southeast of Ottawa. Buff, red, white, green, and black marbles are quarried north of Madoc by Karl Stocklosar and by Connolly Marble, Mosaic and Tile Company Limited, for use as terrazzo. White Star Mine (Bolender Bros.) produces terrazzo and poultry grit at Marmora.

In Manitoba, a number of highly coloured marbles are available along the Flin Flon and Hudson Bay railroads, and also at Fisher Branch and other places, but there is no activity at present.

In British Columbia, there are many deposits of marble, but there is only a small production of white marble by Marble and Associated Products from a quarry near Victoria and by Beale Limestone Quarries on Texada Island.

There is a wide range in the price of marble depending upon the quality and rareness of colouring.

SANDSTONE

Table 414.—Production of Sandstone in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	235,165	343,871	1942	153,865	236,810
1938	101,854	218,405	1943	164,163	250,603
1939	176,265	331,830	1944	146,766	223,453
1940	176,475	305,543	1945	291,430	466,397
1941	169,885	305,528	1946	495,777	778,213

Canadian sandstone has been utilized extensively in the construction of many important public buildings in Canada and is finding increasing favour as a material in the construction of the better type home. The rock occurs in Canada in a variety of colours, including white, reddish brown, yellow and grey. Shipments of sandstone were made in 1946 from quarries located in all of the provinces with the exception of Prince Edward Island, Manitoba, Saskatchewan and Alberta.

The greater part of the crude output in 1945 was employed as rubble and riprap and in the crushed state for concrete, highway construction and railroad ballasting. Sandstone in British Columbia, New Brunswick and Nova Scotia has been employed in the manufacture of abrasive wheels and sharpening stones; such production is included with natural abrasives manufacture. Crude, crushed or ground quartzite sold for fluxing purposes or as silica sand is included under quartz as production.

SLATE

Table 415.—Production of Slate in Canada, 1937-1946

Year	Short tons	$	Year	Short tons	$
1937	900	5,519	1942	1,369	16,801
1938	979	6,311	1943	1,336	17,733
1939	1,149	6,760	1944	1,147	18,101
1940	1,113	7,522	1945	1,915	17,839
1941	1,296	12,562	1946	1,733	20,871

Canadian slate production in 1946 came entirely from the provinces of Quebec and British Columbia and represented shipments of the stone in the form of granules for roofing purposes, riprap and asphalt filling. No Canadian deposits of slate suitable for the production of high grade roofing slates or shingles have been reported as being under development in recent years.

ROOFING GRANULES

(From the annual review by the Bureau of Mines, Ottawa)

There has been a marked expansion in the granule roofing industry in Canada during the past twelve years and particularly during the past three years. About 64 per cent of the granules used are imported, however, though some of the leading manufacturers of granule roofings, as well as individuals, have been searching certain areas in Canada for rocks suitable for making the best type of granules. Apart from slates, there appear to be few such rocks in areas where they can be economically mined, crushed, and shipped to producing plants. Present production comes from three deposits in Ontario and four in British Columbia. In 1946, Canadian consumption of granules used for roofing showed a 39·5 per cent increase over that of 1945, and a further increase is expected in 1947.

The granules consist of small broken particles of rock or slate in their natural state or artificially coloured, that are affixed to asphalt sheeting. The underside of the sheeting is coated with a film of talc or fine mica and is then cut into shapes for roofing shingles or for sidings (resembling rows of bricks separated by mortar). The exposed portion of the improved shingle has an inner coating, usually of natural granules, upon which another coating of the required coloured granules is spread.

In Ontario three deposits are being quarried for granules in the vicinity of Madoc, 100 air miles east and north of Toronto. These are: a grey rhyolite deposit 5 miles northeast of Madoc; a black amphibole rhyolite 4 miles northwest of Madoc; and a greenish grey basalt 20 miles west of Madoc, near Havelock. Building Products Company, the leading Canadian manufacturer, crushes and screens the rock from these quarries at a mill near Madoc, and artificially colours the granules at a plant at Havelock, the only granule colouring plant in Canada.

In British Columbia, G. W. Richmond is quarrying a dark grey slate at McNab Creek, Howe Sound, and a greenish siliceous rock at Bridal Falls, near Chilliwack. At Kapoor on southern Vancouver Island, O. M. Brown is mining a grey black slate and, from an adjacent deposit, hard greenish rock. These two operators have crushing and screening plants in Vancouver and Victoria, respectively, where natural granules are produced and sold to roofing companies in the two cities.

In 1946, as in the previous four years, granule-coated roofings and sidings were manufactured by 10 companies which have a total of 14 plants located at Saint John in New Brunswick; Asbestos, Montreal, and Lennoxville in Quebec; Toronto, Hamilton, Brantford, and London in Ontario; Winnipeg in Manitoba; and Vancouver and Victoria in British Columbia.

Processes for colouring granules are covered by many patents. A few of the methods employed consist of: heating, which darkens the colour; adding oxides of iron and chromium and then burning; addition of sodium silicate, clay, and the required pigment; addition of zinc oxide, clay, and liquid phosphoric acid, heating and then adding the pigment. Many combinations are employed and generally the formulæ used by individual companies are closely guarded secrets.

Specifications for the types of rock that make the best granules are somewhat exacting and samples must pass severe tests. At one time they called for flat granules, and nearly all were made from slate. The present trend, however, is toward more solid angular fragments, and the use of true slate is decreasing, though in 1945, 36 per cent of the total used in Canada was slate granules (21 per cent natural and 15 per cent artificially coloured). Rocks suitable for granules should be fairly hard, of low porosity, fine grained, opaque, possess a high melting point, and break well. They should be composed mainly of silica or silicates and should be free of metallic minerals, flaky minerals, minerals with fibrous partings, and the carbonates. They should withstand weathering action over long periods, and prevent 'blistering' of the underlying asphalt caused by combination of the penetration of water and actinic rays of the sun. Coloured rocks are generally preferred and the colours (reds and greens) are often intensified artificially, but the granules must have the physical properties that will enable them to maintain the colour permanently. Slates suitable for granules should be hard and their colour should be as dark (blue-black) as pos-

sible, or else greens and reds. All granules are oiled to improve adhesion to the asphalt and to intensify the colour, but for the latter the effect is not permanent. Two mesh grades of granules are used, namely 'coarse' (10 to 28 mesh) and to a much smaller extent 'fine' (28 to 35 mesh).

Prices vary considerably depending upon the type of granule and upon whether the colour is natural or artificial. Imported granules average $17 a ton, f.o.b. eastern Canadian plants for natural rocks and slates; $21.15 for artificially coloured reds; $23.40 for greens and browns; and $33.15 for blues.

WHITING SUBSTITUTE

(From the annual review by the Bureau of Mines, Ottawa)

Whiting substitute, also referred to as domestic whiting and as marble flour, is finely pulverized white limestone, or white marble or marl. It also may be made from lime or from waste calcium carbonate sludge resulting from the manufacture of caustic soda.

White marble and white limestone when used for whiting substitutes are pulverized to degrees of fineness ranging from 200 to 400 mesh. Only marble and limestone containing very little magnesium carbonate are used for making whiting substitute, and in Canada most of it is made from white marble, though two plants have been built in Ontario to make it from marl.

By-product precipitated chalk, made from waste sludge resulting from the manufacture of caustic soda from dead ash and lime, is classed as whiting substitute, but its usefulness is restricted by the fact that it almost invariably contains a small amount of free alkali. The raw materials for its manufacture are available, but it is not made in Canada.

Whiting substitute made in Canada is used mostly in the manufacture of oilcloth, linoleum in certain kinds of rubber products, in putty, in explosives, and as a filler in newsprint, book and magazine paper. In lesser quantities it is used in the manufacture of moulded articles, cleaning compounds and polishes, as a ceramic glaze and for a number of other purposes.

Marl suitable for making whiting substitute should be white or nearly so, nearly free from grit and clayey material, and be very low in organic matter. This matter is present to some extent in all deposits of marl and renders the product unsuitable for use as a filler in products, such as putty and paint where it will come in contact with oils. The oil-absorptive capacity of whiting substitute made from marl is usually greater than that of whiting, but otherwise the physical properties are much the same.

2. Secondary Production—The Stone Products Industry

In 1946 there were 147 stone dressing works whose operations were reported separately from the quarries. These plants were engaged chiefly in cutting or polishing Canadian or imported stone to produce finished monuments or cut and dressed stone for construction purposes. Retail establishments engaged only in selling and lettering monuments have not been included. Nine producers of rock wool were also included in this industry.

Output from this industry was valued at $9,063,895 in 1946, an increase of 74·3 per cent over the total of $5,199,120 reported for the previous year. The 60 works in Ontario accounted for 61·5 per cent of the total output and the 43 plants in Quebec for 21·7 per cent. The average number of employees was 1,541 who were paid $2,643,298 in salaries and wages. Materials used in the cutting and dressing processes, including stone, cost $2,906,528. The latter figure also includes the cost of materials used in the production of rock wool. Expenditures for fuel and electricity amounted to $293,538.

Table 416.—Principal Statistics of the Stone Products Industry, 1937-1946

Year	Number of plants	Average number of employees	Salaries and wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
			$	$	$	$
1937	229	1,159	1,352,566	122,209	1,142,885	3,371,242
1938	234	1,261	1,560,931	138,259	1,271,650	3,902,774
1939	190	1,257	1,458,780	139,438	1,259,547	3,805,989
1940	182	1,061	1,236,825	133,417	1,183,112	3,592,623
1941	173	987	1,296,534	137,842	1,244,013	3,883,496
1942	174	925	1,267,382	147,972	1,423,387	3,939,764
1943	151	857	1,256,415	138,127	1,521,308	4,098,100
1944	142	854	1,426,262	160,725	1,670,718	4,370,430
1945	144	1,055	1,665,593	196,703	1,706,509	5,199,120
1946	147	1,541	2,643,298	293,538	2,906,528	9,063,895

NOTE.—Profits or losses cannot be calculated from the above figures as data are not available for general expense items, such as interest, rent, depreciation, taxes, insurance, advertising, etc.

Table 417.—Production from the Stone Products Industry, by Provinces, 1945 and 1946

Province	Granite		Marble		Marble chips and dust	Limestone		Finished monuments, lettered only	Other products	Total
	Monuments	For building purposes	Monuments	For building purposes		Monuments and bases	For building purposes			
	$	$	$	$	$	$	$	$	$	$
Prince Edward Island and New Brunswick—										
1945	115,497	.....	20,121	.....	.....	.....	.....	2,265	168,788	**306,671**
1946	138,371	.....	21,255	.....	50	.....	.....	2,360	805	**162,841**
Nova Scotia—										
1945	46,402	6,000	29,241	3,460	.....	.....	.....	41,325	795	**127,223**
1946	64,940	1,930	32,836	.....	.....	.....	.....	32,376	285,711	**417,793**
Quebec—										
1945	759,186	39,367	11,243	47,932	5,178	400	770	13,309	419,622	**1,297,007**
1946	1,032,244	65,403	8,915	65,531	.....	8,123	266,076	23,366	495,503	**1,965,161**
Ontario—										
1945	928,194	6,500	166,747	54,184	1,500	29,725	289,543	70,294	1,277,106	**2,823,793**
1946	1,214,413	33,941	208,126	74,298	137	28,000	642,739	93,518	3,284,915	**5,580,087**
Manitoba—										
1945	61,218	2,122	12,095	14,064	8	2,340	225	29,881	868	**122,821**
1946	68,452	3,762	25,563	8,905	323	445	135	46,201	2,396	**156,182**
Saskatchewan—										
1945	79,185	4,500	41,438	5,300	590	13,830	.....	5,595	38,822	**189,260**
1946	108,919	11,420	48,325	5,800	1,429	22,375	90	5,654	102,993	**307,005**
Alberta—										
1945	85,087	.....	35,498	.....	17,550	2,420	.....	47,580	7,989	**196,124**
1946	144,239	.....	54,167	.....	25,425	4,104	.....	69,500	4,392	**301,827**
British Columbia—										
1945	109,030	340	814	7,558	.....	.....	80	9,234	9,165	**136,221**
1946	84,203	1,200	2,010	15,225	100	.....	330	64,735	5,196	**172,999**
Canada—										
1945	**2,183,799**	**58,829**	**317,197**	**132,498**	**24,826**	**48,715**	**290,618**	**219,483**	**1,923,155**	**5,199,12**
1946	**2,855,781**	**117,656**	**401,197**	**169,759**	**27,464**	**63,047**	**909,370**	**337,710**	**4,181,911**	**9,063,895**

Table 418.—Total Production in Canada of Dressed Building Stone, 1937-1946

Year	Granite		Marble		Limestone		Sandstone from quarries	Total
	From quarries	From dressing works	From quarries	From dressing works	From quarries	From dressing works		
	$	$	$	$	$	$	$	$
1937	252,346	179,557	18,297	347,405	248,659	438,450	51,893	**1,536,607**
1938	244,501	216,485	1,440	369,698	227,324	832,123	83,692	**1,975,263**
1939	561,253	438,619	145,618	174,275	349,547	664,270	101,448	**2,435,030**
1940	255,527	159,427	19,680	218,271	192,183	446,441	55,139	**1,346,668**
1941	284,803	92,899	51,535	148,294	241,298	384,265	15,016	**1,218,410**
1942	108,807	121,450	19,476	139,109	169,382	102,388	8,600	**669,212**
1943	103,691	65,868	10,745	96,630	172,198	36,021	1,300	**486,453**
1944	83,485	31,430	18,135	80,803	214,037	98,866	34,750	**561,506**
1945	97,098	58,829	18,224	132,498	464,411	290,618	78,000	**1,139,678**
1946	232,835	117,656	17,184	169,759	883,937	909,370	73,101	**2,403,842**

Table 419.—Total Production in Canada of Dressed Monumental and Ornamental Stone, 1937-1946

Year	Granite		Marble		Limestone		Sandstone from quarries	Total
	From quarries	From dressing works	From quarries	From dressing works	From quarries	From dressing works		
	$	$	$	$	$	$	$	$
1937	278,140	1,468,895	(*) 900	176,101	2,335	117,404	.....	**2,043,775**
1938	294,001	1,515,000	2,644	127,803	79,156	109,036	.....	**2,127,640**
1939	260,375	1,513,958	800	129,623	3,321	53,309	325	**1,961,711**
1940	223,203	1,416,298	.....	167,805	2,218	29,861	.....	**1,839,385**
1941	291,643	1,582,016	.....	186,269	2,339	31,820	400	**2,094,487**
1942	356,459	1,602,854	.....	197,189	4,513	23,435	.....	**2,184,450**
1943	392,828	1,601,756	.....	227,289	4,700	27,536	.....	**2,254,109**
1944	609,542	1,871,157	.....	290,638	4,575	48,870	918	**2,825,700**
1945	636,787	2,183,799	.....	317,197	5,700	48,715	.....	**3,192,198**
1946	883,336	2,855,781	.....	401,197	7,720	63,047	.....	**4,211,081**

(*) Sandstone.

Table 420.—Production of Rock Wool in Canada, by Grades, 1946

—	Quantity	Selling value at works
		$
4-inch batts ..... sq. ft.	1,228,808	61,405
3-inch batts ..... sq. ft.	17,749,245	729,938
2-inch batts ..... sq. ft.	34,538,438	980,395
1-inch batts ..... sq. ft.	1,299,020	28,413
Granulated ..... cu. ft.	8,995,090	1,929,655
Bulk or loose wool ..... cu. ft.	4,142,984	212,499
Industrial wool (both loose and granulated) ..... cu. ft.	877,662	155,794
Total		**4,098,099**

Table 421.—Cost of Materials Used in the Stone Products Industry, 1945 and 1946

—	Cost at Works	
	1945	1946
	$	$
Stone—(a) From Canadian quarries	522,878	770,620
(b) Imported	264,784	528,673
Monuments, cut and polished, for lettering only	135,977	173,217
Silica sand or ground quartz	7,379	8,791
Slag and stone for rock wool	160,500	290,139
Coke for rock wool	114,382	238,442
All other materials	500,699	896,646
Total	**1,706,599**	**2,906,528**

CHAPTER TEN

CONTRACT DRILLING IN THE CANADIAN MINING INDUSTRY

Section 1

Diamond Drilling of Deposits Other than Fuels

There were 62 firms engaged in contract diamond drilling of Canadian mineral deposits, other than fuels, during 1946 compared with 74 in 1945. The income received from drilling operations completed by these firms in 1946 totalled $11,786,846 against $8,650,864 in the preceding year. The average number of employees in 1946 was estimated at 2,829 compared with 2,263 in 1945, and the amount of salaries and wages distributed during the year under review totalled $5,285,695 as against $3,906,545 in 1945.

The footage drilled in the Dominion by contractors during 1946 aggregated 6,260,513 feet, of which 40 per cent was completed in Ontario, 41 per cent in Quebec, 12 per cent in British Columbia, and 4 per cent in the Northwest Territories. Contract drilling was done in all provinces except Prince Edward Island. The footage drilled in 1946 was the greatest to be recorded since the initial compilation, in 1938, of the data on diamond drilling. The value of borts, ballas, carbons, castset bits, etc., purchased in 1946 by diamond drilling contractors totalled $2,192,615 compared with $2,018,768 in 1945.

Equipment owned by diamond drilling contractors in 1946 included 312 air or steam-driven drills, 464 gasoline-driven drills and 3 electric drills.

Table 422.—Contract Diamond Drilling Operations in Canada, 1938-1946 (Drilling operations conducted by contractors who employed diamond drills only and which were confined chiefly to the testing of metalliferous deposits)

Year	Footage drilled	Income from drilling	Average number of employees	Total salaries and wages paid
		$		$
1938	2,296,773	3,956,564	1,627	1,801,988
1939	2,063,292	3,013,249	2,920	1,615,615
1940	2,422,948	3,021,629	1,350	1,576,786
1941	2,793,420	3,122,487	1,455	1,535,609
1942	2,960,364	3,147,532	1,019	1,597,040
1943	2,649,708	3,072,481	896	1,493,944
1944	3,468,797	4,970,247	1,468	2,461,813
1945				
Nova Scotia	6,432	9,695	1	2,192
Quebec	2,166,682	4,040,776	1,075	1,800,259
Ontario	1,676,076	2,817,502	788	1,331,532
Manitoba	120,799	196,312	48	81,542
Saskatchewan	53,142	80,727	22	38,099
Alberta	29,406	138,894	27	63,678
British Columbia	900,605	622,788	200	325,675
Yukon	3,046	6,521	7	6,139
Northwest Territories	306,250	737,649	95	257,429
Canada	**5,262,438**	**8,650,864**	**2,263**	**3,906,545**
1946				
Nova Scotia	10,832	16,427	5	4,840
New Brunswick	2,719	7,419	4	2,585
Quebec	2,554,611	5,131,049	1,232	2,425,842
Ontario	2,541,084	4,809,742	1,162	2,058,747
Manitoba	109,547	239,010	58	91,089
Saskatchewan	40,989	78,893	24	36,397
Alberta	20,419	130,313	25	63,697
British Columbia	741,720	766,594	209	380,085
Yukon	1,700	13,040	13	10,405
Northwest Territories	236,892	594,359	97	212,008
Canada	**6,260,513**	**11,786,846**	**2,829**	**5,285,695**

Table 423.—Value of Stones, Readyset and Castset Bits Purchased by Contractors, 1938-1946

Year	Value	Year	Value
	$		$
1938	649,374	1943	637,070
1939	607,806	1944	810,085
1940	881,085	1945	2,018,768
1941	861,253	1946	2,192,615
1942	634,233		

Table 424.—Drilling Completed on Auriferous Quartz Deposits (Gold Mines) in Canada, 1945 and 1946

—	Footage Drilled	
	1945	1946
Diamond drilling for exploration and testing—		
By mining companies with their own personnel and equipment	591,243	571,794
By diamond drilling contractors (*)	4,011,223	4,412,958
Other diamond drilling—		
Blast hole diamond drilling—		
By mining companies with their own personnel and equipment	134,555	161,363
By diamond drilling contractors (*)	420,519	466,153
Drilling by percussion or other machines (†)	14,649,301	18,156,746

(*) Included in Table 422.
(†) Not complete as records are unavailable at certain mines.

Value of diamonds purchased by gold mining companies in 1946 totalled $345,909 compared with $157,144 in 1945.

Table 425.—Drilling Completed on Copper-Gold-Silver and Nickel-Copper Deposits in Canada, 1945 and 1946

—	Footage Drilled	
	1945	1946
Diamond drilling for exploration and testing—		
By mining companies with their own personnel and equipment	76,089	158,434
By diamond drilling contractors (*)	475,066	632,857
Other diamond drilling—		
Blast hole diamond drilling:		
By mining companies with their own personnel and equipment	907,598	857,409
By diamond drilling contractors (*)	310,446	.....
Drilling by percussion or other machines (†)	11,869,213	9,448,740

(*) Included in Table 422.
(†) Not complete as records are unavailable at certain mines.

Value of diamonds purchased by copper-gold-silver and nickel-copper mining companies in 1946 totalled $253,419 compared with $176,034 in 1945.

Table 426.—Drilling Completed on Silver-Lead-Zinc and Silver-Cobalt Deposits in Canada, 1945 and 1946

—	Footage Drilled	
	1945	1946
Diamond drilling for exploration and testing—		
By mining companies with their own personnel and equipment	11,786	20,724
By diamond drilling contractors (*)	55,429	87,532
Other diamond drilling—		
Blast hole diamond drilling—		
By mining companies with their own personnel and equipment	.....	381,434
By diamond drilling contractors (*)	272,508	6,537
Drilling by percussion or other machines (†)	1,538,711	565,751

(*) Included in Table 422.
(†) Not complete as records are unavailable at certain mines.

Table 427.—Drilling Completed on Other Metal-Bearing Deposits, 1945 and 1946

—	Footage Drilled (b)	
	1945	1946
Diamond drilling for exploration and testing—		
By mining companies with their own personnel and equipment	.....	1,587
By diamond drilling contractors (*)	3,725	28,465
Other diamond drilling—		
Blast hole diamond drilling—		
By mining companies with their own personnel and equipment	(a)	49,563
By diamond drilling contractors (*)	(a)	.....
Drilling by percussion or other machines	800	70,185

(*) Included in Table 422.
(a) Not reported, or not complete as records are unavailable at certain mines.
(b) Includes drilling on iron, chromite, molybdenite and mercury deposits; exclusive of drilling on pitchblende deposits

Table 428.—Drilling Completed on Asbestos Deposits, 1945 and 1946

—	Footage Drilled	
	1945	1946
Diamond drilling for exploration and testing—		
By mining companies with their own personnel and equipment	9,275	845
By diamond drilling contractors (*)	28,703	40,880
Other diamond drilling—		
Blast hole diamond drilling—		
By mining companies with their own personnel and equipment	9,227	40,109
By diamond drilling contractors (*)	.....	3,650
Drilling by percussion or other machines (†)	3,197,308	3,450,249

(*) Included in Table 422.
(†) Not complete as data are not reported by some firms.

Diamonds purchased by asbestos mining companies in 1946 cost $29,980 compared with $8,424 in 1945.

NOTE:—The total footage of contract drilling recorded in Tables 424 to 428 does not necessarily agree with the corresponding totals shown in Table 422 as drilling data are incomplete or unobtainable from some mining firms.

Section 2

Contract Drilling for Fuels

In 1946 there were 56 contractors who reported drilling for petroleum, natural gas or for other purposes. The footage drilled totalled 570,948 and the income from operations amounted to $2,536,175 compared, respectively, with 733,721 feet and $4,095,211 in 1945. Of the footage drilled during the year, there were 274,348 feet by cable type drills, 4,500 feet by diamond drills, and 292,100 feet by rotary drills. Employees engaged in this work in 1946 numbered 485, to whom the salaries and wages paid amounted to $819,819. Drilling done by oil companies with their own equipment is not included in this report.

Table 429.—Drilling Conducted During 1945 and 1946 by Contractors for Petroleum, Natural Gas, and for Other Purposes not Included in Section I of this Report

Province	Footage Drilled For Petroleum, Type of Drill			Footage Drilled For Gas, Type of Drill			Footage Drilled For Other Purposes, Type of Drill			Gross income from drilling	Average number of employees	Total salaries and wages paid
	Cable	Diamond	Rotary	Cable	Diamond	Rotary	Cable	Diamond	Rotary			
		Feet			Feet			Feet		$	Number	$
1945												
Nova Scotia							7,607			35,420	10	15,507
New Brunswick												
Quebec	2,119									89,588	20	13,681
Ontario	7,597			166,851			22,194			432,392	102	119,335
Manitoba				1,886						16,907	3	1,043
Saskatchewan	219		73,189			7,512	7,584			651,683	96	220,828
Alberta	4,550		397,723	2,782		30,266	1,114		528	2,889,221	458	851,419
British Columbia												
Northwest Territories												
Yukon												
Canada	**14,485**		**470,912**	**171,519**		**37,778**	**38,499**		**528**	**4,095,211**	**689**	**1,224,813**
1946												
Nova Scotia							10,911			56,981	12	13,147
New Brunswick												
Quebec(*)												
Ontario	18,233			212,609			16,033			469,080	114	154,432
Manitoba				1,306						11,282	2	2,741
Saskatchewan			80,929			18,295	9,570			234,929	70	95,544
Alberta	469		174,431	2,925	4,500	17,545	2,293		900	1,763,903	287	553,955
British Columbia												
Northwest Territories												
Canada	**18,702**		**255,360**	**216,840**	**4,500**	**35,840**	**38,807**		**900**	**2,536,175**	**485**	**819,819**

(*) Included with Nova Scotia.

DIRECTORY OF FIRMS, 1946

In the following pages the names and addresses of all the principal operators in the Canadian mining industry are given; also the location of the properties worked in 1946.

METAL MINING INDUSTRIES

Active Operators in The Canadian Auriferous Quartz Mining Industry

Name	Head or Executive Office Address	Location
NOVA SCOTIA—		
Aulenback Mines	Box 127, Bridgewater	Lunenburg
Consolidated Mining & Smelting Co. of Canada Ltd	215 St. James St. W., Montreal, Quebec	Caribou Mines
Queens Mines Ltd	297 Agricola St., Halifax	Malaga
K-Y-Mines	Gorham St., Liverpool	Mill Village
QUEBEC—		
Abenakis Mines Ltd	Room 305, 350 Bay St., Toronto, Ontario	Beauchastel Tp.
Abitibi Ventures Ltd	249, rue St-Jacques-ouest, Montreal	Val d'Or
Adele Malartic Mines Ltd	226 Bay St., Toronto, Ontario	Malartic Tp.
Adanac Quebec Mines Ltd	Room 403, 100 Adelaide St. W., Toronto, Ont.	Rouyn Tp.
Adelemont Gold Mines Ltd	Suite 101, 184 Bay St., Toronto, Ont	Louvicourt
Aiguebelle Goldfields Ltd	Suite 1010, 100 Adelaide St. W., Toronto, Ont.	Aiguebelle Tp.
Alger Gold Mines Ltd	Room 403, 357 Bay St., Toronto, Ont	Cadillac
Alta Mines Ltd	132, rue St-Jacques-ouest, Montreal	Tiblemont
Amlartic Gold Mines Ltd	Room 1008, 330 Bay St., Toronto, Ont	Vassan Tp.
Anglo-Rouyn Mines Ltd	Room 706, 100 Adelaide St. W., Toronto, Ont.	Rouyn Tp.
Annamaque Mines Ltd	Room 501, 67 Yonge St., Toronto, Ont	Bourlamaque Tp.
Ansley Gold Mines Ltd	Suite 1008, 330 Bay St., Toronto, Ont	Pershing Tp.
Arntfield Mining Corp. Ltd	Arntfield	Beauchastel Tp.
Astoria Quebec Mines Ltd	70 St. Paul St., Quebec	Rouyn Tp.
Aubelle Mines Ltd	Room 310, 100 Adelaide St. W., Toronto, Ont	Guillet Tp.
Aurora Gold Mines Ltd	67 Yonge St., Toronto, Ont	Vauquelin Tp.
Avila Lingeris Gold Mines Ltd	Suite 407, 26 Queen St. E., Toronto, Ont	Desboues Tp.
Aumaque Gold Mines Ltd	Room 310, 100 Adelaide St. W., Toronto, Ont.	Bourlamaque Tp.
Bacola Mining Explorations Ltd	515 Jarvis St., Toronto, Ont	Malartic
Bargold Mines Ltd	119 Evans Ave., Toronto, Ont	Barraute Tp.
Bar-Lan Gold Mines	215 St. James St. W., Montreal	Barraute Tp.
Bearon Mining Co. Ltd	Bourlamaque	Louvicourt Tp.
Barbados Gold Mines Ltd	80 Richmond St. W., Toronto, Ontario	Joannes Tp.
Beauchance Mines Ltd	Room 1311, 44 Victoria St., Toronto, Ont	Beauchastel Tp.
Beau Rand Gold Mines Ltd	320 Bay St., Toronto, Ont	Beauchastel Tp.
Beauverny Gold Mines Ltd	Chambre 616, 109, rue Craig-ouest, Montreal	Duverny Tp.
Belec Courville Mines Ltd	24 King St. W., Toronto, Ont	Courville Tp.
Belfast Mines Ltd	307 Central Building, Toronto, Ont	Duprat Tp.
Bevcourt Mines Ltd	360 St. James St. W., Montreal	Louvicourt Tp.
Big Game Mines Ltd	100 Adelaide St. W., Toronto, Ont	Barraute Tp.
Blondor Quebec Mines Ltd	Suite 1008, 330 Bay St., Toronto, Ont	Blondeau Tp.
Bluegrass Raymond Mines Ltd	Room 503, 357 Bay St., Toronto, Ont	Vauquelin Tp.
Bluenose Pershing Mines Ltd	Suite 1008, 330 Bay St., Toronto, Ont	Haig Tp.
Bocabois Gold Mines Ltd	Room 209, 330 Bay St., Toronto, Ont	Testor Tp.
Bonsecour Mines Ltd	307 Central Bldg., Toronto, Ont	Carpentier Tp.
Bonville Gold Mines Ltd	Suite 310, 100 Adelaide St. W., Toronto, Ont	Villebon Tp.
Border Malartic Gold Mines Ltd	Suite 706, 100 Adelaide St. W., Toronto, Ont	Cadillac Tp.
Bourlamaque Central Mines (1945) Ltd	330 Bay St., Toronto, Ont	Bourlamaque Tp.
Bouscadillac Gold Mines Ltd	85 Richmond St. W., Toronto, Ont	Bousquet Tp.
Bouzan Gold Mines Ltd	24 King St. W., Toronto, Ont	Joannes Tp.
Boycon Pershing Gold Mines, Ltd	Room 209, 330 Bay St., Toronto, Ont	Vauquelin Tp.
Bradnor Malartic Mines Ltd	226 Bay St., Toronto, Ontario	Malartic Tp.
Brae-Breest Gold Mines Ltd	204, 80 Richmond St. W., Toronto, Ont	Carpentier Tp.
Brenmore Quebec Mines Ltd	355 St. James St. W., Montreal	Guillet Tp.
Bruell Consolidated Mines Ltd	Suite 1010, 100 Adelaide St. W., Toronto, Ont	Vauquelin Tp.
Budbois Gold Mines Ltd	Room 209, 330 Bay St., Toronto, Ont	Destor Tp.
Buffadison Gold Mines Ltd	603 Royal Bank Bldg., Toronto, Ont	Louvicourt Tp.
Cadilartic Mines Ltd	11 King St. W., Toronto, Ont	Cadillac Tp.
Calder Bousquet	100 Adelaide St. W., Toronto, Ont	Bousquet Tp.
Canadian Malartic Gold Mines Ltd	25 King St. W., Toronto, Ont	Malartic Tp.
Celta Development & Mining Co. Ltd	465 St. John St., Montreal	Malartic Tp.
Centremaque Gold Mines Ltd	Room 605, 407 McGill St., Montreal	Bourlamaque Tp.
Cheskirk Mines Ltd	Room 310, 100 Adelaide St. W., Toronto, Ont	Rouyn Tp.
Chimo Gold Mines Ltd	24 King St., W., Toronto, Ont	Vauquelin Tp.
Christo Quebec Gold Mines	100 Adelaide St. W., Toronto, Ont	Bousquet Tp.
Cirralam Malartic Mines Ltd	226 Bay St., Toronto, Ont	Malartic Tp.
Clarnor Malartic Mines Ltd	226 Bay St., Toronto, Ont	Dubuisson Tp.
Colcourt Mines Ltd	360 St. James St. W., Montreal	Bourlamaque
Columbiere Mines Ltd	Room 501, 77 Yonge St., Toronto, Ont	Bourlamaque Tp.
Claverny Gold Mines Ltd	294 Outremont Ave., Montreal	Duverny Tp.
Consolidated Beattie Mines Ltd	25 King St., Toronto, Ont	Duparquet

DIRECTORY OF FIRMS—Continued

Active Operators in the Canadian Auriferous Quartz Mining Industry—Continued

Name	Head or Executive Office Address	Location
QUEBEC—Continued		
Consolidated Central Cadillac Mines Ltd	132 St. James St. W., Montreal	Cadillac Tp.
Conti-Mac Mines Ltd	1112 Star Building, Toronto, Ont	Dufresnoy Tp.
Conway Gold Mines	Belleterre	Guillet Tp.
Courtmont Gold Mines Ltd	25 King St. W., Toronto, Ont	Louvicourt Tp.
Cournor Mining Co. Ltd	320 St. James St. W., Montreal	Louvicourt Tp.
Courageous Gold Mines Ltd	226 Bay St., Toronto, Ont	Louvicourt Tp.
Croinor Pershing Mines Ltd	Senneterre	Pershing Tp.
Cross Fault Gold Mines Ltd	80 Richmond St. W., Toronto, Ont	Clericy Tp.
Croydon-Rouyn Mines Ltd	Room 501, 67 Yonge St., Toronto, Ont	Rouyn Tp.
Cyprus Mines Ltd	100 Adelaide St. W., Toronto, Ontario	Dufresnoy Tp.
D'Aragon Mines Ltd	1323, 67 Yonge St., Toronto, Ont	Bourlamaque Tp.
De Clercq Mining Ltd	276 St. James St. W., Montreal	Beauce Co.
Destorada Mines Ltd	26 Adelaide St. W., Toronto, Ont	Destor Tp.
Diaterre Gold Mines Ltd	67 Yonge St., Toronto, Ont	Guillet Tp.
Dikor Mines Ltd	Malartic	Louvicourt Tp.
Dome Exploration Co. (Quebec) Ltd	Bourlamaque	Tavernier Tp.
Donalda Mines Ltd	Box 660, Noranda	Rouyn Tp.
Donrand Mines Ltd	100 Adelaide St. W., Toronto, Ont	Rouyn Tp.
Don-X Mines Ltd	100 Adelaide St. W., Toronto, Ontario	Dufresnoy Tp.
Double Strike Mines Ltd	201 Park Building, Windsor, Ontario	Destor Tp.
Dubuisson Goldfields Ltd	355 St. James St. W., Montreal	Dubuisson Tp.
Dukel Gold Mines Ltd	710, 36 Toronto St., Toronto, Ont	Duprat Tp.
Dufresnoy Mines Ltd	2810, 25 King St. W., Toronto, Ont	Dufresnoy Tp.
Duquesne Mining Co	112 Yonge St., Toronto, Ont	Destor Tp.
Du Reine Mines Ltd	710, 36 Toronto St., Toronto, Ont	La Reine Tp.
Duvay Gold Mines Ltd	Suite 501, 67 Yonge St., Toronto, Ont	Duverney Tp.
East Amphi Gold Mines Ltd	Malartic	Malartic
Eastmont Larder Lake Gold Mines Ltd	330 Bay St., Toronto, Ont	Louvicourt Tp.
East Malartic Mines Ltd	355 St. James St. W., Montreal	Norrie
East Trecesson Gold Mines Ltd	Edifice Aldred, Place d'Armes, Montreal	Trecesson
Elder Mines Ltd	11 King St. W., Toronto, Ont	Noranda
Eldona Gold Mines Ltd	413 Temple Building, Toronto, Ont	Rouyn Tp.
Elmac Malartic Mines Ltd	403, 357 Bay St., Toronto, Ont	Dubuisson Tp.
El Sol Gold Mines Ltd	100 Adelaide St. W., Toronto, Ont	Bourlamaque Tp.
Fontana Mines (1945) Ltd	437 St. James St. W., Montreal	Duverny Tp.
Formaque Gold Mines Ltd	610 St. James St., Montreal	Bourlamaque Tp.
Fraacoeur Gold Mines Ltd	941 Dominion Square Building, Montreal	Aratfield
Gamma Mines (Quebec) Ltd	Bourlamaque	Bourlamaque Tp.
Gaymont Mines Ltd	184 Bay St., Toronto, Ont	Dufresnoy Tp.
Gilmont Mines Ltd	90 Perreault St., Rouyn	Dasserat Tp.
Glencona Mining Co. Ltd	112 Yonge St., Toronto, Ont	Rouyn Tp.
Glenlivet Gold Mines Ltd	184 Bay St., Toronto, Ont	Bourlamaque Tp.
Golconda Mines Ltd	276 St. James St. W., Montreal	Duparquet
Goldora Mines Ltd	132 St. James St. W., Montreal	Bourlamaque Tp.
Goldvue Mines Ltd	85 Richmond St. W., Toronto, Ont	Amos
Gwillim Lake Gold Mines	67 Yonge St., Toronto, Ont	Gwillim Lake
Habitant Gold Mines Ltd	36 Toronto St., Toronto, Ont	Beauchastel Tp.
Hard Rock Gold Mines	Geraldton, Ont	Aiguebelle Tp.
Harricana Gold Mines Inc	Room 209, 330 Bay St., Toronto, Ont	Bourlamaque Tp.
Hayes Cadillac Mines Ltd	336 Bay St., Toronto, Ontario	Louvicourt Tp.
Heva Gold Mines Ltd	100 Adelaide St. W., Toronto, Ontario	Joannes Tp.
Haseo Gold Mines Ltd	357 Bay St., Toronto, Ontario	Joannes Tp.
Hugh Malartic Mines Ltd	226 Bay St., Toronto, Ontario	Malartic Tp.
Insco Mines Ltd	355 St. James St. W., Montreal	Dufresnoy Tp.
Inspiration Mining & Development Co. Ltd	184 Bay St., Toronto, Ont	Vauquelin Tp.
Jolin Bourlamaque Mines Ltd	Amos	Bourlamaque Tp.
Kalbrook Co. Ltd	302 Bay St., Toronto, Ont	Pascalis Tp.
Kenda Pershing Mines Ltd	Senneterre	Pershing Tp.
Kiska Gold Mines Ltd	26 Queen St. E., Toronto, Ont	Duverny Tp.
Klondike Destor Gold Mining Co. Ltd	413 Temple Building, Toronto, Ontario	Destor Tp.
Lake Opawica Mines Ltd	515 Canada Cement Building, Montreal	Dubuisson Tp.
Lamaque Mining Co. Ltd	Bourlamaque	Bourlamaque
Louvicourt Goldfield Corp	1604 Edifice Aldred, Montreal	Louvicourt Tp.
Macbart Mines Ltd	1102 Central Building, Toronto, Ont	Bourlamaque Tp.
Malartic Gold Fields Ltd	355 St. James St. W., Montreal	Fourniere Tp.
Malartic Lakeshore Gold Mines Ltd	132 St. James St. W., Montreal	Courville Tp.
Malartic River Mines Ltd	67 Yonge St., Toronto, Ont	Malartic Tp.
Mallich Quebec Gold Mines Ltd	Suite 1024, 85 Richmond St. W., Toronto, Ont	Duverny Tp.
Marbenor Malartic Mines Ltd	710 Excelsior Life Building, Toronto, Ont	Fourniere Tp.
Marlon Rouyn Ltd	Room 17, 24 King St. W., Toronto, Ont	Rouyn Tp.
Matico Mines Ltd	Room 102, 112 Yonge St., Toronto, Ont	Barraute Tp.
Megiscane Mines Ltd	620, 12 Richmond St. E., Toronto, Ont	Tavernier Tp.
Metro Gold Mines Ltd	19 Richmond St. W., Toronto, Ont	Beauchastel Tp.
Mic Mac Mines Ltd	c/o Royal Trust Company, Montreal	Pershing Tp.
Monpas Mines Ltd	159 Craig St. W., Montreal	Duverny Tp.
Montdono Gold Mines Ltd	80 Richmond St. W., Toronto, Ontario	Joannes Tp.
Mylamaque Mines Ltd	200 Bay St., Toronto, Ont	Louvicourt Tp.
New Bidlamaque Gold Mines Ltd	217 Bay St., Toronto, Ont	Bourlamaque Tp.
New Louvre Mines Ltd	1700 Royal Bank Bldg., Toronto, Ont	Louvicourt Tp.
Newport Gold Mines Ltd	85 Richmond St. W., Toronto, Ont	Amos
Norbenite Malartic Mines Ltd	330 Bay St., Toronto, Ont	Vassan Tp.
Norcourt Gold Mines Ltd	1700 Royal Bank Building, Montreal	Louvicourt Tp.
Normar Gold Mines Ltd	24 King St. W., Toronto, Ont	Bousquet Tp.
Norocona Gold Mines Ltd	603 Royal Bank Building, Toronto, Ont	Rouyn Tp.

DIRECTORY OF FIRMS—Continued

Active Operators in the Canadian Auriferous Quartz Mining Industry—Continued

Name	Head or Executive Office Address	Location
QUEBEC—Concluded		
Nerseman Mines Ltd	100 Adelaide St. W., Toronto, Ont	Bourlamaque
Norterre Mines Ltd	80 Richmond St. W., Toronto, Ont	Guillet Tp.
O'Brien Gold Mines Ltd	Kewagama	Cadillac Tp.
Orcour Gold Mines Ltd	357 Bay St., Toronto, Ont	Louvicourt Tp.
Orenada Gold Mines Ltd	330 Bay St., Toronto, Ont	Bourlamaque Tp.
Pandora Limited	Cadillac	Cadillac Tp.
Paquin Gold Mines Ltd	Belleterre	Guillet Tp.
Paramaque Mines Ltd	36 Toronto St., Toronto, Ont	Bourlamaque Tp.
Parterre Gold Mines Ltd	85 Richmond St. W., Toronto, Ont	Blondeau Tp.
Pen-Rey Gold Mines Ltd	330 Bay St., Toronto, Ont	Rouyn Tp.
Pepmont Gold Mines Ltd	26–28 Adelaide St. W., Toronto, Ont	Rouyn Tp.
Perron Gold Mines Ltd	Perron	Perron
Pershing Manitou Gold Mines Ltd	132, rue St-Jacques-ouest, Montreal	Courville
Pershon Gold Mines Ltd	67 Yonge St., Toronto, Ont	Pershing Tp.
Phelps Gold Mines Ltd	85 Richmond St. W., Toronto, Ontario	Duprat Tp.
Pinnacle Gold Mines Ltd	Suite 204, 80 Richmond St. W., Toronto, Ont	Privat Tp.
Pitt Gold Mining Co. Ltd	Room 712, 80 King St. W., Toronto, Ont	Duparquet Tp.
Plexore Rouyn Gold Mines Ltd	80 Richmond St. W., Toronto, Ont	Rouyn Tp.
Powell Rouyn Gold Mines Ltd	Noranda	Rouyn Tp.
Quesabe Mines Limited	512, 320 Bay St., Toronto, Ont	Duprat Tp.
Quintal Quebec Gold Mines Ltd	18 Toronto St., Toronto, Ont	Villebon Tp.
Randona Quebec Gold Mines Ltd	330 Bay St., Toronto, Ont	Dufresnoy Tp.
Record-Rouyn Mines Ltd	67 Yonge St., Toronto, Ont	Beauchastel Tp.
Regecourt Gold Mines Ltd	1700 Royal Bank Building, Montreal	Louvicourt Tp.
Renfort Gold Mines Ltd	100 Adelaide St. W., Toronto, Ont	Dasserat Tp.
Resenor Gold Mines Ltd	38 King St. W., Toronto, Ont	Perron
Ribago Rouyn Mines Ltd	36 Toronto St., Toronto, Ont	Beauchastel Tp.
Rico Rouyn Mines Ltd	710, 36 Toronto St., Toronto, Ont	Beauchastel Tp.
Roedor Mines Ltd	199 Bay St., Toronto, Ontario	Dubuisson Tp.
Rochette Gold Mines Ltd	540, rue Boucher, Montreal	Taschereau
Rockbridge Gold Mines Ltd	Room 22, 9 Toronto St., Toronto, Ont	Clermont Tp.
Rolne Mines Ltd	Room 528, 67 Yonge St., Toronto, Ont	Vassan Tp.
Rouyn Merger Gold Mines Ltd	603–4 Royal Bank Building, Toronto, Ont	Rouyn Tp.
Roybar Chibougamau Mines Ltd	67 Yonge St., Toronto, Ont	Chibougamau
Ruscana Mines Ltd	100 Adelaide St. W., Toronto, Ont	Vauquelin Tp.
Seaforth Mines Ltd	400 Notre Dame St. W., Montreal	Duverny Tp.
Senator-Rouyn Ltd	45A Main St., Hull	Rouyn Tp.
Senvil Mines Ltd	215 St. James St. W., Montreal	Bourlamaque Tp.
Sepha Mines Ltd	21 King St. E., Toronto, Ont	Lake Dufault
Seventh Malartic Mines Ltd	Perron	Dubuisson Tp.
Shawkey (1945) Mines Ltd	80 King St. W., Toronto, Ont	Dubuisson Tp.
Silverny Gold Mines Ltd	100 Adelaide St. W., Toronto, Ont	Duverny Tp.
Sigma Mines (Quebec) Ltd	Bourlamaque	Bourlamaque
Siscoe Gold Mines Ltd	1010 St. Catherine St. W., Montreal	Abitibi
Sladen-Malartic Mines Ltd	56 Sparks St., Ottawa, Ont	Malartic Tp.
Snowshoe Gold Mines Ltd	603 Royal Bank Building, Toronto, Ont	Val d'Or
Soma-Duverny Gold Mines Ltd	905 Aldred Building, Montreal	Amos
South Dufault Mines Ltd	360 St. James St. W., Montreal	Rouyn Tp.
South Duquesne Mines Ltd	112 Yonge St., Toronto, Ont	Destor Tp.
Stadacona Mines (1944) Ltd	Rouyn	Rouyn Tp.
Steeber Malartic Mines Ltd	171 Yonge St., Toronto, Ont	Malartic Tp.
Sullivan Consolidated Mines Ltd	1604 Aldred Building, Montreal	Dubuisson Tp.
Thurbois Mines Ltd	Room 201, 29 Park St., Windsor, Ontario	Destor Tp.
Toburn Gold Mines Ltd	1809 Royal Bank Building, Toronto, Ont	Dasserat Tp.
Tromac Mines Ltd	100 Adelaide St., Toronto, Ontario	Dufresnoy
Twin Fault Mines Ltd	100 Adelaide St., Toronto, Ont	Villebon Tp.
Union Mining Corp	465 St. John St., Montreal	Bourlamaque
Val D'Bell Mines Ltd	307 Central Building, Toronto, Ont	Louvicourt Tp.
Val d'Or Mineral Holdings Ltd	25 King St. W., Toronto, Ont	Bourlamaque Tp.
Vauze Duiault Mines Ltd	1112 Star Building, Toronto, Ont	Dufresnoy Tp.
Vicour Mines Ltd	80 King St. W., Toronto, Ont	Louvicourt Tp.
Vinray Malartic Mines Ltd	226 Bay St., Toronto, Ont	Malartic Tp.
Wasa Lake Gold Mines Ltd	603 Royal Bank Building, Toronto, Ont	Arnfield
Wendell Gold Mines Ltd	231 St. James St. W., Montreal	Landrienne Tp.
West Malartic Mines Ltd	7000 Jeanne-Mance St., Montreal	Cadillac Tp.
Westville Mines Ltd	36 Toronto St., Toronto, Ont	Villebon Tp.
Wettring Gold Mines Ltd	Duparquet	Duparquet
Wildor Gold Mines Ltd	357 Bay St., Toronto, Ont	Bourlamaque Tp.
Wingait Gold Mines Ltd	80 Richmond St. W., Toronto, Ont	Beauchastel Tp.
Wright Rouyn Gold Ltd	357 Bay St., Toronto, Ont	Rouyn Tp.
Zakor Gold Mines Ltd	26 Nepean St., Ottawa, Ont	Louvicourt Tp.
ONTARIO—		
Porcupine Area—		
Anson-Cartwright Mines Ltd	Room 209, 330 Bay St., Toronto	Matheson
Aquarius Porcupine Gold Mines Ltd	Room 706, 100 Adelaide St. W., Toronto	Macklem Tp.
Aunor Gold Mines Ltd	1600 Royal Bank Building, Toronto	Timmins
Argyll Gold Mines Ltd	Room 1409, 330 Bay St., Toronto	Matheson
Bonetal Gold Mines Ltd	Room 1705, 372 Bay St., Toronto	Pamour
Broulan Porcupine Mines Ltd	Room 1705, 372 Bay St., Toronto	Pamour
Buffalo Ankerite Gold Mines Ltd	P.O. Box 533, South Porcupine	Deloro Tp.
Chenault Gold Mines Ltd	Suite 312, 9 Richmond St. E., Toronto	McArthur Tp.
Clavos Porcupine Mines Ltd	Suite 1024, 85 Richmond St. W., Toronto	German Tp.
Clodan Gold Mines Ltd	119 Williamson Rd., Toronto	Matheson
Coniaurum Mines Ltd	25 King St. W., Toronto	Schumacher

DIRECTORY OF FIRMS—Continued

Active Operators in the Canadian Auriferous Quartz Mining Industry—Continued

Name	Head or Executive Office Address	Location
ONTARIO—Continued		
Porcupine Area—		
Cunigold Mines Ltd	Room 302, 57 Queen St. W., Toronto	Mann Tp.
Dale Gold Mines Ltd	Suite 504, 357 Bay St., Toronto	Harker Tp.
Delnite Mines Ltd	P.O. Box 590, Timmins	Deloro Tp.
Denallen Gold Mines Ltd	36 Toronto St., Toronto	Denton Tp.
Dome Mines Ltd	36 Toronto St., Toronto	Tisdale Tp.
Edgewater Porcupine Gold Mines Ltd	814 Metropolitan Building, Toronto	Night Hawk Lake
Golden Arrow Mines Ltd	Room 428, 67 Yonge St., Toronto	Ramore
Goldhawk Porcupine Mines Ltd	Suite 1107, 67 Yonge St., Toronto	Cody Tp.
Hallnor Mines Ltd	Pamour	Whitney Tp.
Hollinger Consolidated Gold Mines Ltd	Timmins	Timmins
Hoyle Mining Company Ltd	P.O. Box 997, Huileybury	Pamour
Jasper Porcupine Mines Ltd	43 Colborne St., Toronto	Deloro Tp.
Jowsey Denton Gold Mines Ltd	Room 1701, 372 Bay St., Toronto	Carscallen Tp.
McIntyre Porcupine Mines Ltd	Schumacher	Schumacher
Pamour Porcupine Mines Ltd	Pamour	Whitney Tp.
Paymaster Consolidated Mines Ltd	Box 508, South Porcupine	South Porcupine
Preston-East Dome Mines Ltd	South Porcupine	South Porcupine
Malga Porcupine Gold Mines Ltd	Room 808, 85 Richmond St. W., Toronto	South Porcupine
Naybob (1945) Gold Mines Ltd	85 Richmond St. W., Toronto	Deloro Tp.
Porcupine Reef Gold Mines Ltd	372 Bay St., Toronto	Pamour
Porcupine Southgate Mines Ltd	100 Adelaide St. W., Toronto	Deloro Tp.
New Electra Porcupine Gold Mines Ltd	Room 706, 100 Adelaide St. W., Toronto	Macklem Tp.
Wilcarr Mines Ltd	12th floor, Star Building, 80 King St. W., Toronto	Wilkie Tp.
Kirkland Lake Area—		
Bidgood Kirkland Gold Mines Ltd	Room 504, 357 Bay St., Toronto	Lebel Tp.
Darmac Gold Mines Ltd	Room 303, 156 Yonge St., Toronto	Lebel Tp.
Glenora Gold Mines Ltd	Room 3100, 25 King St., Toronto	Lebel Tp.
Hudson-Rand Gold Mines Ltd	Box 700, New Liskeard	Kirkland Lake
Kirkland Golden Gate Mines Ltd	Room 411, 371 Bay St., Toronto	Swastika
Kirkland Lake Gold Mining Co. Ltd	Chaput Hughes	Teck Tp.
Lake Shore Mines Ltd	Kirkland Lake	Kirkland Lake
Macassa Mines Ltd	85 Richmond St. W., Toronto	Kirkland Lake
Northland Mines (1940) Ltd	Suite 32, 171 Yonge St., Toronto	Dobie
Queenston Gold Mines Ltd	1101 Federal Building, Toronto	Gauthier Tp.
Sylvanite Gold Mines Ltd	Box 670, Kirkland Lake	Kirkland Lake
The Teck-Hughes Gold Mines Ltd	14 Finkle St., Woodstock	Kirkland Lake
Toburn Gold Mines Ltd	1809 Royal Bank Building, Toronto	Kirkland Lake
Upper Canada Mines Ltd	1101 Federal Building, Toronto	Dobie
Wright-Hargreaves Mines Ltd	Fort Erie	Kirkland Lake
Larder Lake Area—		
Amalgamated Larder Mines Ltd	12th floor, 80 King St. W., Toronto	Larder Lake
Armistice Gold Mines Ltd	Room 706, 100 Adelaide St. W., Toronto	McGarry Tp.
Big Game Mines Ltd	Room 501, 67 Yonge St., Toronto	Guibord Tp.
Chesterville Mines Ltd	330 Bay St., Toronto	McGarry Tp.
Harlight Gold Mines Ltd	Doane Hall, Aurora	Harker Tp.
Highridge Mining Co. Ltd	Room 209, 330 Bay St., Toronto	McGarry Tp.
Kerr-Addison Gold Mines Ltd	Room 1108, 80 King St. W., Toronto	McGarry Tp.
Larder "U" Island Mines Ltd	Room 209, 330 Bay St., Toronto	McGarry Tp.
Omega Gold Mines	Larder Lake	McVittie Tp.
Martin-Bird Gold Mines Ltd	32 Prospect Ave., Kirkland Lake	Hearst Tp.
Mary Ann Mines Ltd	Room 403, 100 Adelaide St. W., Toronto	Larder Lake
Olivet Gold Mines Ltd	156 Yonge St., Toronto	Gauthier Tp.
Temple Gold Mines Ltd	11 King St. W., Toronto	Playfair Tp.
Tovarich-Larder Gold Mines Ltd	Room 1701, 372 Bay St., Toronto	McIlroy Tp.
Wadesa Gold Mines Ltd	62 Government Road West, Kirkland Lake	Gauthier Tp.
Matachewan Area—		
Central Matachewan Mining Co	331 Bay St., Toronto	Baden Tp.
Young-Davidson Mines Ltd	Timmins	Powell Tp.
Laclothian Mines Ltd	Suite 1001, 85 Richmond St. W., Toronto	Midlothian Tp.
Matachewan Consolidated Mines Ltd	25 King St. W., Toronto	Powell Tp.
Jacaranda Gold Mines Ltd	365 Bayview Ave., Leaside	Cairo Tp.
Sudbury Area—		
Chellew Gold Mines Ltd	504, 357 Bay St., Toronto	Esther Tp.
Kalbrook Mining Co. Ltd	Room 1405, 302 Bay St., Toronto	Penhorwood
Jerome Gold Mines Ltd	Room 602, 350 Bay St., Toronto	Osway Tp.
Merit Gold Mines Ltd	Room 403, 100 Adelaide St. W., Toronto	Howrey
Renabie Mines Ltd	Room 1001, 85 Richmond St. W., Toronto	Missanabie
Rush Lake Gold Mines Ltd	Room 504, 357 Bay St., Toronto	Marion Tp.

DIRECTORY OF FIRMS—Continued

Active Operators in the Canadian Auriferous Quartz Mining Industry—Continued

Name	Head or Executive Office Address	Location
ONTARIO—Concluded		
Thunder Bay Area—		
Charles Long Lac Gold Mines Ltd	Suite 1104, 67 Yonge St., Toronto	Long Lac
Draco Mines Ltd	Suite 1001, 85 Richmond St., Toronto	Long Lac
Hard Rock Gold Mines Ltd	Geraldton	Ashmore Tp.
Leitch Gold Mines Ltd	Beardmore	Summers Tp.
Little Long Lac Gold Mines Ltd	Room 3100, 25 King St. W., Toronto	Ashmore Tp.
MacLeod-Cockshutt Gold Mines Ltd	357 Bay St., Toronto	Geraldton
Magnet Consolidated Mines Ltd	515 Jarvis St., Toronto	Geraldton
Maylac Gold Mines	Room 504, 357 Bay St., Toronto	Geraldton
Ouellette Mines Ltd	Room 1109, 330 Bay St., Toronto	Savant Lake
Talmora Long Lac Gold Mines Ltd	Room 205, 217 Bay St., Toronto	Little Long Lac
Theresa Gold Mines Ltd	Long Lac	Long Lac
Thunderhead Gold Mines Ltd	80 Richmond St. W., Toronto	Port Arthur
Undersill Gold Mining Co. Ltd	Room 1721, 25 King St. W., Toronto	Beardmore
Kenora Area—		
Andowan Mines Ltd	Kashabowie	Shebandowan Lake
Jack Lake Mines Ltd	190A Adelaide St., Toronto	McCaul Tp.
Kenwest Mines Ltd	Room 27, 10 Adelaide St. E., Toronto	Goldrock
Van Houten Gold Mines Ltd	171 Yonge St., Toronto	Dyment
Lunward Gold Mines	217 Bay St., Toronto	Echo Tp.
Patricia District—		
Advance Red Lake Gold Mines Ltd	Room 701, 347 Bay St., Toronto	Red Lake
Aiken Red Lake Gold Mines Ltd	Room 303, 53 Yonge St., Toronto	Red Lake
Alexander Red Lake Mines Ltd	515 Jarvis St., Toronto	McKenzie Island
Batori Mines Ltd	Suite 311, 21 King St. E., Toronto	Connaught Tp.
Blanchard Gold Mines Ltd	Room 318, 371 Bay St., Toronto	Todd Tp.
Bayview Red Lake Gold Mines Ltd	80 Richmond St. W., Toronto	Todd Tp.
Berens River Mines Ltd	Favourable Lake	Favourable Lake
Bright Red Lake Mines Ltd	Room 311, 21 King St. E., Toronto	Fairlie Tp.
Buffalo Red Lake Mines Ltd	Room 1701, 372 Bay St., Toronto	Red Lake
Campbell Red Lake Mines Ltd	Room 620, Confederation Building, Toronto	Red Lake
Carricoma Gold Mines Ltd	Room 305, 300 Bay St., Toronto	Heyson Tp.
Central Patricia Gold Mines Ltd	Central Patricia	Central Patricia
Cochenour Willans Gold Mines Ltd	801 Dominion Bank Building, Toronto	Mackenzie Island
Craibbe-Fletcher Gold Mines Ltd	Suite 1, 26-28 Adelaide St. W., Toronto	Dome Tp.
Crowshore Patricia Gold Mines Ltd	171 Yonge St., Toronto	Crow River
Detta Red Lake Mines Ltd	200 Bay St., Toronto	Balmer Tp.
Dorion Red Lake Mines Ltd	200 Bay St., Toronto	Balmer Tp.
Duluth Red Lake Gold Mines Ltd	200 Bay St., Toronto	Balmer Tp.
Dexter Red Lake Gold Mines Ltd	Room 620, 12 Richmond St. E., Toronto	Red Lake
Dickinson Red Lake Mines Ltd	200 Bay St., Toronto	Balmer Tp.
Frond Lake Mining Co. Ltd	85 Richmond St. W., Toronto	Fort Hope
Halden Red Lake Gold Mines Ltd	36 Toronto St., Toronto	Heyson Tp.
Hasaga Gold Mines Ltd	Red Lake	Heyson Tp.
Jason Mines Ltd	510 Stock Exchange Building, Vancouver, British Columbia	Casummit Lake
Lassie Red Lake Gold Mines Ltd	12 Richmond St. E., Toronto	Red Lake
Lingnora Gold Mines Ltd	19 Richmond St. W., Toronto	Lingman Lake
Lingman Lake Gold Mines Ltd	707 McArthur Building, Winnipeg, Manitoba	Lingman Lake
Madsen Red Lake Gold Mines Ltd	67 Yonge St., Toronto	Heyson Tp.
McKenzie Red Lake Gold Mines Ltd	19 Richmond St. W., Toronto	Dome Tp.
Pickle Crow Gold Mines Ltd	Pickle Crow	Pickle Crow
Martin-McNeely Mines Ltd	24 Fraser St., North Bay	Dome Tp.
McFinley Red Lake Gold Mines Ltd	100 Adelaide St., Toronto	Bateman Tp.
McMartmac Red Lake Gold Mines Ltd	Room 402, 19 Richmond St., W., Toronto	Dome Tp.
Mink Gold Mines Ltd	Room 504, 357 Bay St., Toronto	Mink Lake
Orlac Red Lake Mines	357 Bay St., Toronto	Red Lake
Red Area Gold Mines Ltd	80 Richmond St. W., Toronto	Fairlie Tp.
Redaurum Red Lake Gold Mines Ltd	100 Adelaide St. W., Toronto	Baird Tp.
Redwood Gold Mines Ltd	Suite 1024, 85 Richmond St. W., Toronto	Heyson Tp.
Richmar Gold Mines Ltd	Room 1502, 372 Bay St., Toronto	Dome Tp.
Russet Red Lake Gold Mines Ltd	Room 318, 371 Bay St., Toronto	Baird Tp.
San Pedro Mining Corp. Ltd	630 Confederation Life Building, Toronto	Heyson Tp.
Slate Bay Gold Mines Ltd	Room 318, 371 Bay St., Toronto	McDonaugh Tp.
Spruce Lake Gold Mines Ltd	Suite 1007, 67 Yonge St., Toronto	Heyson Tp.
Starratt Olsen Gold Mines Ltd	Red Lake	Baird Tp.
Virginia Red Lake Mines Ltd	Suite 1, 26-28 Adelaide St. W., Toronto	Balmer Tp.
MANITOBA—		
Callinan Flin Flon Mines Ltd	Room 612, 371 Bay St., Toronto, Ont	Flin Flon
Century Mining Corp. Ltd	57 St. James St. W., Montreal, Quebec	Elbow Lake
Creole Snow Lake Mines Ltd	34 Adelaide St. W., Toronto, Ont	Herb Lake
Frebert Snow Lake Mines Ltd	85 Richmond St. W., Toronto, Ont	Herb Lake
Gold Pan Mines (1945) Ltd	818 Somerset Building, Winnipeg	Bissett

DIRECTORY OF FIRMS—Continued

Active Operators in the Canadian Auriferous Quartz Mining Industry—Continued

Name	Head or Executive Office Address	Location
MANITOBA—Concluded		
Howe Sound Exploration Co. Ltd	Britannia Beach, British Columbia	Snow Lake
Ken-Bay Gold Mines Ltd	320 Bay St., Toronto, Ont	Little Stull Lake
Kiwago Gold Mines Ltd	Electric Railway Chambers, Winnipeg	Rice Lake
New Manitoba Gold Mines Ltd	710, 80 King St. W., Toronto, Ont	Rice Lake
Northern Canada Mines Ltd	44 Victoria St., Toronto, Ont	Snow Lake
San Antonio Gold Mines Ltd	237 Curry Building, Winnipeg	Bissett
Sangold Mines Ltd	67 Yonge St., Toronto, Ont	Rice Lake
Tartan Lake Gold Mines Ltd	330 Bay St., Toronto, Ont	Athapapukow
Wekusko Consolidated Ltd	395 Main St., Winnipeg	Herb Lake
SASKATCHEWAN—		
Nesnah Mining & Exploration Co. Ltd	320 Bay St., Toronto, Ont	Beaver Lake
Newcor Mining & Refining Ltd	67 Yonge St., Toronto, Ont	Douglas Lake
NORTHWEST TERRITORIES—		
Akaitcho Yellowknife Gold Mines Ltd	2810, 25 King St. W., Toronto, Ont	Yellowknife
Alcan Yellowknife Gold Mines Ltd	67 Yonge St., Toronto, Ont	Yellowknife
American Yellowknife Gold Mines Ltd	171 Yonge St., Toronto, Ont	Yellowknife
Amy Yellowknife Mines Ltd	515 Jarvis St., Toronto, Ont	Yellowknife
Athona Mines (1937) Ltd	171 Yonge St., Toronto, Ont	Yellowknife
Atlas Yellowknife Mines Ltd	330 Bay St., Toronto, Ontario	Yellowknife
Bear Exploration and Radium Ltd	7 Adelaide St. E., Toronto, Ont	Yellowknife
Bryhem Exploration Development & Mining Ltd	100 Adelaide St. W., Toronto, Ont	Yellowknife
Cassidy Yellowknife Mines Ltd	36 Toronto St., Toronto, Ont	Yellowknife
The Consolidated Mining & Smelting Co. of Canada Ltd	Trail, British Columbia	Yellowknife
Conwest Exploration Co. Ltd	Spencerville, Ont	Yellowknife
Discovery Yellowknife Mines Ltd	171 Yonge St., Toronto, Ont	Yellowknife
Drake Yellowknife Gold Mines Ltd	67 Yonge St., Toronto, Ont	Yellowknife
Echo-Indin Mines Ltd	515 Jarvis St., Toronto, Ont	Yellowknife
Frederick Mining & Development Ltd	100 Adelaide St. W., Toronto, Ont	Yellowknife
Frobisher Ltd	25 King St. W., Toronto 1, Ontario	Yellowknife
Giant Yellowknife Gold Mines Ltd	25 King St. W., Toronto, Ont	Yellowknife
Goldcrest Mines Ltd	171 Yonge St., Toronto, Ont	Indin Lake
Greenlee Mines Ltd	171 Yonge St., Toronto, Ont	Yellowknife
Homer Yellowknife Mines Ltd	330 Bay St., Toronto, Ont	Yellowknife
Hublill Yellowknife Mines Ltd	21 King St. E., Toronto, Ont	Yellowknife
Ingray Yellowknife Mines Ltd	55 York St., Toronto, Ont	Yellowknife
Jacknife Gold Mines Ltd	330 Bay St., Toronto, Ont	Yellowknife
Jeph Yellowknife Gold Mines Ltd	67 Yonge St., Toronto, Ont	Yellowknife
Larder "U" Island Mines Ltd	330 Bay St., Toronto, Ont	Yellowknife
Leta Explorations Ltd	67 Yonge St., Toronto, Ont	Yellowknife
Lexindin Gold Mines Ltd	67 Yonge St., Toronto, Ont	Indin Lake
Lodester Yellowknife Gold Mines Ltd	9 Toronto St., Toronto, Ont	Yellowknife
Lynx Yellowknife Gold Mines Ltd	25 King St. W., Toronto, Ont	Yellowknife
Massive Yellowknife Mines Ltd	36 Toronto St., Toronto, Ont	Yellowknife
Negus Mines Ltd	410 Royal Bank Building, Toronto, Ont	Yellowknife
Nib Yellowknife Mines Ltd	36 Toronto St., Toronto, Ont	Yellowknife
N.W.T. Gold Ltd	208 Bank of Nova Scotia Building, Edmonton, Alberta	Yellowknife
Partridge Yellowknife Mines Ltd	38 King St. W., Toronto, Ont	Yellowknife
Prow Yellowknife Gold Mines Ltd	25 King St. W., Toronto, Ont	Yellowknife
Quebec Yellowknife Gold Mines Ltd	132 St. James St. W., Montreal, Quebec	Yellowknife
Quest Yellowknife Mines Ltd. (N.P.L.)	85 Richmond St. W., Toronto, Ont	Yellowknife
Sovereign Yellowknife Mines Ltd	302 Bay St., Toronto, Ont	Johnson Lake
Sunset Yellowknife Mines Ltd	67 Yonge St., Toronto, Ont	Yellowknife
Trans-American Mining Corp. Ltd	55 York St., Toronto, Ont	Yellowknife
Vesta Yellowknife Mines Ltd	67 Yonge St., Toronto, Ont	Yellowknife
Yellorex Mines Ltd	330 Bay St., Toronto, Ont	Yellowknife
BRITISH COLUMBIA—		
Arlington Mine Leases	Salmo	Erie
Bayonne Consolidated Mines Ltd	475 Howe St., Vancouver	Nelson
Bralorne Mines Ltd	555 Burrard St., Vancouver	Bralorne
Bridge River Consolidated Mines Ltd	475 Howe St., Vancouver	Goldbridge
B.R.X. (1935) Consolidated Mines Ltd. (N.P.L.)	475 Howe St., Vancouver	Shalath
Bristol Mines (1946) Ltd	572 Howe St., Vancouver	Minto Mines
Canusa Cariboo Gold Mines Ltd. (N.P.L.)	789 W. Pender St., Vancouver	Barkerville
Canyon Cariboo Gold Mines Ltd. (N.P.L.)	789 W. Pender St., Vancouver	Cariboo
Cariboo Mine	Rock Creek	Greenwood
Cariboo Gold Quartz Mining Co. Ltd	1007 Royal Bank Building, 675 W. Hastings St., Vancouver	Wells
Conwest Exploration Co. Ltd	401 Rogers Building, Vancouver	Slocan
Dentonia Mines Ltd	572 Howe St., Vancouver	Greenwood
Fairview Mining Co. Ltd	626 Pender St., Vancouver	Fairview

DIRECTORY OF FIRMS—Continued

Active Operators in the Canadian Auriferous Quartz Mining Industry—Concluded

Name	Head or Executive Office Address	Location
BRITISH COLUMBIA—Concluded		
Fern Mine Ltd	Royal Bank Building, Nelson	Nelson
Gem Gold Mines Ltd	1604 Royal Building, Vancouver	Nanaimo
Gold Belt Mining Co. Ltd	Sheep Creek	Sheep Creek
Gold Drop Mines Ltd	Stewart	Marmot River
Grull-Wihksne Gold Mines Ltd	475 Howe St., Vancouver	Goldbridge
Hedley Amalgamated Gold Mines Ltd. (N.P.L.)	535 Homer St., Vancouver	Hedley
Hedley Gordon Mines	1935 Haro St., Vancouver	Hedley
Hedley Mascot Gold Mines Ltd (N.P.L.)	908 Royal Bank Building, Vancouver	Hedley
Hedley Monarch Gold Mines Ltd	1155 W. Pender St., Vancouver	Osoyoos
Hedley Yuminum Gold Mines Ltd	417 Metropolitan Building, Vancouver	Osoyoos
Hillstake Mining Co. Ltd	475 Howe St., Vancouver	Bridge River
Island Mountain Mines Co. Ltd	Wells	Wells
Kelowna Exploration Co. Ltd	Hedley	Osoyoos
Kenville Gold Mines Ltd	184 Bay St., Toronto, Ontario	Nelson
Midnight Mine	Box 332, Rossland	Trail Creek
Morris Summit Gold Mines Ltd	510 Stock Exchange Building, Vancouver	Stewart
Pacific (Eastern) Gold Mines Ltd	184 Bay St., Toronto, Ont	Pioneer
Pellaire Mines Ltd	184 Bay St., Toronto, Ont	Williams Lake
Pinebrayle Gold Mines Ltd	844 W. Hastings St., Vancouver	Bralorne
Pioneer Gold Mines of B.C. Ltd	711 Yorkshire Building, 525 Seymour St., Vancouver	Lillooet
Polaris Taku Mining Co. Ltd	1600 Royal Bank Building, Vancouver	Tulsequah
Privateer Mine Ltd	475 Howe St., Vancouver	Zeballos
Red Hawk Gold Mines Ltd	808 W. Pender St., Vancouver	Bridge River
Reno Gold Mines Ltd	208 Yorkshire Building, Vancouver	Zeballos
Rusdon Gold Mines Ltd	475 Howe St., Vancouver	Clinton
Sheep Creek Gold Mines Ltd	616 Stock Exchange Building, Vancouver	Sheep Creek
Silbak Premier Mines Ltd	626 Pender St. W. Vancouver	Premier
Sonny Boy Gold Mining Syndicate	975 Davie St., Vancouver	Merritt
Spud Valley Gold Mines Ltd	703 Royal Trust Building, Vancouver	Zeballos
Sterns, B.	Nelson	Ymir
Stewart Canal Gold Mines Ltd	789 W. Pender St., Vancouver	Stewart

Principal Canadian Alluvial Gold Operators

BRITISH COLUMBIA—		
Aslin, Alfred	Burns Lake	Manson Creek
Anderson, Marius A	Wells	Eight Mile Lake
Bride, Maurice	Atlin	Spruce Creek
Brister, J. V.	Atlin	Spruce Creek
Cariboo Keithley Gold Placers Ltd	812 Standard Building, Vancouver	Williams Lake
Columbia Development Ltd	410 King St. W., Kitchener, Ontario	Atlin
Edwardson, Mark	Atlin	Atlin
Fry, Thomas	Quesnel	Cariboo
Gaensbauer, G	Atlin	McKee Creek
Goldsmith, McGregor & Dernham	Keithley Creek	Keithley Creek
Gunn, J. J	Wells	Wells
Harvey Creek Mines Ltd	555 Burrard St., Vancouver	Keithley Creek
Hasbrouch, W	Keithley Creek	Keithley Creek
Holm, O	Barkerville	Barkerville
Hougen, Dr. O. R	601 Birks Building, Vancouver	Cariboo
Ivanic, Steve & Co	Atlin	Spruce Creek
Johnson, K	Atlin	Wright Creek
Johnson, P., and K. Kulin	Harris Creek	Harris Creek
Johnson & Hill	Atlin	Atlin
Keitch Placers	Wells	Wells
Loper & Sons	Germansen Landing	Germansen Landing
Lowhee Mining Co. Ltd	605 Tacoma Building, Tacoma 2, Washington, U.S.A	Barkerville
McKinnon, Chas	Atlin	Atlin
Moose Flat Placers Ltd	Prince George	Prince George
Noland, John	Atlin	Atlin
Northern Resources Ltd	475 Howe St., Vancouver	Atlin
Picculo, Louis	Atlin	McKee Creek
Rask, Eric	Wells	Cariboo
Reid, James A	Salmon Arm	Revelstoke.
Risberg, Carl	Barkerville	Cariboo
Savery, W. H	Wells	Cariboo
Swanson & Watt	Atlin	McKee Creek
Swift River Dredging Co. Ltd	Quesnel	Cariboo
Taylor, Roy	Wells	Barkerville
Watson, James	Massett	Graham Island
Wheaton Creek Co-operative Mine	1426 11th Ave. W., Seattle 9, Washington, U.S.A	Boulder Creek
Wickstrom, Sunde & Nelson	Atlin	Atlin
Youngash, R. W., & Associates	2280 Burrard St., Vancouver	Snowshoe Creek

DIRECTORY OF FIRMS—Continued

Principal Canadian Alluvial Gold Operators—Concluded

Name	Head or Executive Office Address	Location
YUKON—		
Burwash Mining Co. Ltd	Whitehorse	Burwash Creek
Clear Creek Placers Ltd	4556 University Way, Seattle, Washington, U.S.A	Clear Creek
The Yukon Consolidated Gold Corp. Ltd	1919 Marine Building, Vancouver, British Columbia	Various

Operators in Canadian Copper-Gold-Silver Mining Industry

QUEBEC—		
Allore Rouyn Metals Corp. Ltd	80 Richmond St. W., Toronto, Ont	Destor Tp.
Continental Copper Mines Ltd	67 Yonge St., Toronto, Ont	Dufresnoy Tp.
Copper-Hill Mining Co. Ltd	100 Adelaide St. W., Toronto, Ont	Dufresnoy Tp.
Despina Gold Mines Ltd	79 Wall St., New York, N.Y., U.S.A	Rouyn Tp.
East Sullivan Mines Ltd	1604 Aldred Building, Montreal	Bourlamaque
Gan Copper Mines Ltd	293 Bay St., Toronto, Ont	Beauchastel Tp.
Horne Fault Mines Ltd	Duparquet	Beauchastel Tp.
Joliet-Quebec Mines Ltd	2810, 25 King St. W., Toronto, Ont	Rouyn Tp.
Lake Dufault Mines Ltd	Duparquet	Dufresnoy Tp.
Lake Macenmie Mines Ltd	2 Hughson St., Hamilton, Ont	La Sarre
MacDonald Mines Ltd	1085 Beaver Hall Hill, Montreal	Dufresnoy Tp.
Noranda Mines Ltd	1600 Royal Bank Building, Toronto, Ont	Noranda
Normetal Mining Corp. Ltd	Suite 602, 350 Bay St., Toronto, Ont	Dezmeloizes Tp.
Obalski (1945) Ltd	411 Canada Cement Building, Montreal	Chibougamau Tp.
Osisko Lake Mines Ltd	2810, 20 King St. W., Toronto, Ont	Rouyn Tp.
Quebec Manitou Mines Ltd	78 Sparks St., Ottawa, Ont	Abitibi
Quemont Mining Corp. Ltd	Suite 602, 350 Bay St., Toronto, Ont	Rouyn Tp.
Stanmac Ltd	2810, 25 King St. W., Toronto, Ont	Languedoc Tp.
Waite-Amulet Mines Ltd	1600 Royal Bank Building, Toronto, Ont	Duprat Tp.
Zoneore Rouyn Mines Ltd	414 Bay St., Toronto, Ont	Montbeillard Tp.
MANITOBA—		
Callinan Flin Flon	371 Bay St., Toronto, Ont	Flin Flon
Cuprus Mines Ltd	500 Royal Bank Building, Winnipeg	S.E. Flin Flon
Hudson Bay Mining & Smelting Co. Ltd	500 Royal Bank Building, Winnipeg	Flin Flon
Sherritt-Gordon Mines Ltd	25 King St. W., Toronto, Ont	Sherridon
SASKATCHEWAN—		
Hudson Bay Mining & Smelting Co. Ltd	500 Royal Bank Building, Winnipeg, Man	Flin Flon
BRITISH COLUMBIA—		
Britannia Mining & Smelting Co. Ltd	Britannia Beach	Britannia Beach
Granby Consolidated Mining, Smelting & Power Co. Ltd	675 W. Hastings St., Vancouver	Similkameen
Twin "J" Mines Ltd	Box 1058, Duncan	Victoria
Vananda Mining Co. Ltd	711 Yorkshire Building, Vancouver	Nanaimo

Operators in the the Silver-Cobalt Mining Industry

(x) Active but no shipments made.

Name of Operator	Head Office Address	Location of Mine
ONTARIO—		
Ausic Mining & Reduction Co. Ltd	Box 643, Cobalt	Coleman Tp.
Casey Operation, The	Box 450, Cobalt	Casey Tp.
Comet Leasing Co	Box 274, Cobalt	Coleman Tp.
Conisil Mines Ltd. (x)	320 Bay St., Toronto	Cobalt
Cross Lake Lease (O'Brien)	Box 390, Cobalt	Coleman Tp.
Mayfair Mines Ltd. (x)	156 Yonge St., Toronto	Coleman Tp.
Nipissing Mining Co. Ltd., The (x)	302 Bay St., Toronto	Cobalt
Silanco Mining & Refining Co. Ltd	7 Prospect Ave., Cobalt	Cobalt
Silco Mines Ltd	67 Yonge St., Toronto	Gillies
Silver Arrow Mines Ltd	85 Richmond St. W., Toronto	S. Lorrain
Siscoe Metals Ltd	907 Dominion Sq. Bldg., Montreal, Quebec	Haultain Tp.

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

DIRECTORY OF FIRMS—Continued

Principal Operators in the Silver-Lead-Zinc Mining Industry

(x) Active but not producing.

Name of Operator	Head Office Address	Location of Mine
QUEBEC—		
Candego Mines Ltd. (x)	1085 Beaver Hall Hill, Montreal	Gaspe
Cameron, F. C. (x)	250 Park Ave., New York, N.Y., USA	Sherbrooke
Federal Zinc & Lead Co. Ltd. (x)	708 Drummond Bldg., Montreal	Lemieux Tp.
Golden Manitou Mines Ltd	Room 1104, 30 Bay St., Toronto, Ont	Bourlamaque Tp.
Gulf Lead Mines Ltd. (x)	330 Bay St., Toronto, Ontario	Hudson Bay
Lyall and Beidelman (x)	1117 St. Catherine St. W., Montreal	Gaspe
Mistassini Explorations Ltd. (x)	184 Bay St., Toronto, Ont	Mistassini
Norzone-Rouyn Mines Ltd. (x)	67 Yonge St., Toronto, Ont	Montbeillard Tp.
Shawinigan Mining & Smelting Co. Ltd. (x)	740A de l'Eppe Ave., Outremont, Montreal	Portneuf Co.
BRITISH COLUMBIA—		
Ainsmore Consolidated Mines Ltd	Ainsworth	Ainsworth
Base Metals Mining Corp. Ltd	350 Bay St., Toronto, Ont	Field
Big Four Silver Mines Ltd. (x)	302 Royal Bank Bldg., Vancouver	Stewart
Cansil Consolidated Mines Ltd. (x)	711 Credit Foncier Bldg., Vancouver	Ferguson
Consolidated Mining & Smelting Co. of Canada Ltd	Trail	Kimberley
Doney, Ernest (Victor)	Box 414, New Denver	Slocan, M.D.
Esperanza Mines Ltd. (x)	650 Columbia St., New Westminster	Portland Canal
Highland Silver Mines Ltd. (x)	404 Rogers Bldg., Vancouver	Beaverdell
Highland-Bell Ltd	844 West Hastings St., Vancouver	Beaverdell
International Mining Corp. (Canada) Ltd. (x)	85 Richmond St. W., Toronto, Ontario	Kootenay
Esposito, V	Salmo	Ainsworth
Ottawa Mining & Milling Co	Empire State Bldg., Spokane, Wash., U.S.A.	Slocan
Santiago Mines Ltd	423 Hamilton St., Vancouver	New Denver
Sheep Creek Gold Mines Ltd	616 Stock Exchange, Vancouver	Zincton
Silver Ridge Mining Co. Ltd. (x)	Sandon	Slocan
Sylverite Mines Ltd. (x)	1155 West Pender St., Vancouver	Sandon
Torbrit Silver Mines (x)	350 Bay St., Toronto, Ont	Alice Arm
Union Mine	Rossland	Rossland
Utica Mines (1937) Ltd. (x)	475 Howe St., Vancouver	Kaslo
Western Exploration Co. Ltd	Silverton	Silverton

Firms in the Miscellaneous Metal Mining Industry in Canada

NOTE.—(x) Active but not producing.

Name of Firm	Head Office Address	Location of Canadian Plant
ONTARIO—		
Falconbridge Nickel Mines, Ltd	304 Bay St., Toronto	Falconbridge Tp.
International Nickel Company of Canada, Limited	Copper Cliff	Mines: Tps. of Levack, Snider, McKim and Garson Smelters: Copper Cliff and Coniston Nickel refinery: Port Colborne Copper refinery: Copper Cliff
Nickel Offsets Ltd. (x)	Room 1701—372 Bay St., Toronto	Foy Tp.
North Range Nickel Mines Ltd. (x)	Suite 501—67 Yonge St., Toronto	Bowell Tp.
Ontario Nickel Mines Ltd. (x)	Room 305—350 Bay St., Toronto	Moose Lake
MANITOBA—		
Sherritt-Gordon Mines Ltd. (x)	25 King St. W., Toronto	Lynn Lake

Firms in the Miscellaneous Metal Mining Industry in Canada

(x) Active but not producing.

Name of Firm and Product	Head Office Address	Location of Mine or Plant
Aluminum—		
Aluminum Company of Canada Limited	1700 Sun Life Bldg., Montreal, Que	Arvida, Que. Shawinigan Falls, Que. La Tuque, Que. Isle Maligne, Que. Beauharnois, Que.
Antimony—		
Consolidated Mining & Smelting Company of Canada Ltd	215 St. James St., Montreal, Que	Trail, B.C.

DIRECTORY OF FIRMS—Continued

Firms in the Miscellaneous Metal Mining Industry in Canada—Concluded

(x) Active but not producing.

Name of Firm and Product	Head Office Address	Location of Mine or Plant
Beryl—		
Canadian Beryllium Mines & Alloys Ltd. (x)	Room 401, 100 Adelaide St. W., Toronto, Ont	Renfrew County, Ont.
Bismuth—		
Deloro Smelting & Refining Co. Ltd (x)	900 Victoria Bldg., Ottawa, Ont	Deloro, Ont.
Consolidated Mining & Smelting Company of Canada Ltd	215 St. James St., Montreal, Que	Trail, B.C.
Molybdenite Corp. of Canada Ltd	59 St. James St. W., Montreal, Que	La Corne Tp., Que.
Cadmium—		
Consolidated Mining & Smelting Company of Canada Ltd	215 St. James St., Montreal, Que	Trail, B.C.
Hudson Bay Mining & Smelting Co. Ltd.	500 Royal Bank Bldg., Winnipeg, Man	Flin Flon, Man.
Western Exploration	Silverton, B.C	Kaslo, B.C.
Chromite—		
Chrome Association	342 Notre Dame St., Black Lake, Que	Black Lake, Que.
Chromite Ltd. (x)	404 Notre Dame St. W., Montreal, Que	Cleveland Twp., Que.
Pare, Orel	Black Lake, Que	Calernine Twp., Que.
Iron Ore—		
Hollinger North Shore Exploration Co. Ltd. (x)	721 Royal Bank Bldg., Montreal, Que	N.E., Quebec, Que.
Labrador Mining & Exploration Co. Ltd. (x)	721 Royal Bank Bldg., Montreal, Que	Labrador, Que.
Algoma Ore Properties Ltd	Cornwall Bldg., Sault Ste. Marie, Ont	Algoma District, Ont.
Michipicoten Iron Mines Ltd	25 King St. W., Toronto, Ont	Algoma District, Ont.
Rebair Gold Mines Ltd. (x)	9 Adelaide St. E., Toronto, Ont	Atikokan, Ont.
Steep Rock Iron Mines Ltd	25 King St. W., Toronto, Ont	Rainy River Dist., Ont.
Tomahawk Iron Mines Ltd. (x)	Suite 405, 67 Yonge St., Toronto, Ont	Hastings Co., Ont.
Rawn Iron Mines Ltd. (x)	Atikokan, Ont	Steep Rock Lake, Ont.
Kazabazua Hematite Ltd. (x)	710 Yonge St., Toronto, Ont	Kazabazua, Que.
Norancon Exploration (Que.) Ltd. (x)	c/o Noranda Mines Ltd., Noranda, Que	New Quebec, Que.
Andowan Mines Ltd. (x)	Kashabowie, Ont	Matawin, Ont.
Lowphos Ore, Ltd. (x)	1809 Royal Bank Bldg., Toronto, Ont	Hutton Twp. Ont.
Westland Mining Co. Ltd. (x)	24 King St. W., Toronto, Ont	Algoma, Ont.
Indium—		
Consolidated Mining & Smelting Company of Canada Ltd. (x)	215 St. James St., Montreal, Que	Trail, B.C.
Lithium Ore—		
Hudson Bay Mining & Smelting Co. Ltd. (x)	500 Royal Bank Bldg., Winnipeg, Man	Cat Lake, Man.
Lithium Corporation of Canada Ltd. (x)	403 Avenue Bldg., Winnipeg, Man	Bernic and Cat Lakes, Man.
Nepheline Products Ltd. (x)	320 Bay St., Toronto, Ont	La Corne Que.
Sherrit Gordon Mines Ltd. (x)	25 King St. W., Toronto, Ont	Crowduck Bay, Man. East Braintree, Man.
Magnesium—		
Consolidated Mining & Smelting Company of Canada Ltd. (x)	215 St. James St., Montreal, Que	Trail, B.C.
Dominion Magnesium Ltd	Room 1107, 67 Yonge St., Toronto, Ont	Haley, Ont.
Mercury—		
Bralorne Mines Ltd. (x)	555 Burrard St., Vancouver, B.C	Omineca District, B.C.
Consolidated Mining & Smelting Company of Canada Ltd. (x)	215 St. James St., Montreal, Que	Pinchi Lake, B.C.
Molybdenite—		
Molybdenite Corp. of Canada Ltd	59 St. James St. W., Montreal, Que	La Corne, Que.
Quyon Molybdenite Co. Ltd. (x)	Quyon, Que	Quyon, Que.
Selenium-Tellerium—		
International Nickel Co. of Canada Ltd	Copper Cliff, Ont	Copper Cliff, Ont.
Canadian Copper Refineries Ltd	1600 Royal Bank Bldg., Toronto, Ont	Montreal East, Que.
Thallium—		
Hudson Bay Mining & Smelting Co. Ltd. (x)	500 Royal Bank Bldg., Winnipeg, Man	Flin Flon, Man.
Tin—		
Consolidated Mining & Smelting Company of Canada Ltd	215 St. James St., Montreal, Que	Trail, B.C.
Mountain Crest Mines Ltd. (x)	1445 MacKay St., Montreal, Que	Charlevoix, Que.
Titanium Ore—		
Baie St. Paul Titanic Iron Ore Co	Baie-Saint-Paul, Que	St. Urbain, Que.
Coulombe, J	71 Ave. Royal Monument, Quebec, Que	St. Urbain, Que.
Loughborough Mining Co. Ltd	Sydenham, Ont	St. Urbain, Que.
O'Brien & Fowler Ltd	Buckingham, Que	St. Urbain, Que.
Tungsten Concentrates—		
Hollinger Cons. Gold Mines Ltd. (x)	Timmins, Ont	Timmins, Ont.
Wartime Metals Corp. (Emerald Tungsten Project) (x)	637 Craig St. W., Montreal, Que	Salmo, B.C.

DIRECTORY OF FIRMS—Continued

Firms in the Non-Ferrous Smelting and Refining Industry

Name of Firm	Head or Executive Office Address	Location of Plant
Quebec—		
Aluminum Company of Canada Ltd	1700 Sun Life Bldg., Montreal	Arvida, La Tuque Shawinigan Falls, Isle Maligne, Beauharnois
Canadian Copper Refineries Ltd	1600 Royal Bank Bldg., Toronto, Ont	Montreal East
Noranda Mines Ltd	1600 Royal Bank Bldg., Toronto, Ont	Noranda
Ontario—		
Deloro Smelting & Refining Co. Ltd	Deloro	Deloro
Dominion Magnesium Ltd	67 Yonge St., Toronto	Haley
Eldorado Mining and Refining		Port Hope
Falconbridge Nickel Mines Ltd	304 Bay St., Toronto	Falconbridge
International Nickel Co. of Canada Ltd	Copper Cliff	Copper Cliff, Coniston, Port Colborne
Manitoba—		
Hudson Bay Mining and Smelting Co. Ltd	500 Royal Bank Bldg., Winnipeg	Flin Flon
British Columbia—		
Consolidated Mining & Smelting Co. of Canada Limited	Trail	Trail

NON-METAL MINING INDUSTRIES, INCLUDING FUELS

FUELS

DIRECTORY OF FIRMS—Continued

Coal Mining Industry

Operator	Head office	Mine location and mine office
NOVA SCOTIA—		
Bras d'Or Coal Co., Ltd.	Bras d'Or	Cape Breton Co., Bras d'Or
		Cape Breton Co., Bras d'Or, ¾ mi. N. of
Dominion Coal Co., Ltd.	Sydney	Cape Breton Co.
		Glace Bay, O'Neil Point
		Glace Bay, New Aberdeen
		Glace Bay, Caledonia
		Glace Bay, Passchendale
		New Waterford
		New Waterford, 1 mi. W. of
		Glace Bay, New Aberdeen
		Glace Bay, Caledonia
		Gardiner
		Glace Bay, O'Neil Point
Indian Cove Coal Co., Ltd.	Sydney Mines, Drawer P	Cape Breton Co., Sydney Mines, S. side
		Cape Breton Co., Sydney Mines, W. of
Old Sydney Collieries, Ltd.	Sydney Mines	Cape Breton Co., Sydney Mines, Cranberry Head
		Cape Breton Co., Florence 2 mi. NW. of Sydney Mines
Campbell & Son, A. J.	Inverness	Inverness Co., Inverness
Chestico Coal Co. (McDonald, McIsaac & Jones)	Port Hood, Box 26	Inverness Co., Port Hood
Evans, Dean	Chimney Corner	Inverness Co., St. Rose
Inverness Coal Mine	Inverness	Inverness Co., Inverness
Margaree Steamship Co., Ltd.	Inverness (Sydney)	Inverness Co., Inverness
MacLellan, John A.	Inverness, Box 223	Inverness Co., Inverness
Cumberland Ry. & Coal Co.	Springhill	Cumberland Co.
		Cumberland Co., Springhill
		Cumberland Co., Springhill
		Cumberland Co., Springhill
Hillcrest Mining Co., Ltd.	River Hebert	Cumberland Co., River Hebert.
Joggins Coal Co., Ltd.	Amherst, 50 Church St.	Cumberland Co., Joggins, 1 mi. N. of
		Cumberland Co., River Hebert
Riverside Coal Co. (Deal, Merson & Darling)	Fairview	Cumberland Co., River Hebert
Standard Coal Co, Ltd.	Amherst, 50 Church St.	Cumberland Co., River Hebert, E. of river
Acadia Coal Co., Ltd.	Stellarton	Pictou Co., Stellarton, W. side of
		Pictou Co., Stellarton, N. side of
		Pictou Co., Stellarton, W. of Albion mine
		Pictou Co., Thorburn
Greenwood Coal Co., Ltd.	New Glasgow	Pictou Co., Coalburn
Intercolonial Coal Co., Ltd.	Westville	Pictou Co., Westville, S. and N. sides
		Pictou Co., Westville
Wadden, W. H.	Westville, P.O. Box 585	Pictou Co., Westville
NEW BRUNSWICK—		
Avon Coal Co., Ltd.	Saint John, Box 940	Minto, South of, near Rothwell
		xMinto, South of, near Rothwell
Crawford, E. S. & Sons	Newcastle Creek	Minto, 2½ mi. E of, on lake road
Evans, W. B. (Rothwell Coal Co., Ltd., *Lessee*)	Rothwell	Rothwell South
Fearon, Bertram	Beersville	Beersville, on Coal Branch river
Fitton, James	Minto	New Zion, 7 mi. S.W. of Minto
Flower, James I., for B. B. Flower	Minto, R.R. 2	Flower Cove, 4 mi. S. of Minto on lake road
General Contractors	Chipman	Coal Creek, South of
Girvan, H. H.	Jailletville	Beersville, on Coal Branch River, S. side of, at Big Brook Fork

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

Operator	Head office	Mine location and mine office
NEW BRUNSWICK—Concluded		
Glencross, Wm. Irving	Beersville	Beersville, on Coal Branch River
Horgan, Frank J., Contractor	Chipman	Long Creek
King, Gerald H.	Chipman	Chipman, 4 mi. S. of (Coal Creek)
MacDonald, John F. (*Operator* for Rothwell Coal Co.)	Minto, R.R. 2	Newcastle Creek on lake road; 2½ mi. E. of Minto
McMann, Hugh H.	Newcastle Creek	Newcastle Creek, Block 2½ mi. E. of Minto on lake road
Miramichi Lumber Co., Ltd.	Minto	North and South of Minto
Mitchell, Parker M.	Water St., W. St. John	Minto
Newcastle Coal Co. (A. D. Taylor, *Lessee*)	Minto, Box 291	Chipman
Reid, Thos.	Beersville	Newcastle Bridge, S. of C.P. Ry.
Sullivan, Robt. H. (for Miramichi Lumber Co.)	Minto	Beersville, on Coal Branch River, W. side of
Welton & Henderson, Ltd.	Minto	Minto
Wasson, A. W. (A. G. Woodcock, *Lessee*)	Newcastle Creek	Minto, 8 mi. S.E. of
Yeamans, Roy	Newcastle Bridge	Minto, 1½ mi. S.E. of
ONTARIO—		
Ontario Department of Mines (H. C. Rickaby, Deputy Minister)	Toronto 2, Parliament Bldgs.	Onakawana, a station on the T. & N.O. Ry., 126 miles N. of Cochrane (West side of Abitibi River)

SASKATCHEWAN

SOURIS AREA

Operator	Head office	Mine location: Section (Part L. S. No.)	Tp.	R.	W.	Mine office
Banks, Harry	Bienfait, Box 137	31	1	6	2	Bienfait
Coates & Kingdon	Bienfait	F. N ½ 19	2	6	2	Bienfait
xEastern Collieries of Bienfait, Ltd.	Estevan, Box 359	Fl. 13	2	7	2	Bienfait
Havanah Collieries, Ltd.	Estevan	10, 14 14	2	7	2	Bienfait
xManitoba & Saskatchewan Coal Co.	Winnipeg, 503 Avenue Bldg.	½ {10 xx {2	2 2	6 6	2 2	Bienfait Bienfait
North West Coal Co. (A. Konapaki, *Operator*)	Bienfait	NW 10 22	2	7	2	Bienfait
*Reidel Bros. Coal Mine, *Lessees*	Estevan, Box 336	11, 14 22	2	7	2	Bienfait
South Cambrian, Ltd.	Pinto	8 35	1	6	2	Pinto
Uhrich, Mrs. E., & Hugh Banks	Pinto	14 35	1	6	2	Pinto
xWestern Dominion Coal Mines, Ltd.††	Taylorton	{5 {8	2	6	2	Taylorton
		xx {5 {4, 8	2	6	2	Taylorton
Wheeler & Enmark	Bienfait	19	2	6	2	Bienfait
*Andersen, Niels	Estevan, Box 59	12, 13 28	1	8	2	Estevan
Bourquin & Sons, Geo.	Estevan	1, 2, 3 11	2	8	2	Estevan
Bourquin & Sons, L. E.	Estevan, Box 287	9, 10 12	2	8	2	Estevan
‡Flower Bros. *Lessees*	Estevan, Box 501	Fl. 3 4	2	8	2	Estevan
High Grade Mine (John Olshanoski & S. Betland, *Lessees*)	Estevan, Box 167	33	1	8	2	Estevan
Janish Bros. (Joe. & Eng)	Estevan, Box 510	10 1	2	8	2	Estevan
Nicholson Coal Mine (S. Osjust, *Operator*)	Estevan	16 2	2	8	2	Estevan
Taje, Ed., & P. H. Frank	Estevan	1, 2 32	1	8	2	Estevan
Tisdale, A. E.	Estevan	13 33	1	8	2	Estevan
xRoche Percée Coal Mining Co., Ltd.	Roche Percée	26	1	7	2	Roche Percée

BENGOUGH, WILLOW BUNCH AND WOOD MOUNTAIN AREAS

*Beahm, Geo. R.	Minton	SE. 17	3	21	2	Minton
Berge, J. Telford	Buffalo Gap	5 30	2	25	2	Buffalo Gap
Brown, Alton G.	Wideview	SE. 9 NE. 8 18	3	8	3	Wideview
Caplette, J. E.	St. Victor	N.½ 13 2	6	30	2	St. Victor
Coronach Coal Mine (Jos. Brandiez, *Operator*)	Coronach	5, 6 11	2	27	2	Coronach

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

SASKATCHEWAN—Concluded

BENGOUGH, WILLOW BUNCH AND WOOD MOUNTAIN AREAS—Concluded

Operator	Head office	Mine location: Section (Part L. S. No.)	Mine location: Tp. R. W.	Mine office
Culbert, W.	Minton	10, 15 26	3 20 2	Minton
Desjardins, Fred	Willow Bunch	15 13	5 28 2	Willow Bunch
Dumais, O., *Lessee*	Willow Bunch	3 24	4 27 2	Willow Bunch
Eidsness, E., *Lessee*	Minton	9, 10 4	1 21 2	Minton
Fair, James F.	Harptree	6, 11 32	3 26 2	Harptree
Finnberg, Nils	Fir Mountain	13 7 4 18 16 12	4 4 3	Fir Mountain
		(1 13)	4 5 3	
Fister, Jesse J.	Big Beaver	11 30	1 23 2	Big Beaver
Fontaine, E.	St. Victor	10, 15 33	5 29 2	St. Victor
Garraway, A. J.	Fife Lake	(13, 16) (31, 32)	1 28 2	Fife Lake
Hedin, M. & Seida, J.	Assiniboia	3,4,5,6,12 10	7 30 2	Assiniboia
Lacerte, J., & J. B. Short	Scout Lake	12 13	5 30 2	Scout Lake
Lapointe, Louis	Buffalo Gap	6 29	2 25 2	Buffalo Gap
Leatherdale, Don	Gladmar	1, 2, 8 11	3 19 2	Gladmar
Lebeck, Anton	Buffalo Gap	9 30	2 25 2	Buffalo Gap
xLee, Magnus, *Operator*	Big Beaver	7 18	2 22 2	Big Beaver
*McGillis, Will	Willow Bunch	5 14	5 28 2	Willow Bunch
Mattson, Geo. and Wagner	Bengough	14, 15 9 2 16	5 22 2	Bengough
Morrow, G. R.	Big Beaver	1, 2, 8 11	2 23 2	Big Beaver
*Ott, Mrs. H. (Flora) (Louis Guse, *Operator*)	Bengough	9 3	4 23 2	Bengough
Pohl, Henry	Buffalo Gap	E. ½ 12 2	3 25 2	Gallocks
Porter, L. W.	Willow Bunch	10, 11 23	4 27 2	Willow Bunch
Robinson, H.	Buffalo Gap	16 11	2 26 2	Buffalo Gap
Salaba, Frank G.	Willow Bunch	1,2,7,8 17	5 27 2	Willow Bunch
Salaba, G. J., *Operator*	Willow Bunch	1 18 4 17	5 27 2	Willow Bunch
Slater, Dan	Bengough	1,2 16	5 22 2	Ritchie
Spooner & McEwen	Bengough	9, 16 10	4 23 2	Bengough
Straza, Dan J.	Wood Mountain Station	4 15	5 4 3	Wood Mountain Station
Thatcher, G. C.	Stonhenge	3, 9, 14, 15 20	6 1 3	Stonehenge
xWarren, Wm.	Fife Lake	N. ½ 10 28 S. ½ 15	1 28 2	Fife Lake
Wilhelm, Roy and Robert	Verwood	11, 12 29	6 27 2	Verwood

SHAUNAVON AND EAST END AREAS

Bednarik, John	Shaunavon	4, 5 3	9 18 3	Kelstern (5 mi. NW of Shaunavon)
Bowman Mine (L. F. Wilkins, *Owner*)	Shaunavon	9 22	7 19 3	Shaunavon, SW. of
*Cox, W. J.	Shaunavon	13 30	7 18 3	Shaunavon, S. of
*Freaman, Bruce	South Fork	13 36	7 21 3	South Fork
xGosselin, Clement	Dollard, Box 18	4 9	7 19 3	Dollard, S. of
Jacques, Joseph E., *Operator*	South Fork	9, 10 35	7 21 3	South Fork
Knoblauch, Ernest	Shaunavon, Box 512	3 31	7 18 3	Shaunavon, S. of
Larsen, Peter	East End	14 13	6 22 3	East End, W. of
Spirka, K.	Shaunavon	1 4	9 18 3	Kelstern, W. of
xWilkins, Herman W.	Shaunavon, Box 312	3 30	7 18 3	Shaunavon, S. of
Wilkins, Leonard F., *Owner*	Shaunavon, Box 304	4, 6 23	7 19 3	Shaunavon, S. of
(*See also* Bowman Mine)		4 23	7 19 3	Shaunavon, S. of

ALBERTA

ARDLEY

Barrell, Wm. & A. Auvigne	Ardley	10 20	38 23 4	Ardley
Blades, Jas.	Delburne, R.R. 2	3 4 15	38 22 4	Delburne
Anderson, A.	Delburne	3 17	38 23 4	Delburne
Kehl & McGladrie	Nevis	4 5 35	37 22 4	Nevis
Kurp, Carl B.	Delburne	4 7	38 23 4	Alix
Lynass, John H.	Delburne, Box 445	16 7	38 23 4	Delburne
Munro & Son, S. S.	Ardley	12 35	38 23 4	Ardley
Sissons, John W.	Alix	(E. of C.N.R. 6 33	38 23 4	Alix
Russell, Chas. M.	Alix, R.R. 1	W. ½ 3 29	38 23 4	Alix
Straub, F.A. (J. C. Craig, *Operator*)	Alix, R.R.	NE. ¼ 5 17	38 23 4	Alix

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

ALBERTA—Continued

BIG VALLEY

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Big Valley Coal Co. (John McAllister & Robt.)	Big Valley			1	26	35	20	4	Big Valley
Campkin, & Sons, Robt.	Lousana, R.R. 1		15	16	12	36	22	4	Elnora
Ginther & Boise	Elnora	N. ½		7	30	34	21	4	Elnora

BROOKS

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Kleenbirn Collieries, Ltd.	Eyremore		1, 7,	2, 8	15	17	17	4	Eyremore (Kitsim)

CAMROSE

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Burnstad, Sigurd H.	Ohaton		3,	6	14	48	18	4	Ohaton
Alberta Coal Co., Ltd.	Calgary, 332-7 Ave. W.		2,	7	29	46	19	4	Camrose
Proskow, Joseph	Dinant		3,	4	18	48	19	4	Dinant
Red Flame Coal Co., Ltd.	Round Hill	SW. ¼		14, 7	19, 30	48	18	4	Round Hill
Shute, Geo. *et al.*	Dinant	N. ½	8,	9	7	48	19	4	Dinant
Strilchuk, Leo.	Ohaton, R.R. 2			8	10	48	18	4	Ohaton

CARBON

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Balogh Bros. (Arctic C. Co.)	Carbon, Box 252			16	12	29	23	4	Carbon
Campbell, C.C.	Trochu		9,	10	29	33	22	4	Trochu
Davidson, W.W.	Three Hills	E. ½		2	9	31	22	4	Ghost Pine Creek
East Carbon Coal Co., Ltd. (Fox Bros., *Operators*)	Carbon			10	7	29	22	4	Carbon
East Trochu Coal Mine	Trochu		10, 15,	9, 16	14	33	23	4	Trochu
Fox, Alfred	Carbon			3	14	29	23	4	Carbon
Halbert Bros.	Trochu			8	14	33	23	4	Trochu
Inland Coal Co., Ltd.	Edmonton, 804 McLeod Bldg.	NE. ¼			25	31	24	4	Three Hills
Knee Hill Coal Co., Ltd. (Pastorchik and Partners)	Calgary, 22 Travellers Bldg.			9	9	31	22	4	Ghost Pine Creek
Peerless Coal Co.	Carbon			2	15	29	23	4	Carbon
Pickering, B. (Orkney mine)	Ghost Pine Creek		2,	3	6	31	21	4	Ghost Pine Creek
Ryning, Jas. W.	Rowley			4	13	32	21	4	Rowley
Sarcee Coal Co., Ltd. (M. E. Morel, *et al*)	Ghost Pine Creek			8	10	31	22	4	Ghost Pine Creek
Reissig, Erik	Trochu	W. ½		15	14	33	23	4	Trochu

CASCADE

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Canmore Mines, Ltd., The	Canmore	NE. ¼		1	29	24	10	5	Canmore
Wheatley & Sons, Frank	Banff, Box 341			12	4	26	11	5	Banff (near Anthracite)

CASTOR

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Ainsworth, J. H.	Halkirk			13	25	40	16	4	Halkirk
Annanson, A., Annanson, H. O., and J. Radford	Donalda			5	28	41	17	4	Donalda
Battle River Coal Mine (James Bradley)	Foreman			16	26	40	16	4	Foreman
Bish Bros.	Forestburg			15	36	40	16	4	Hastings Coulee
Bradley, J. and O'Brien, A.	Halkirk			14	25	40	16	4	Halkirk
Castor Coal and Construction Co.	Castor		3 to 6		3	38	14	4	Castor
Chiswick, James	Gadsby		6, 11		28	39	16	4	Gadsby
Cordel, Jean F.	Halkirk	Fl.	6, 7, 8		20	40	15	4	Halkirk
Davis & Gormley	Halkirk			10	8	39	15	4	Halkirk
Easton, James	Castor			14	34	37	14	4	Castor
Glen Bank Coal Co. (Joe Tyrlik, *Operator*)	Heisler			9	28	42	17	4	Heisler
Hronek, Ben	Halkirk, Box 144			1	7	39	15	4	Halkirk
Johnson, C.	Forestburg			13	28	40	15	4	Forestburg

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

ALBERTA—Continued

CASTOR—Concluded

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Jones, Wm.	Forestburg			10	32	40	15	4	Forestburg
Komperdo & Partners	Heisler			13	22	42	17	4	Heisler
K. M. Coal Mine (Killam Mfg. Co., Ltd., Strome)	Forestburg			16	2	41	16	4	Forestburg
Lien, Edwin A.	Edberg			6	2	44	19	4	Edberg
Marshall, John W.	Donalda, R.R. 1			12	16	42	17	4	Donalda
Mills & Sons, J. J.	Heisler			5	22	42	17	4	Heisler
Miner, A. T.	Rosalind				4	43	17	4	
Mitchinsons, Thomas	Donalda		10, 11		29	41	17	4	Donalda
Muncy, Howard C.	Foreman			15	26	40	16	4	Foreman
Phillips, W. T. and W. J.	Castor, Box 160			1, 2	4	38	14	4	Castor
Remillard, O. V., *Operator*	Castor		15, 16		33	37	14	4	Castor
Sorken, Alfred	Killam			16	26	40	16	4	Castor
Strader & Bailey	Gadsby		11, 14		28	39	16	4	Gadsby
Strader, Chas.	Halkirk			4	17	39	15	4	Halkirk
Strickland, Thos. and Partners	Heisler			1	33	42	17	4	Heisler
Wiltse, Floyd N.	Halkirk	W. ½	11, 12		39	39	15	4	Halkirk
Wiltse & Krammer	Forestburg			8	32	40	15	4	Forestburg

CHAMPION

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
McGaw, Albert M. S.	Champion			15	33	15	23	4	Champion
Popovich, Mike	Champion			9	8	16	23	4	Champion
Rhodes, Geo.	Champion			7	8	15	22	4	Champion

COALSPUR

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Bryan Hard Coal Co., Ltd.	Edmonton, 309 Agency Bldg.			11	15	49	21	5	Robb (Mile 32)
Coal Valley Mining Co., Ltd.	Edmonton, 705 McLeod Bldg.			7	25	47	20	5	Coal Valley
Foothills Collieries, Ltd.	Winnipeg, 222 Portage Ave.			10	24	47	20	5	Foothill
Lakeside Coals Ltd. (Mine No. 2)	Edmonton, Jasper Ave. and 93rd St.	N. ½ S. ½			14 11	49	21	5	Robb
McLeod River Hard Coal Co. (1941) Ltd.	Nanaimo, B.C.			5	25	48	22	5	Mercoal
Sterling Collieries Co., Ltd.	Edmonton, 912 McLeod Bldg.			12	35	47	20	5	Sterco

CROWSNEST

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Hillcrest Mohawk Collieries, Ltd.	Bellevue	SE. ¼			27	7	3	5	Bellevue
International Coal & Coke Co., Ltd.	Coleman			11	8	8	4	5	Coleman
McGillivary Creek Coal & Coke Co., Ltd.	Coleman	SW. ¼		2	17	8	5	5	Coleman
Neumann Bros.	Pincher Creek, Box 46		5, 6		11	5	1	5	Pincher Creek
West Canadian Collieries, Ltd.	Blairmore			9	20	7	3	5	Bellevue
				10	2	8	4	5	Blairmore
			10, 11		31 30	6	3	5	Bellevue
Wood & V. Sulava	Beaver Mines			10	3	6	2	5	Beaver Mines

DRUMHELLER

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Aetna Coal Co.	East Coulee			1	22	28	19	4	Rosedale Ferry
Arcadia Coal Mines, Ltd. (Sask. Fed. Co. Op's., Ltd.)	Calgary, 405 MacLean Block			16	7	28	18	4	Willow Creek
Atlas Coal mine	Drumheller			13	21	27	18	4	East Coulee
Brilliant Coal Company	Drumheller		14		15	29	20	4	Drumheller
Chambers, H. S.	Delia	Fl.			22 23	28	18	4	Delia
Castle Coal Co., Ltd.	Wayne			16	7	28	19	4	Wayne
Commander Coal mine	Drumheller			5	9	29	20	4	Drumheller
Foye, E. B.	Drumheller, Box 734			10	22	28	18	4	Willow Creek
Hamilton, John	Delia, Box 312			xx10	23	28	18	4	Delia
Hy-Grade Coal Mining Co., Ltd.	Drumheller, Box 200			13	11	29	20	4	Drumheller (Midland road)
Ideal Coal Co., Ltd.	Wayne			16	1	28	20	4	Wayne
Kidd, Gordon L.	Drumheller, Box 230			11	14	29	20	4	Drumheller

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

ALBERTA—Continued

DRUMHELLER—Concluded

Operator	Head office	Mine location: Section (Part L. S. No.)	Mine location: Tp.	Mine location: R.	Mine location: W.	Mine office
Maple Leaf Minerals, Ltd.	Drumheller	13 32	27	18	4	Willow Creek
Midland Coal Mining Co., Ltd.	Drumheller	10 9 11	29	20	4	Drumheller (Midlandvale)
Minute Coal Co., The	Drumheller, Box 237	8 14	29	20	4	Drumheller
Monarch Coal Mining Co., Ltd.	Calgary, 405-8th Ave. W.	1 20	27	18	4	East Coulee
Murray Collieries, Ltd.	East Coulee	1 29	27	18	4	East Coulee
Newcastle Collieries, Ltd.	Drumheller	14 3	29	20	4	Drumheller
Red Deer Valley Coal Co., Ltd.	Drumheller, Box 20	NE. ¼ 7	29	20	4	Nacmine (Drumheller)
Regal Coal Co., Ltd.	Calgary, 808 Lancaster Bldg.	.....	.....			.....
Rosedale Collieries, Ltd.	Calgary, 909 Lancaster Bldg.	SE. ¼ 14 28 27	28 28	19 19	4 4	Rosedale Station Aerial
Sask. Fed. Co. Op's., Ltd.	East Coulee	2 32	27	18	4	East Coulee
Sovereign Coal Mine (O'Dwyer & O'Dwyer)	Wayne	NE. ¼ 8 8	28	19	4	Wayne
Western Gem & Jewel Collieries, Ltd.	Calgary, 606 Lancaster Bldg.	NW. ¼ 6 15	28	19	4	Cambria
Whittaker, O. W.	Beynon	5 6	27	20	4	Beynon

EDMONTON

Operator	Head office	Mine location: Section (Part L. S. No.)	Mine location: Tp.	Mine location: R.	Mine location: W.	Mine office
Banner Coals, Ltd., *Operator*	Edmonton, 10631-92nd St.	10 8	55	24	4	Carbondale (Sturgeon Valley)
Beaver Hills Coal Co. (C. F. MacLachlan, *Operator*)	Edmonton, 10123-117th St.	8, 9 7	53	21	4	.....
Beverly Coal, Ltd.	Beverly	6 13	53	24	4	Beverly
Black Point Mine Co. (Dolinski, Yaniw & Maik)	South Edmonton, Box 4124	6 25	51	25	4	South Edmonton (Black Point)
Camarta, John, *Operator*	Cardiff	1 32	55	25	4	Cardiff
Chiarello, D.	Legal	11 14 26	57	25	4	Legal
Dickinson Bros. & Knight	Carbondale	SE. 17	55	24	4	Carbondale
Edmonton Collieries, Ltd.	Edmonton, 10055-101st St.	14 36	54	25	4	Namao
Egg Lake Coal Co. (Thos. J. Logan, *Operator*)	Morinville, R.R. 2	NE. ¼ 36	56	26	4	Morinville
Great West Coal Co. Ltd., The	Edmonton, 10117-100A St.	SE. ¼ 10 7	53	23	4	Clover Bar
Gwilliam, George S.	Namao	3 6	55	24	4	Namao
Horkulak, A.	South Edmonton	15, 16 26	51	25	4	South Edmonton
Long Coal Co., Ltd.	Namao	3, 4 31	54	24	4	Namao
Mucha, J. C.	South Edmonton	13 25	51	25	4	South Edmonton
Nimko Mine	South Edmonton, Box 4035	10 25	51	25	4	South Edmonton
Ottewell Coal Co.	Clover Bar	SW. ½ 17 15 36	53 52	23 24	4 4	Clover Bar
Pine Creek Coal Co. (Opalinski & Stephen Fridel)	South Edmonton, R.R.3	4, 3 25	51	25	4	South Edmonton
Red Hot Coal Co., Ltd.	Edmonton, 10841-93rd St.	River lot 31	Edmonton Settlement			Forest Heights
Riverdale Coal Co., Ltd.	Edmonton, 10311 Sask. Drive	SW. ½ 8	55	24	4	Namao
Samis Collieries	Namao	3, 4 36 5, 6	54	25	4	Namao
Sinoski, Mike	South Edmonton, Box 4024	5 25	51	25	4	Ellerslie
Starky, Co. Ltd., J. B.	Edmonton, 10631-92nd St.	S. ½ 35	55	25	4	Carbondale
Sundance Mines, Ltd.	Cardiff	16 23	55	25	4	Cardiff
White Star mine (Waytowich & Senetchco)	Edmonton South, 11247-90th st.	14 25	51	25	4	.....

GLEICHEN

Operator	Head office	Mine location: Section (Part L. S. No.)	Mine location: Tp.	Mine location: R.	Mine location: W.	Mine office
Blackfoot Indian Agency	Gleichen	1, 12 33 20	21 19	21 4	4	Gleichen (on reserve, S. of Cluny)
Consumers Coal Co. (John Guiney & H. Rasmussen)	Rosebud, Box 34	3 29	26	21	4	Rosebud
Lucky Strike Coal Mine (Alex McMillan, *Operator*)	Rosebud, Box 44	14 20	26	21	4	Rosebud
Schnepf, Karl J.	Rosebud	S. ½5, N. ¼4, 29	26	21	4	Rosebud
Standard Coal Mine (Castella Bros)	Standard	5 11	25	22	4	Standard

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

ALBERTA—Continued

HALCOURT

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Baldwin Collieries	Grande Prairie			15	35	70	7	6	Grande Prairie
Campbell, R. C., & M. O'Reilly	Dimsdale	N.W. ¼		2	21	70	7	6	Dimsdale
Dahl & Cage	Halcourt			14	24	70	11	6	Halcourt
Fraser, Wm.	Halcourt			2	21	70	10	6	Hinton Trail (17 mi. SW. of Beaverlodge)
Grubb, C. D.	Huallen			1	18	70	9	6	Huallen
Johnston, Ralph O. & Sons	Grande Prairie					69	5	6	Grande Prairie, 25 mi. SE. of
Pinto Creek Coal Mines Ltd. (E. A. & W. E. Doupe, *Operator*)	Wembley					69	10	6	Wembley, 37 mi. SW. of
Schneider, Nikolaus	Dimsdale		4,	5	7	70	8	6	Dimsdale
Schultz, Thos. L.	Grande Prairie					70	7	6	Grande Prairie

HIGH PRAIRIE

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Smoky River Coal Co. (Tissington & Shultz)	High Prairie	N. ½	5;	12	27	72	20	5	High Prairie
Triangle Mining Co., Ltd. (Cyril T. Jones, *Operator*)	Edmonton, 10026-102nd Ave.	SW. ¼		8	28	72	20	5	High Prairie, 30 mi. W. of

HIGHWOOD

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Allied Industrials, Ltd.	Calgary, 303 Toronto General Trusts Bldg.	NE. ¼			15	19	7	5	Longview
Ford Highwood Collieries, Ltd.	Toronto, Room 1701, Victory Bldg., 80 Richmond St. W.					17	6	5	Longview, 25 mi. W. of
E.P. Coal Mine (E. Payne)	Turner Valley, c/o F. Nash			7	24	19	6	5	Lineham, .. mi. W. of
						18	6	5	Lineham, .. mi. W. of
					14	19	7	5	

LETHBRIDGE

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Chester, J. C.	Lethbridge, Box 5			9	30	9	21	4	Lethbridge
Forsyth Coal Co.	Lethbridge, 2033-1st Ave. N.			5	8	7	21	4	Magrath
Hamilton Coal Co., J. J.	Lethbridge, Box 140			11	24	9	22	4	Lethbridge
Lethbridge Collieries, Ltd.	Lethbridge, 207-7th St. S.			11	30	10	21	4	Shaughnessy
				3	2	9	22	4	Lethbridge
New Royal View Mine	Lethbridge, 635-13th St. N.			12	29	9	21	4	Lethbridge
Razzolini, Albert	Magrath, Box 180			3	7	7	21	4	Magrath
Rollingson Mine, Geo.	Lethbridge, Box 432			2	11	8	22	4	Lethbridge, 8 mi. SW.
Vulcan Mining & Construction Co. (McArthur, Allen & Leon, *Operators*)	Lethbridge, 1117-2nd Ave. S.			3	7	7	21	4	Raymond

MILK RIVER

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Duggan, F. W. and Pierce, E.	Masinasin		10,	15	17	2	12	4	Masinasin (Kippenville)
Taylor, Thos., *Operator*	Groton			10	10	3	11	4	Groton, SW. of

MORLEY

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
Ainsley & Sons, B.	Calgary, 5717-3rd St. SW.				25	25	7	5	Morley Sta., 2½ mi. SW. of

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Continued

ALBERTA—Continued

MOUNTAIN PARK

Operator	Head office	Mine location: Section: Part	Section: L.	Section: S.	Section: No.	Tp.	R.	W.	Mine office
Cadomin Coal Co., Ltd.	Cadomin			14	31	46	23	5	Cadomin
Gregg River Collieries	Edmonton, 418 McLeod Bldg.		7,	8	28	47	24	5	Gregg River
Luscar Coals, Ltd.	Edmonton, 410 Tegler Bldg.			7	23	47	24	5	Luscar
					24	47	24	5	
Mountain Park Coals, Ltd.	Edmonton, 410 Tegler Bldg.				32	45	23	5	Mountain Park
King Coals, Ltd. (H. Croxton)	Edmonton, 10226-116th				36	45	24	5	Cadomin

NORDEGG

Brazeau Collieries Ltd.	Nordegg			13	22	40	15	5	Nordegg

PAKOWKI

Raeder, Wm.	Elkwater		7,	10	23	8	3	4	Elkwater

PEKISKO

Davies, G. C., *Operator and Lessee*	Priddis			10	4	22	3	5	Priddis

PEMBINA

Donvie Collieries, Ltd.	Wabamun		7	8	30	52	4	5	Stony Plain
Fry, N. and Larsen, T.	Seba Beach			16	25	53	6	5	Seba Beach
Gainford Collieries	Gainford	SE. ¼			36	53	6	5	Gainford
Hunt, Harold D.	Gainford	SW. ¼			31	53	5	5	Gainford
Lakeside Coals, Ltd.	Edmonton, 93rd St. at Jasper	N. ½			16	53	4	5	Wabamun (N. of Lake Wabamun)
Lothian Collieries, Ltd.	Wabamun								Wabamun
Pembina Collieries, Ltd. (G. Ostertay)	Pembina	NW. ¼			34	53	7	5	Pembina
				12	36				
Robinson, Wm.	Entwistle			5	34	53	7	5	Entwistle
Schon, Karl	Moon Lake		9,	16	23	49	7	5	Moon Lake
				13	24				
Strawberry Creek Coal Co., Ltd.	Warburg		6	11	13	49	3	5	Warburg
Wright, H. H.	Genesee			11	33	49	2	5	Genesee
Yellowknife Transport Co., Ltd.	Edmonton, 10509-100 Ave.				22	50	3	5	Genesee

PINCHER

Keith Coal Co., Albert	Lundbreck	SW. ¼		15	26	7	2	5	Lundbreck
Mitchell, T.	Lundbreck			10	26	7	2	5	Lundbreck

PRAIRIE CREEK

Jasper Coals, Ltd.	Edmonton, 10117-100A St. (Box 475)	NE. ¼			18	51	24	5	Drinnan
Ruby Glow Coal Mines	Hinton					51	25	5	Hinton
Woodley, C. M. & Partners	Hinton		4		29	50	25	5	Hinton

REDCLIFF

Cooke, C. R., & Naylor, C. A.	Medicine Hat			2	5	13	6	4	Medicine Hat

ROCHESTER and WESTLOCK

Operator	Head office	Mine location: Section: Part	L.	S.	No.	Tp.	R.	W.	Mine office
North Point Coal Co. (Tomilson, Kaszuba & Dombroski, *Operators*)	Thorhild	..		1	11	60	21	4	Thorhild
Pickardville Coal Co.	Edmonton, 9732-110th St.	SW. ¼			5	59 58	26 27	4 4	Pickardville
Thorhild Coal Co.	Thorhild, Box 44	N. ½ S. ½		12 13	12	60	21	4	Thorhild

SAUNDERS

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Alexo Coal Co., Ltd.	Alexo	..		9	27	40	13	5	Alexo (100 mi. W. of Red Deer)
Bighorn & Saunders Creek Collieries, Ltd.	Blairmore Saunders			9	24	40	13	5	Saunders

SHEERNESS

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Bordula, A. J. & Partners	Hanna			16	12	29	13	4	Sheerness
Chinook Coal Co., Ltd.	Sheerness			1	12	29	13	4	Sheerness
Gaetz, C.	Hanna, R.R. 3			1	6	29	14	4	Hanna, 13 mi. S. of (Gowans Coulee)
Ironside, T. G., & A. Glover	Scapa, R.R. 2			12	5	34	13	4	Scapa, 7 mi. E. of (Garden Plain)
Litke, Bros.	Hanna, R.R. 1	SW. ¼		6	29	32	13	4	Hanna
Masciangelo, John	Delia, Box 178			10	21	30	17	4	Delia
Pahl & Sons, Fred M.	Hanna, R.R. 1	SE. ¼		7	30	32	13	4	Hanna
Sheerness Coal Co., Ltd.	Sheerness		4	15	9	29	12	4	Sheerness

TABER

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Lavenne, Clement J. (Acadia Coal Mines Ltd.)	Bow Island, Box 127			3	27	12	10	4	Bow Island
McCracken, D., & Goring, H.	Aldersen				28	12	10	4	Aldersen
Oliver Coal Mine, Lewis	Taber			2	18	10	16	4	Taber
Southern Alberta Coal Co.	Calgary, 332-7th Ave. W.		7	8	26	9	13	4	Grassy Lake
				4	26	9	13	4	Grassy Lake
					30	10	16	4	Taber
			7	8	12	10	17	4	Taber

TOFIELD

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Binder, Christopher	Ryley			5	9	49	17	4	Ryley
Black Nugget Coal Co., Ltd. (Fred Irving, *Operator*)	Dodds			15	11	49	18	4	Dodds
Dodds Coal Mine (Skarin & Clarke, *Operators*)	Dodds		2	3	14	49	18	4	Dodds
Ryley Coal Co. (Zacharchuk *et al*, *Operators*)	Ryley			8	8	49	17	4	Ryley
Tofield Coal Co., Ltd.	Tofield, Box 141	N. ½			26	50	19	4	Tofield

WETASKIWIN

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Gill, Peter	Thorsby, R.R. 2		2	7	3	48	27	4	Thorsby

WHITECOURT

Operator	Head office	Part	L.	S.	No.	Tp.	R.	W.	Mine office
Pritchard, R. F.	Blue Ridge	N. ½		16	30	59	10	5	Blue Ridge
		S. ½		1	31				
Watson, Alex.	Blue Ridge		12	13	19	59	10	5	Blue Ridge
			9	16	24	59	11	5	

DIRECTORY OF FIRMS—Continued

Coal Mining Industry—Concluded

BRITISH COLUMBIA

VANCOUVER ISLAND

Operator	Head office	Mine location	Mine office
Biggs, James	Nanaimo, 813 Douglas Rd.	Wellington	Nanaimo
Canadian Collieries (Dunsmuir), Ltd.	Nanaimo	Cumberland	Cumberland, 1 mi. from
		Cumberland	Cumberland, 1 mi. NW.
		Cumberland	Bevan, Lake Trail Rd.
		Cranberry	S. Wellington, 7 mi. S. of
		Cranberry	Nanaimo, 14 mi. SW of
		Wellington	Extension
Carruthers & Wakelam (Wellington No. 3 mine)	Nanaimo, 160 Bastion St.; Box 68	Wellington	Nanaimo
Chambers, Ralph H.	Nanaimo, 86 Victoria Rd.; Box 29	Wellington	Nanaimo (Ext. No. 3)
Dunn, Andrew	Nanaimo, 307 Bruce Ave.	Wellington	Extension (Ext. No. 1)
Hamilton, Robt. N.	Extension	Wellington	Extension
Lewis, Glyn and Jos. Wilson (Wellington No. 8 mine)	Nanaimo, 508 Rosehill Ave.	Cranberry	Timberlands
London, Wm. D. (Wellington No. 5 mine)	Nanaimo, 160 Bastion St.; Box 68	Wellington	Nanaimo
McKellar, Ross & Carroll (Cassidy Mines)	Nanaimo, 517 Nicol	Cranberry	Cassidy, 10 mi. S. of Nanaimo
Pacific Coal Mine, Wellington No. 9 (H. Gerlock and F. John)	Nanaimo, 160 Bastion St.; Box 68	Wellington	Nanaimo
Stronach's Mine, C.	Wellington	Wellington	Wellington

CROWSNEST

Hillcrest Mohawk Collieries, Ltd.	Bellevue, Alberta	Corbin	Corbin, B.C.
Consolidated Mg. & Smelting Co. Ltd., The	Trail	Coal mt'n, portion of northerly half	Trail, B.C.
Crow's Nest Pass Coal Co. Ltd., The	Fernie	Michel Creek	Fernie, 21 mi. NE. of

INLAND

British Lands, Ltd.	Kelowna, Box 283	Finlay Creek	Princeton, 6 mi. SW. of
Taylor, James	Princeton	Princeton, 4 mi. W. of	
Tulameen Collieries, Ltd.	Vancouver, 716 Hall Bldg.	Princeton	Princeton, 2 mi. W. of
Merritt Coal Mines, Ltd.	Merritt	Nicola valley	Merritt, 2 mi. E. of
Coldwater Colliery (Gerrard, Berkley & Allan)	Merritt	Nicola valley	Merritt
Hat Creek Coal Mine (St. Eugene Mg. Corp., *Operator*)	Pavilion Vancouver, 850 Hastings W.	Upper Hat Creek	Pavilion, 15 mi. E. of Ashcroft, 30 mi. NW. of
Hutton, F.	Australian	Australian Creek	Quesnel, 19 mi. S. of
Armstrong, Wm., & Robt. Day	Cottonwood	Lightning Creek	Quesnel, 25 mi. E. of (Wingdam)
Donnelly, James J.	Quesnel	Fraser River, east side	Quesnel, 7 mi. Nof
Cariboo Central Placers, Ltd.	Cottonwood	Lightning Creek	
Hasler Creek Coal Co. Ltd.	Dawson Creek	On Hasler Creek	Little Prairie, 18 mi. SW. of
Gething, Quentin F.	Hudson Hope	Bullhead Mountain, east slope of	Hudson Hope, 12 mi. W. of
Peace River Coal Mines, Ltd.	Victoria, 106 Union Bldg.	Bullhead Mountain, NW. slope of	Hudson Hope, 12½ mi. W. of
Bulkley Valley Collieries, Ltd. (F. M. Dockrill, *Lessee*)	Telkwa, Box 3	On Goathorn Creek	Telkwa, 7½ mi. S. of
Telkoal, Co., Ltd.	Telkwa, Box 27	Telkwa River	Telkwa, 6 mi. NE. of
		Glacier Creek	Smithers, 4 mi. N. of
Campbell, Ed. F.	Vancouver, 1325-15th Ave. W.	Coal Creek, E.	Quick Sta., 20 mi. NE. of

YUKON and NORTHWEST TERRITORIES

Five Fingers Coal Co.	St. Paul, Minn., 713 New York Bldg.	Yukon	Carmacks
	Fort Norman, N.W.T.	N.W.T.	Norman, 20 mi. S. of

DIRECTORY OF FIRMS—Continued

Firms in the Natural Gas Industry

NOTE (a) Drilling only.
(b) Distributing only.
(c) Drilling and producing.
(d) Pipe line company.
(e) Using or selling gas from absorption plant.

Name	Address	Location of field
NEW BRUNSWICK—		
Moncton Electricity and Gas Co. Ltd. (b)	700 Main St., Moncton	
New Brunswick Gas & Oilfields, Ltd.	Box 194, Moncton	Stoney Creek
ONTARIO—		
Acme Gas Syndicate	Ridgeway	Bertie
Aloka Oil Co. Ltd.	57 Queen St. W., Toronto	Dereham
Amer-Can Oil & Gas Co.	215 King St., Chatham	Dover, Tilbury E., and Walpole
Ashton, J. L. (a)	Chatham	
Barnhart, Mrs. E.	Stevensville	Bertie
Bates, Norman	Humberstone	Humberstone
Beachville Natural Gas Syndicate (b)	Beachville	
Beaver Oil & Gas Syndicate	14 King St. E., Toronto	Walpole
Belmont Gas Co. (b)	815 Lawrence Rd., Windsor	
Benner, K. W.	Fisherville	Rainham
Benner & Tinney	Fisherville	Rainham and Walpole
Bertie Township Gas & Oil Syndicate	Fisherville	Bertie and Willoughby
Big Seven Gas Syndicate	Fisherville	Rainham
Binbrook Gas Co.	Binbrook	Binbrook
Bliss, Douglas E.	Tillsonburg	Middleton
Brindley & Harper	Dunnville	Brantford
Broadway Gas Syndicate	Cayuga	Walpole
Buck, C. S.	Port Rowan	Walsingham South
Burchell Natural Gas & Oil Syndicate	R.R. Listowel	Woodhouse
Canada Cement Co. Ltd.	Montreal, Que.	Wainfleet
Canadian Natural Gas Syndicate	Simcoe	Bayham and Moulton
Canfield Gas Syndicate	703 Capitol Park Bldg. Detroit 26, Michigan, U.S.A.	Cayuga North
Canfield Natural Gas Co. Ltd.	Dunnville	Cayuga North
Cartwright, S. E.	1972 Penobscot Bldg. Detroit, Michigan, U.S.A.	Walpole
Cayuga Gas Syndicate	Cayuga	Cayuga South
Central Pipe Line Co. Ltd. (c)	Chatham	Bayham, Houghton and Malahide
Central Senaca Gas Syndicate	Cayuga	Senaca
Chippawa Creek Gas Syndicate	Drawer 200, Fort Erie N.	Willoughby
Chira Gas Syndicate (b)	Norwich	
City Gas Company of London (b)	London	
Coleman, J. A. Estate	Wellandport	Gainsborough
Columbia Natural Gas Co.	Brodhagen	Dunn
Coronation Gas Syndicate	Stevensville	Bertie
Crowland Gas Syndicate (c)	R.R. 4, Welland	Crowland
Culver, Marvin & Son (a)	Rainham Centre	
Culver & Havill (a)	Stevensville	
Dain City Gas Syndicate	208 Burgar St., Welland	Bertie and Humberstone
Dawson, Ralph	Merlin	Tilbury East
Delhi Gas Syndicate	Cayuga	Windham
Dennis, G. A. (a)	R.R. 2, Selkirk	
Dominion Natural Gas Co. Ltd.	220 Delaware Ave., Buffalo 2, N.Y., U.S.A.	Aldborough, Binbrook, Caistor, Canboro, Charlotteville, Delhi Village, Dunn, Glanford, Humberstone, Malahide, Mersea, Middleton, Moulton, North Cayuga, North Dorchester, North Walsingham, Oneida, Onondaga, Port Dover, Port Rowan, Rainham, Raleigh, Romney, Senaca, Sherbrooke, South Cayuga, South Norwich, South Walsingham, Southwold, Tilbury East, Townsend, Wainfleet, Walpole, West Oxford, Windham, Woodhouse, and Yarmouth
Donald, Thomas G. (a)	Hagersville	
Dunn Natural Gas Co. Ltd.	907 Pigott Bldg., Hamilton	Dunn
Dunnville-Detroit Gas Syndicate	703 Capitol Park Bldg., Detroit, Michigan, U.S.A.	North Cayuga
Economy Natural Gas Syndicate	25 Market Place, Stratford	Woodhouse
Ehde & Meier (a)	Thamesville	
Elgin Prospecting Syndicate	Ridgeway	Humberstone
Elk Development Syndicate	Cayuga	Humberstone
Emerson, H. L. (c)	R.R. 1, Dunnville	Canboro, Moulton and Wainfleet
Emerson, & Rose (a)	Wainfleet	
Erie Prospecting Syndicate	18 Toronto St., Toronto	Walpole
Evans, H. L. (a)	Box 743, Tillsonburg	
Fairbank-Rance Gas Co.	Petrolia	Enniskillen
Fa'ls View Gas Syndicate	Drawer 200, Fort Erie N.	Stamford

DIRECTORY OF FIRMS—Continued

Firms in the Natural Gas Industry—Continued

Name	Address	Location of field
ONTARIO—Continued		
Featherstone, Roy	Caledonia	Oneida
Fisherville Gas Co.	Fisherville	Rainham
Fleet Manufacturing & Aircraft Ltd.	Fort Erie	Bertie
Fletcher, Eva	R.R. 2, Glanford Station	Binbrook
Fonthill-Ridgeville Gas Co. Ltd. (b)	Box 511, Portland, Ind., U.S.A.	.....
Fox, E. S.	168 Thorold Rd. E., Welland	Thorold
Frontier Gas Syndicate	Fisherville	Bertie
Garringer, Wm. (a)	Dunnville	.....
Garrison Gas Syndicate	Drawer 200, Fort Erie N.	Bertie
Gas Producers Co.	703 Capitol Park Bldg., Detroit 26, Michigan, U.S.A.	Raleigh and Woodhouse
Gifford, Arthur & Son	R.R. 2, Cayuga	South Cayuga
Glenney, Elizabeth	R.R. 5, Dunnville	Canboro
Grand River Gas & Oil Syndicate	Canfield	Cayuga North
Grimsby Natural Gas Co. Ltd.	Grimsby	Caistor, Gainsboro and Canboro
Hagersville Quarries Ltd.	Hagersville	Walpole
Haldimand Gas Syndicate	Cayuga	Rainham
Haldimand Natural Gas Syndicate	Stevensville	Bertie
Harris, Wm. (a)	R.R. 3, Jarvis	.....
Highland Oil Ltd.	Chatham	Raleigh
Hodgson Bros. (a)	Cayuga	.....
Hoover, A. E. (a)	Selkirk	.....
Hoover & Donald (a)	Selkirk	.....
Houk Syndicate	Dunnville	Moulton
House, C. C. (c)	Stevensville	Bertie
Hussey, Wm. J. (a)	Petrolia	.....
Ideal Gas Syndicate	Fisherville	Rainham
Imperial Oil Ltd., (Eastern Canada Exploration)	56 Church St., Toronto	Raleigh and Sombra
Irving, D. (a)	Dunnville	.....
Ivy Drilling Co. (a)	St. Catharines	.....
Jackson & Graff	Dunnville	Crowland
Jackson, P. L. (c)	Dunnville	Walpole, Moulton, Canboro, North Cayuga, Rainham, Sherbrooke, Dunn, Crowland, Woodhouse, South Cayuga and Senaca
Jasperson, Bon	Kingsville	Gosfield South and Romney
Jenkins, S. S.	282 W. North St., Buffalo, N.Y. U.S.A.	Bertie and Townsend
Kent Gas Co.	25 Market Place, Stratford	Walpole
Kerr, R.	York	Senaca
Kiser Bros. (a)	Chatham	.....
Lake Erie Gas Syndicate	54 Hambly Ave., Toronto	Rainham
Lake Shore Gas & Oil Syndicate	Ridgeway	Bertie
Lapp, Alvin	Stevensville	Bertie
Leamington, Town of (b)	Leamington	.....
Lincoln Natural Gas Co.	Dunnville	Canboro, Moulton, Caistor, Gainsboro, and Wainfleet
Little, R.W.	222 Humbercrest Blvd., Toronto	Brant, Onondaga and Walpole
Locators Oils Ltd.	22 King St. W., Toronto	Cayuga South and Middleton
Lomac Gas & Oil Co. Ltd.	Fort Stanley	Bayham
Lunenfeld, S.	Drawer 200, Fort Erie N.	Bertie
Lymburner Bros. & Webber (c)	Dunnville	North Cayuga, Rainham and Walpole
Mandley, Roy (a)	Dunnville	.....
Maple Leaf Gas Syndicate	Ridgeway	Bertie and Crowland
McCutcheon, T. (a)	Dunnville	.....
McDougall, Seymour	279 St. George St., Toronto	Rainham
McKechnie, Sam (c)	Dunnville	Senaca and Walpole
McLister, J. J. (a)	Dunnville	.....
McMaster, R. & Sons (c)	Caledonia	Binbrook
Mehlenbacher, L. B. & Sons Syndicate	Cayuga	North Cayuga and Walpole
Minor & Luck	Cheltenham	Sherbrooke
Mohawk Gas & Oil Syndicate Ltd.	421 Main St. E., Hamilton	Oneida and Walpole
Monarch Gas & Oil Syndicate	Fisherville	Dunn, South Cayuga and Walpole
Morningstar, R.	Ridgeway	Bertie
Nagel, Elmer (a)	Stevensville	.....
Nauman, W. R. (a)	Selkirk	.....
Nauman Bros. (a)	Fisherville	.....
New Malden Syndicate	430 Giles St. W., Windsor	Malden
Niagara Gas Syndicate	Fisherville	Bertie
Niagara Natural Gas Co. Ltd.	Fort Erie N.	Moulton
Niece, Elmond	Dunnville	Sherbrooke
Norotto Gas Co. Ltd. (b)	Norwich	.....
North Cayuga Gas Syndicate	Cayuga	North Cayuga
North Shore Gas Co.	Selkirk	Rainham
Noyes, L. A.	Stevensville	Willoughby
Oil Springs Oil & Gas Co. Ltd. (b)	Oil Springs	.....
Oxford Pipe Line Co. (d)	100 Adelaide St. W., Toronto	.....
Palsco, J. (b)	Wainfleet	.....
Patterson & Culver (c)	Dunnville	Oneida

DIRECTORY OF FIRMS—Continued

Firms in the Natural Gas Industry—Continued

Name	Address	Location of field
ONTARIO—Concluded		
Patterson, W. C. Gas Co. Ltd. (c)	Box 914, Jamestown, N.Y., U.S.A.	Dunn, Rainham, Walpole, North Cayuga, Wainfleet, Willoughby, Crowland, Bayham, Dereham and Humberstone
Peacock Point Gas & Oil Syndicate	Fisherville	Walpole
Perkins, J. E. (a)	Dunnville	
Petrol Oil & Gas Co. Ltd.	414 Bay St., Toronto	Dover, Oneida, Onondaga and Tuscarora
Pine Ridge Gas & Oil Co.	Port Stanley	Bayham
Port Colborne-Welland Gas Co. (c)	Port Colborne	Onondaga, Oneida, Seneca and North Cayuga
Povec Gas Syndicate	Tillsonburg	Canboro
Prairie Gas & Oil Co. Ltd. (N.P.L.)	350 Bay St., Toronto, 1	Dover
Provincial Gas Co. Ltd.	Fort Erie N	Bertie, Crowland, Humberstone and Willoughby
Purcifer & Ferguson	Stevensville	Humberstone
Queenston Gas & Oil Co., Ltd.	50 Jarvis St., Fort Erie N	S.Walsingham, Oneida, Rainham and Willoughby
Rainham Gas Syndicate	Cayuga	Rainham
Raydis Oil & Gas Co. Ltd.	118 King St. W., Chatham	Townsend
Reicheld, F. W. (c)	Jarvis	Walpole
Ricker, Arthur (c)	Canboro	Canboro
Rocks Mill Oil & Gas Syndicate	510 Huron & Erie Bldg., London	South Norwich
Romney Oil & Gas Co.	18 Toronto St., Toronto	Wainfleet
Roth, Frank	Ridgeway	Bertie
Roth, Harvey (a)	Dunnville	
Rowe, E. P. Estate	350 Bay St., Toronto	Dover and Raleigh
Royal Gas Syndicate	Stevensville	Bertie
Salina Gas Co. Ltd.	317 Queen St., Chatham	Tilbury East
Sandusk Gas Syndicate	Fisherville	Walpole
Sarnia Oil & Gas Co. Ltd.	204 Atlas Bldg., Toronto	Enniskillen
Shank, Ernest	Cayuga	Oneida and Rainham
Shank Bros. (a)	Cayuga South	
Sherk & Carrothers	Sherkston	Humberstone
Sherk & Learn	Sherkston	Humberstone
Sherk & Nagel	Stevensville	Bertie
Sherk, Perry M.	Sherkston	Humberstone
Shurr, Ivan	South Cayuga	Rainham
Sider, Andrew & Jesse	Stevensville	Bertie and Humberstone
Sider, Norman	Sherkston	Humberstone
Smith & Ebde	Lowbanks	Dunn & Moulton
Smith, Harry B.	373 Oak Ave., Windsor	Romney
South Norwich Gas & Oil Syndicate	Norwich	South Norwich
Springdale Gas & Oil Co. Ltd.	Hagersville	Walpole
Standard Gas & Oil Syndicate	Fisherville	Rainham and Walpole
Stanley Gas Syndicate	Stratford	Walpole
Star Gas Syndicate	Ridgeway	Bertie
Sterling Gas Co.	Guelph	Walpole
Stevensville Gas & Fuel Co.	Stevensville	Bertie
Stewart & Stewart	R.R. 3, Jarvis	Walpole
Stewart, Elgin (c)	R.R. 3, Jarvis	Walpole
Stover, F. H. & Associates	19 Beatty St., Chatham	Raleigh
Stromwell Gas Syndicate	R.R. 3, Jarvis	Moulton
Stubble & Stubble (a)	Merlin	
Stubble, H. H. & Son (a)	Chatham	
Sundy Gas Wells	Dunnville	Canboro
Swent, Wm. N. (a)	Selkirk	
Tanner, F. O.	1650 Penobscot Bldg. Detroit 26, Michigan, U.S.A.	North Cayuga and Oneida
Till Gas Syndicate	Tillsonburg	Walpole
Union Gas Company of Canada Ltd.	Chatham	Romney, Tilbury East, Raleigh, Dover, Dawn, Camden Gore, Zone, Mosa, Aldborough, Dunn, North Cayuga, Rainham, Senaca, South Cayuga, Walpole, Oneida, Chatham and Malahide.
United Gas & Fuel Co. of Hamilton, Ltd. (b)	82-84 King St. E., Hamilton	
Victoria Gas Co.	Dunnville	Rainham and Walpole
Victory Oil & Gas Co.	Huron & Erie Bldg., London	Windham
Wainfleet Gas Co. Ltd.	Box 914 Jamestown, N.Y., U.S.A.	Wainfleet
Walpole Gas Syndicate	Cayuga	Wulpole, North Cayuga, Senaca and South Walsingham
Walter Gas Syndicate Ltd. (c)	R.R. 5, Simcoe	Walpole, Walsingham South, Woodhouse and Townsend
Warren, Gordon (a)	R.R. 1, Canboro	
Welland County Gas Syndicate	Stevensville	Bertie
Wentworth Gas Co. Ltd. (b)	82-84 King St. E., Hamilton	
Werner, David (a)	Fisherville	
Western Ontario Natural Gas Co. Ltd.	907 Pigott Bldg., Hamilton	Dunn and Canboro
West Petroleum Ltd.	372 Bay St., Toronto	Romney
Willoughby Gas Syndicate	R.R. 1, Chippawa	Humberstone

DIRECTORY OF FIRMS—Continued

Firms in the Natural Gas Industry—Concluded

Name	Address	Location of field
SASKATCHEWAN—		
Bata Petroleums Ltd.	310 Broder Bldg., Regina	Unity
Lloydminster Gas Co. Ltd.	Lloydminster	Lloydminster
Northern Utilities Ltd.	Lloydminster	Lloydminster
ALBERTA—		
Ace Royalties Ltd.	4 Clarence Blk., 122, 8th Ave., W. Calgary	Turner Valley
Alberta Clay Products Co., Ltd.	Box 672, Medicine Hat	Medicine Hat
Alberta Pacific Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Allied Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Amalgamated Oils Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Anglo-Canadian Oil Co. Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Argus Royalties Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Arrow Oil Royalties Ltd.	804 Southam Bldg., Calgary	Turner Valley
Associated Oil & Gas Co. Ltd.	200 Leeson-Lineham Blk., Calgary	Turner Valley
Baltac Oils Ltd.	200 Leeson-Lineham Blk., Calgary	Turner Valley
Barsac Royalties Ltd.	303 Toronto General Trusts Bldg., Calgary	Turner Valley
Bow Island, Town of (b)	Bow Island	.....
British American Oil Co. Ltd. (e)	Royal Bank Bldg., King & Yonge Sts., Toronto, Ont.	.....
British Colonial Oils Ltd.	1010 Lancaster Bldg., Calgary	Turner Valley
British Dominion Oil & Development Corporation Ltd.	213 Dominion Bank Bldg., Calgary	Turner Valley
Calgary Power Co. Ltd.	244 St. James St., Montreal, Que.	Bassano
California Standard Co.	700 Lancaster Bldg., Calgary	Conrad and Princess
Calmom Oils Ltd.	303 Toronto General Trusts Bldg., Calgary	Turner Valley
Canadian Pacific Railwny Co.	Medicine Hat	Medicine Hat
Canadian Western Natural Gas, Light, Heat & Power Co. Ltd.	215-6th Ave. W., Calgary	Brooks
Canadian Western Power & Fuel Co. Ltd.	3rd St., Redcliff	Redcliff
Chinook Oils Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Coastal Oils Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Crude Oils Ltd.	501 Leeson-Lineham Bldg., Calgary	Turner Valley
D. & D. Royalties Ltd.	303 Toronto General Trusts Bldg., Calgary	Turner Valley
Davies Petroleums Ltd. (N.P.L.)	409 Lancaster Bldg., Calgary	Turner Valley
Deep Oils Ltd.	501 Leeson & Lineham Bldg., Calgary	Turner Valley
Department of National Defence	Calgary	Suffield
Dominion Glass Co. Ltd.	1111 Beaver Hall Hill, Montreal, Que.	Redcliff
East Crest Oil Co. Ltd.	212 Grain Exchange Bldg., Calgary	Turner Valley
Extension Oil Royalties Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Federated Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Foothills Oil & Gas Co. Ltd.	119 Sixth Ave. W., Calgary	Turner Valley
Four Star Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Franco Oils Ltd.	Vermilion	Vermilion
Franco Public Service Ltd.	Vermilion	Vermilion
Gas & Oil Refineries Ltd. (e)	301 Lancaster Bldg., Calgary	.....
Gunderson Brick & Coal Co. Ltd.	Redcliff	Redcliff
Home Oil Co. Ltd.	226 Lougheed Bldg., Calgary	Turner Valley
Hudson's Bay Oil & Gas Co. Ltd.	79 Main St., Winnipeg, Man.	Viking
Imperial Oil Ltd.	56 Church St., Toronto, Ont.	Turner Valley
Inland Gas & Oil Co. Ltd.	36 Dominion Bank Chambers, Edmonton	Fabyan
Lowery Petroleums Ltd.	606 Second St. W., Calgary	Turner Valley
Major Oil Investments Ltd.	407 Lancaster Bldg., Calgary	Turner Valley
Maple Leaf Milling Co. Ltd.	Dominion Bank Bldg., Toronto, Ont.	Medicine Hat
Maple Leaf Oil Co. Ltd.	608 Stock Exchange Bldg., Vancouver, B.C.	Wainwright
Medicine Hat Brick & Tile Co. Ltd.	Box 100, Medicine Hat	Medicine Hat
Medicine Hat, City of	Medicine Hat	Medicine Hat
Model Oils Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Northwestern Utilities Ltd.	10124-104th St., Edmonton	Viking and Kinsella
Ogilvie Flour Mills Co. Ltd.	Medicine Hat	Medicine Hat
Pacific Petroleums Ltd.	501 Leeson-Lineham Bldg., Calgary	Turner Valley
Redcliff Pressed Brick Co. Ltd.	Redcliff	Redcliff
Renown Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Royalite Oil Co. Ltd. (e)	119 Sixth Ave., W., Calgary	Turner Valley
Shell Oil Company of Canada Ltd.	25 Adelaide St. E., Toronto, Ont.	Jumping Pound
Southwest Petroleum Co. Ltd.	119-6th Ave., W., Calgary	Turner Valley
Suffield Gas Supply	Suffield	Suffield
Sunset Oils Ltd.	302 Toronto General Trusts Bldg., Calgary	Turner Valley
Twin Valley Royalties Ltd.	804 Southam Bldg., Calgary	Turner Valley
Valley Gas Co. Ltd.	207 Insurance Exchange Bldg., Calgary	Turner Valley
Vulcan Brown Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Wainwright Gas Co. Ltd.	36 Dominion Bank Chambers, Edmonton	Fabyan
Wetaskiwin, City of	Wetaskiwin	Wetaskiwin
York Oils Ltd.	414 Pacific Bldg., Vancouver, B.C.	Turner Valley
NORTHWEST TERRITORIES—		
Imperial Oil Co. Ltd.	56 Church St., Toronto, Ont.	Fort Norman

DIRECTORY OF FIRMS—Continued

Crude Oil Producers

Name	Address	Location of field
NEW BRUNSWICK—		
New Brunswick Gas & Oilfields Ltd.	Moncton	Stoney Creek
ONTARIO (*)—		
Anderson, C. W. (b)	931 College St., Toronto	Metcalfe
Austin, Gordon	Bothwell	Orford
Barnes, Amos	Box 552, Petrolia	Petrolia and Enniskillen
Barnes Bros	Petrolia	Petrolia and Enniskillen
Barnes, Henry	Oil Springs	Petrolia and Enniskillen
Byers, Irving	Oil Springs	Petrolia and Enniskillen
Byers Bros	Oil Springs	Petrolia and Enniskillen
Canadian Oil Companies Ltd.	Terminal Bldg., Toronto 1	Petrolia and Enniskillen
Carter, Clarence M. (a)	Wallaceburg	
Chandler, H. & C.	829 East "D" St., Iron Mountain, Michigan, U.S.A.	Petrolia and Enniskillen
Cole, W. J.	Box 91, Petrolia	Petrolia and Enniskillen
Collins, Matt, Estate of	Petrolia	Petrolia and Enniskillen
Corey, Harrison	Petrolia	Petrolia and Enniskillen
Dean, Cecil	Petrolia	Petrolia and Enniskillen
Demaray, C. (a)	Kerrwood	
Dennis, Mrs. L.	Oil Springs	Petrolia and Enniskillen
Domestic Gas & Oil Co. Ltd.	Blyth	Zone
Dominion Petroleum Co.Ltd. (b)	R.R. 2, Glencoe	Mosa
Donald, George	Oil Springs	Petrolia and Enniskillen
Duncan, Mrs. E.	Petrolia	Petrolia and Enniskillen
Dutton Oil & Gas Ltd.	25 Melinda St., Toronto 1	Dunwich
Earl, Sydney (b)	Kerrwood	Metcalfe
Edward, F. H.	Box 125, Petrolia	Petrolia and Enniskillen
Fairbank, J. H. Estate	Petrolia	Petrolia and Enniskillen
Gray, Mabel	Petrolia	Petrolia and Enniskillen
Heal, Andrew	Box 264, Watford	Warwick
High Grade Natural Gas Co. Ltd.	215 King St. W., Chatham	Dover
Hillis, F. E.	Oil Springs	Petrolia and Enniskillen
Holmes, D. A. (a)	Petrolia	
Holmes, E. H.	Bothwell	Zone
Howlett, Fred W. & Sons Ltd.	Petrolia	Petrolia and Enniskillen
Hussey, Wm. J. (a)	Petrolia	
Imperial Oil Ltd. (Eastern Canada Exploration)	56 Church St., Toronto	Petrolia and Enniskillen
Irving, R.	Petrolia	Petrolia and Enniskillen
Irwin, Foster	Petrolia	Petrolia and Enniskillen
Keils, E. E.	Petrolia	Petrolia and Enniskillen
Kelly, J. E.	Petrolia	Petrolia and Enniskillen
Kerr, J. & J. Co.	Petrolia	Petrolia and Enniskillen
Kodyen, E.	Bothwell	Zone
Lennan, Lloyd A.	Petrolia	Petrolia and Enniskillen
Leverton, Wm.	Bothwell	Zone
Lewis, Wm. and Laura	Oil Springs	Petrolia and Enniskillen
Lewis & Byers	Oil Springs	Petrolia and Enniskillen
Lidster, Harold	Wallacetown	Dunwich
MacGillivray, Mrs. M.	Oil Springs	Petrolia and Enniskillen
Marcus, Andrew	Bothwell	Zone
Marcus, Louis	Wallacetown	Dunwich
McCrie, R. D.	Bothwell	Zone
McCutcheon, Mrs A.	Oil Springs	Petrolia and Enniskillen
McKillop, Wm. & Son (a)	Box 102, Hamilton	
McMillan, & Warwick	Bothwell	Orford
McPherson, Ross (a)	851 Tuscarora St., Windsor	
Mitchell, Charles	Oil Springs	Petrolia and Enniskillen
Mitchell, R.	Oil Springs	Petrolia and Enniskillen
Morningstar, Geo.	Oil Springs	Petrolia and Enniskillen
Morningstar, H.	Oil Springs	Petrolia and Enniskillen
Ontario Lands & Oil Co.	Petrolia	Petrolia and Enniskillen
Pope, H. O.	Bothwell	Zone
Pope, Wm.	Bothwell	Zone
Prairie Gas & Oil Co. Ltd. (N.P.L.)	350 Bay St., Toronto 1	Dover
Rowe, E. P. Estate	350 Bay St., Toronto 1	Dover and Raleigh
Saroline Oil Co. Ltd.	Petrolia	Petrolia and Enniskillen
Shain, Viola M.	Petrolia	Petrolia and Enniskillen
Shaw, O. (a)	Thamesville	
Slack, C. M.	Petrolia	Petrolia and Enniskillen
Stover & Rawlings (a)	19 Beatty St., Chatham	
Stubble & Stubble (a)	Merlin	
Sutherland, B.	Petrolia	Petrolia and Enniskillen
Thompson, A.	Box 326, Petrolia	Petrolia and Enniskillen
Tunks, Jas.	Bothwell	Zone
Union Gas Company of Canada Ltd.	Fifth St., Chatham	Dawn, Dover and Zone
Warwick, J.	Oil Springs	Orford
Warwick, Joseph	Oil Springs	Petrolia and Enniskillen
Wilson-Sullivan Development Co. (b)	112 S. Christina St., Sarnia	Adelaide and Warwick
Windover, Wm. (a)	Sarnia	

(*) Producers of 300 barrels or more during the year.
(a) Driller only.
(b) Producer and driller.

DIRECTORY OF FIRMS—Continued

Crude Oil Producers—Continued

Name	Address	Location of field
ONTARIO—Concluded		
Winnett, J. W. G.	418½ Talbot St., London	Orford, Moss and Zone
Woodward, Wm.	Box 103, Oil Springs	Petrolia and Enniskillen
Yerks, Frank	Petrolia	Petrolia and Enniskillen
SASKATCHEWAN—		
Community Petroleums Ltd.	618 McCallum-Hill Bldg., Regina	Lloydminster
National Petroleum Syndicate	Tisdale	Lloydminster
S. A. C. Oils Ltd.	720-475 Howe St., Vancouver, B.C.	Lloydminster
ALBERTA—		
Ace Royalties Ltd.	4 Clarence Blk., 122-8th Ave. W. Calgary	Turner Valley
Admiral Oils Ltd.	55 Canada Life Bldg., Calgary	Hay Lake
Alberta Oil Incomes Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
Alberta Pacific Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Allied Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Amalgamated Oils Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Anglo-Canadian Oil Co. Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Argus Royalties Ltd.	900 Lancaster Bldg., Caly	Turner Valley
Arrow Oil Royalties Ltd.	804 Southam Bldg., Calgary	Turner Valley
Associated Oils & Gas Co. Ltd.	200 Leeson-Lineham Blk., Calgary	Turner Valley
Baltac Oils Ltd.	200 Leeson-Lineham Blk., Calgary	Turner Valley
Barsac Royalties Ltd.	303 Toronto General Trusts Bldg., Calgary	Turner Valley
Baxter Lake Oils Ltd.	403 Lancaster Bldg., Calgary	Wainwright
Bethwain Oils Ltd.	73 Adelaide St. W., Toronto, Ontario	Wainwright
Borradaile Oils Ltd.	330 Bay St., Toronto 1, Ontario	Vermilion and Lloydminster
British American Oil Co. Ltd. (b)	Royal Bank Bldg., King and Yonge Sts., Toronto, Ontario	
British Colonial Oils Ltd.	1010 Lancaster Bldg., Calgary	Turner Valley
British Dominion Oil & Development Corp. Ltd.	213 Dominion Bank Bldg., Calgary	Turner Valley
British Empire Oil Developments Ltd.	401 Leeson-Lineham Bldg., Calgary	Turner Valley
California Standard Co.	700 Lancaster Bldg., Calgary	Conrad and Princess
Calmont Oils Ltd.	303 Toronto General Trusts Bldg., Calgary	Turner Valley
Calwin Royalties Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
Cannar Oils Ltd.	360 McGill St., Montreal, Que.	Vermilion
Century Royalties Ltd.	102 Bank of Commerce Bldg., Calgary	Turner Valley
Chinook Oils Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Clonmel Petroleums Ltd.	330 Bay St., Toronto, Ontario	Turner Valley
Coastal Oils Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Command Oils Ltd.	4 Clarence Blk., 122-8th Ave. W., Calgary	Turner Valley
Commoil Ltd.	4 Clarence Blk., 122-8th Ave. W., Calgary	Turner Valley
Commonwealth Drilling Co. Ltd. (a)	4 Clarence Blk., 122-8th Ave. W., Calgary	.....
Continental Oil Company of Canada Ltd.	407 Lancaster Bldg., Calgary	Turner Valley
Crest Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Crude Oils Ltd.	501 Leeson-Lineham Bldg., Calgary	Turner Valley
D & D Royalties Ltd.	303 Toronto General Trusts Bldg., Calgary	Turner Valley
Dalhousie Oil Co. Ltd.	119-6th Ave. W., Calgary	Turner Valley
Davies Petroleums Ltd. (N.P.L.)	409 Lancaster Bldg., Calgary	Turner Valley
Deep Oils Ltd.	501 Leeson-Lineham Bldg., Calgary	Turner Valley
De Koch, Wm. G.	Box 268, Lloydminster	Lloydminster
Director Royalties Ltd.	119 Sixth Ave. W., Calgary	Turner Valley
Drillers & Producers Ltd.	203 Wilson Electric Bldg., Calgary	Turner Valley
East Crest Oil Co. Ltd.	212 Grain Exchange Bldg., Calgary	Turner Valley
Edmonton-Wainwright Oils Ltd.	8 McDougall Court, Edmonton	Wainwright
Empire Petroleums Ltd.	501 Leeson-Lineham Bldg., Calgary	South Princess
Extension Oil Royalties Ltd.	900 Lancaster Bldg., Calgary	Turner Valley
Federated Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Foothills Oil & Gas Co. Ltd.	119 Sixth Ave. W., Calgary	Turner Valley
Four Star Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Franco Oils Ltd.	Vermilion	Vermilion
Franco Public Service Ltd.	Vermilion	Vermilion
Gas & Oil Refineries Ltd. (b)	301 Lancaster Bldg., Calgary	.....
Gem Royalties Ltd.	403 Lancaster Bldg., Calgary	Turner Valley
Grande Prairie Petroleums Ltd.	36 Toronto St., Toronto, Ontario	Vermilion
Granville Oils Ltd.	4 Clarence Blk., 122-8th Ave., Calgary	Turner Valley
Great Bend Oils Ltd.	36 Toronto St., Toronto, Ontario	Vermilion
Harris Wells Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Highwood-Sarcee Oils Ltd.	614 Lancaster Bldg., Calgary	Turner Valley
Hollingsworth Oils Ltd.	210 Toole Peet Bldg., Calgary	Vermilion
Home Oil Co. Ltd.	226 Lougheed Bldg., Calgary	Turner Valley
Hudson's Bay Oil & Gas Co. Ltd.	Hudson's Bay House, 79 Main St., Winnipeg, Manitoba	Viking
Imperial Oil Ltd.	56 Church St., Toronto, Ontario	Turner Valley
Independent Royalties Ltd.	403 Lancaster Bldg., Calgary	Turner Valley
Kamalta Well Operators Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Lion Oil Producing Co.	328 (a)—8th Ave. W., Calgary	Turner Valley
Lowery Petroleums Ltd.	606 Second St. W., Calgary	Turner Valley
Major National Oils Ltd.	407 Lancaster Bldg., Calgary	Turner Valley
Major Oil Investments Ltd.	407 Lancaster Bldg., Calgary	Turner Valley

(a) Drilling only.
(b) Operates an absorption plant.

DIRECTORY OF FIRMS—Continued

Crude Oil Producers—Concluded

Name	Address	Location of field
ALBERTA—Concluded		
Maryland Petroleums Ltd.	111 Ardern Blk., Calgary	Turner Valley
McDougall-Segur Exploration Company of Canada Ltd.	405 West 8th Ave., Calgary	Turner Valley
Mercury Oils Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
Mid Continent Oil & Gas Ltd.	213 Dominion Bank Bldg., Calgary	Conrad
Miracle Oils Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
Miracle Royalties Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
Model Oils Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Model Spooner Syndicate	717 Lancaster Bldg., Calgary	Turner Valley
National Petroleum Corp. Ltd.	401 Leeson-Lineham Bldg., Calgary	Turner Valley
Newfold Royalties Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Okalta Oils Ltd.	Renfrew Bldg., Calgary	Turner Valley
Pacific Petroleums Ltd.	501 Leeson-Lineham Bldg., Calgary	Turner Valley
Ponalta Syndicate	209 Agency Bldg., Edmonton	Lloydminster
Princeville Petroleums Ltd.	720 Stock Exchange Bldg., Vancouver, B.C.	Vermilion
P. S. & D. Oils Ltd.	308 Lancaster Bldg., Calgary	Denhart
Regal Royalties Ltd.	401 Leeson-Lineham Bldg., Calgary	Turner Valley
Renown Royalties Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Reward Spooner Model Ltd.	717 Lancaster Bldg., Calgary	Turner Valley
Royal Canadian Oils Ltd.	403 Lancaster Bldg., Calgary	Turner Valley
Royal Crest Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Royalite Model Oil Co. Ltd.	201 Lancaster Bldg., Calgary	Turner Valley
Royalite Oil Co. Ltd. (c)	119 Sixth Ave. W., Calgary	Turner Valley
S.A.C. Oils (Alberta) Ltd.	720-475 Howe St., Vancouver, B.C.	Lloydminster
Saskahead Oils Ltd.	Box 32, Indian Head, Saskatchewan	Vermilion
Share Royalties Ltd.	Elks Bldg., Calgary	Turner Valley
Shell Oil Company of Canada Ltd.	25 Adelaide St. E., Toronto, Ontario	Jumping Pound
Silverdale Trust Ltd.	c/o Royal Trust Co., Edmonton	Lloydminster
Southwest Petroleum Co. Ltd.	119-6th Ave. W., Calgary	Turner Valley
Sovereign Royalties Ltd.	317 Alberta Corner, Calgary	Turner Valley
Standard Oil Company of British Columbia Ltd.	906 Marine Bldg., Vancouver, B.C.	Taber
Sterling Royalties Ltd.	102 Bank of Commerce, Calgary	Turner Valley
Sunburst Oil Co. Ltd.	800 Lancaster Bldg., Calgary	Turner Valley
Sunset Oils Ltd.	302 Toronto General Trusts Bldg., Calgary	Turner Valley
Three Point Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Turner Valley Royalties Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Twin Valley Oil Royalties Ltd.	804 Southam Bldg., Calgary	Turner Valley
United Assets Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Vanpeg Royalties Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
Vulcan Brown Petroleums Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Wain-Con Oils Ltd.	431 Tegler Bldg., Edmonton	Wainwright
Wainwright Petroleums Ltd.	10625-99 Ave., Edmonton	Wainwright
Westside Royalties Ltd.	232 Lougheed Bldg., Calgary	Turner Valley
Winalta Royalties Ltd.	301 Lancaster Bldg., Calgary	Turner Valley
York-Oils Ltd.	414 Pacific Bldg., Vancouver, B.C.	Turner Valley
NORTHWEST TERRITORIES—		
Imperial Oil Ltd. (Norman Wells)	56 Church St., Toronto, Ontario	Fort Norman

(c) In addition to operating and drilling wells in the Turner Valley field this company operates an absorption plant.

OTHER NON-METAL MINING INDUSTRIES

DIRECTORY OF FIRMS—Continued

Canadian Asbestos Mining Industry

Name of firm	Head office or General office	Location of mine
Asbestos Corporation Ltd.	Thetford Mines, Quebec	Thetford Mines, Quebec Black Lake, Quebec Coleraine, Quebec
Asbestos Crude & Fibre Mines Ltd. (*)	1410 Stanley St., Montreal, Quebec	Coleraine, Quebec
Bell Asbestos Mines Ltd.	Thetford Mines, Quebec	Thetford Tp., Quebec
Canadian Johns-Manville Co. Ltd.	Sun Life Bldg., Montreal, Quebec	Asbestos, Quebec
Canwest Exploration Co. Ltd. (*)	85 Richmond St., Toronto, Ontario	Coleraine Tp., Quebec
Carswell, L. M.	Renfrew, Ontario	Blythfield Tp., Quebec
Flintkote Mines Ltd.	283 Roxborough St. E., Toronto, Ontario	Thetford Mines, Quebec
International Asbestos Co. Ltd. (*)	66 Wellington St. N., Sherbrooke, Quebec	St. Adrien de Ham, Quebec
Johnson's Company	Thetford Mines, Quebec	Thetford Mines, Quebec Coleraine, Quebec
Nicolet Asbestos Mines Ltd.	820 Transportation Bldg., Montreal, Quebec	Norbestos, Quebec
Quebec Asbestos Corp. Ltd.	East Broughton Station, Quebec	East Broughton Station, Quebec

(*) Carried on exploration or development work only.

Feldspar and Quartz Mining Industry

(a) Produces silica
(b) Produces feldspar
(c) Operates a mill
(d) Also produces kaolin
(e) Produces nepheline syenite
(f) Produces grinding pebbles
(g) Contractor
(h) Produces scapolite

Name of firm	Head office address	Location of mine or mill
NOVA SCOTIA—		
Nairn, J. (a)	24 Whitney Ave., Sydney	Leitches Creek
Stevens, Archie (a)	11 McKenzie St., Glace Bay	Melford
QUEBEC—		
Belval, T. (b)	Farnham	Farnham
Bigelow, Gordon (b) (g)	Glen Almond	Derry Tp.
Bigelow, Robt. & Sons (b)	Buckingham	Portland East Tp.
Bon Ami Ltd. (b) (c)	13719 Notre Dame St. E., Montreal	Montreal
Buckingham Feldspar Inc. (b)	276 St. James St. W., Montreal	Buckingham
Buckingham Mining Corp. (b)	1502 Athlone Rd., Montreal	Buckingham
Canada China Clay & Silica Ltd. (a) (d)	1600 Royal Bank Bldg., Toronto, Ont.	Amherst Tp.
Canadian Carborundum Co. Ltd. (a) (e)	Box 57, Niagara Falls, Ont.	St. Canut
Canadian Flint & Spar Co. Ltd. (a) (b) (c)	Room 512 Victoria Bldg., Ottawa, Ont.	Buckingham
Consumers Industrial Minerals Ltd. (b)	8661 Drolet, Montreal	Montcalm Co.
Feldspar Products Ltd. (b)	1224 St. Catherine St., Montreal	Papineau
Hill, Wm. (a) (f)	Glen Almond	Buckingham Tp.
Industrial Silica Corp. (a)	Room 408—266 St. James St., Montreal	Roberval Co.
Lafrance, Ovila (a)	Angers	Buckingham Tp.
Law, S. H. (a) (b)	Room 28, 14 Toronto St., Toronto, Ont.	Derry Tp.
McGill, Lawrence (h)	Pointe-au-Chêne	Grenville
Montpetit, Euclyde (a)	Melocheville	Beauharnois Co.
Morin, A. H. (a) (b)	Box 3, Buckingham	Buckingham Tp.
St. Lawrence Alloys & Metals Ltd. (a) (c)	Beauharnois	Beauharnois Co.
ONTARIO—		
American Nepheline Corp. (e)	Lakefield	Methuen Tp.
Bancroft Mica & Stone Products (b) (c)	Bancroft	Faraday Tp.
Bathurst Feldspar Mines Ltd. (b)	Room 508—21 King St. E., Toronto	Bathurst Tp.
Buffalo Ankerite Gold Mines Ltd. (f)	Box 533, South Porcupine	Deloro Tp.
Canspar Mines Ltd. (b)	100 Adelaide St. W., Toronto	Barry's Bay
Conger Feldspar Mining Co. Ltd. (b)	10 Adelaide St. E., Toronto	Conger Tp.
Dominion Mines & Quarries Ltd. (a) (e)	Canada Life Bldg., Toronto	Killarney
Frontenac Floor & Wall Tile Co. Ltd. (b) (c)	Kingston	Kingston
International Nickel Co. of Canada Ltd. (a)	Copper Cliff	Lawson Tp.
Kingston Silica Mines Ltd. (a) (c)	R.R. No. 1, Kingston	Pittsburg Tp.
Manitoulin Quartzite Co. (a) (c)	732 Langlois Ave., Windsor	Manitoulin Island
Quartz Crystals Mining Co. of Canada Ltd. (a)	712 Federal Bldg., Toronto	Lansdowne Tp.
Verona Rock Products Ltd. (a) (b)	330 Bay St., Toronto	Verona
Wright and Co. (a) (c)	960 Queen St., Sault Ste. Marie	Deroche Tp.
SASKATCHEWAN—		
Hudson Bay Mining & Smelting Co. (a)	Flin Flon, Man.	
BRITISH COLUMBIA—		
Consolidated Mining & Smelting Co. Ltd. (a)	Trail, B.C.	Fairview

DIRECTORY OF FIRMS—Continued

Gypsum Mining Industry

Name of firm	Head office address	Plant location
NOVA SCOTIA—		
Canadian Gypsum Co. Ltd.	170 Bloor St. W., Toronto Ont.	Wentworth
Conn. Adamant Plaster Co.	10 River St., New Haven, Conn., U.S.A.	Cheverie
Gypsum, Lime & Alabastine, Canada, Ltd. (idle)	Paris, Ont.	Baddeck Bay
National Gypsum (Canada) Ltd.	325 Delaware Ave., Buffalo, N.Y., U.S.A.	Walton, Dingwall
Victoria Gypsum Co. Ltd.	Little Narrows	Little Narrows
Windsor Plaster Co. Ltd.	Windsor	Brooklyn, Hants Co.
NEW BRUNSWICK—		
Canadian Gypsum Co. Ltd.	170 Bloor St. W., Toronto Ont.	Hillsborough
ONTARIO—		
Canadian Gypsum Co. Ltd.	170 Bloor St. W., Toronto	Hagersville
Cayuga Gypsum Co. Ltd.	Caledonia	North Cayuga Tp.
Gypsum, Lime & Alabastine, Canada, Ltd.	Paris	Caledonia
MANITOBA—		
Gypsum, Lime & Alabastine, Canada, Ltd.	Paris, Ont.	Gypsumville
Western Gypsum Products Ltd.	503 McArthur Bldg., Winnipeg	Amaranth
BRITISH COLUMBIA—		
Gypsum, Lime & Alabastine, Canada, Ltd.	Paris, Ont.	Falkland
Western Gypsum Products Ltd.	McArthur Bldg., Winnipeg, Man.	Mayook

The Iron Oxide Mining Industry

Name of firm	Head office address	Location of plant or mine
QUEBEC—		
Argall, Mrs. Thomas H.	Pointe-du-Lac	Pointe-du-Lac
Girardin, Chas. D.	Yamachiche	Almaville-en-Haut
Lafrenière, Philias	St-Louis-de-France	St-Louis-de-France
The Sherwin-Williams Co. of Canada Ltd. (*)	2875 Centre St., Montreal	Red Mill, Champlain Co.
Vennes, Wm.	90 6 e Ave., Grand'Mère	St-Adelphe
BRITISH COLUMBIA—		
Scott, F. B.	Squamish	Alta Lake

(*) Produces refined grades.

The Canadian Mica Mining Industry

Name of operator	Head office address	Location of mine or plant
QUEBEC—		
Blackburn Bros.	85 Sparks St., Ottawa, Ontario	Cantley and Perkins
Chenier, A.	Cantley	Hull Tp.
Cross, W. C.	209 Bridge St., Hull	Hull Tp.
Delisle, Jos.	Mistassini	Lac Noir
Désève, J. L.	106 Jeanne d'Arc, Hull	Lauretta
Fleury Mica Mine Ltd.	Chibaugamau	Rinfret
Gauthier, J. B.	C. P. 226, Buckingham	Dinholm
McNeely, Jas.	114 Harmer Ave., Ottawa, Ontario	Cawood Tp.
Mica Co. of Canada, Ltd.	2 Lois St., Hull	
Morin, F.	3644 Bergerac, Montreal Nord	Blake
Perkins Mills Mica Co. Ltd.	360 St. James St., W., Montreal	Perkins Mills
Pink Lake Mica Mines Ltd.	74 King St. E., Toronto, Ontario	Hull Tp.
Poirier, A.	Wilson's Corner	Wakefield
Poirier, Wm.	Wilson's Corner	Wakefield
Renaud, J.	Perkins Mills	
Sargent, F. G.	Cascades	Hull Tp.
Suzorite Co. Ltd.	907 Dominion Square Bldg., Montreal	Suzor Tp.
Trudeau Mineral Exploration	Old Chelsea	
Wallingford, E.	Perkins	Templeton
Wallingford, Wm. & A.	Gatineau Pointe	Perkins Mills
ONTARIO—		
Green, W. E. & Bro.	Perth Road	Ottie Lake
Lee, W. W.	Westport	Bedford
Loughborough Mining Co. Ltd.	Sydenham	Frontenac
Purdy Mica Mines Ltd.	184 Bay St., Toronto	Eau Claire
Sydenham Mining Co. Ltd.	Box 252, Kingston	Loughborough
Watts, R. W.	21 Isabella St., Perth	Perth
BRITISH COLUMBIA—		
Fairey & Co.	661 Taylor St., Vancouver	Vancouver

DIRECTORY OF FIRMS—Continued

The Canadian Peat Industry

(*) Active but no shipments made.
(a) Produces moss.
(b) Produces peat fuel.
(c) Produces humus.
(d) Inactive in 1946.

Name of firm	Head office address	Location of bog or plant
NEW BRUNSWICK—		
Atlantic Peat Moss Co. Ltd. (*)	513 Rachel St. E., Montreal, Que.	Gloucester
Fafard Peat Moss Co. (a)	Shippegan	Shippegan
Western Peat Co. Ltd. (*)	Box 699, New Westminster, B.C.	Shippegan
QUEBEC—		
Allied Peat Moss Corp. (a)	Cacouna	Cacouna
Beausejour Peat Moss (a)	St-Romald	St-Lambert
Bourque & Fils (a)	St-Marc-des-Carrières	St-Marc-des-Carrières
Excel Peat Ltd. (a)	319, rue Lafontaine, Rivière-du-Loup	Isle-aux-Coudres
Maple Leaf Peat Ltd. (a)	303A Lafontaine St., Rivière-du-Loup	St-Antonin
R. & B. Moss & Peat Products (a)	Waterville	Waterville
Michaud, J. F. A. (a)	Isle Verte	Isle-Verte
Premier Peat Moss Ltd. (a)	Isle Verte	Isle-Verte
Perfect Peat Products (a)	303 Lafontaine St., Rivière-du-Loup	St-Antonin
Quebec Peat Moss Co. (a)	St-Guillaume-d'Upton	St-Bonaventure
Reid, Dr. Henri (a)	Mont-Joli	Pointe-au-Père
Roy, Romeo (a)	St-Ulric	St-Ulric
Roy, Louis (a)	Rivière-Blanche	Rivière-Blanche
Saguenay Peat Moss Co. Ltd. (a)	187 Jacques-Cartier, Chicoutimi	Bagot Tp.
Senneterre Peat & Moss Mines Ltd. (a)	Senneterre	Senneterre
Tourbières Rivière-Ouelle (a)	2, Côte d'Abraham, Quebec	Rivière-Ouelle
Tourbière de Pointe-au-Père (a)	Mont-Joli	Pointe-au-Père
Trump Peat Products Ltd. (a)	Rivière-du-Loup	Rivière-du-Loup
ONTARIO—		
Arctic Peat Moss Corp. Ltd. (a)	200 Sterling Securities Bldg., Winnipeg, Man.	Crozier
Canadian Humus Products (c)	Suite 1010, 100 Adelaide St. W., Toronto	Beverley Tp.
Erie Peat Ltd. (a)	Box 500, Port Colborne	Wainfleet Tp.
Leasa Peat Works (a) (b)	106 Britannia St., Stratford	Ellice Tp.
Polar Bear Peat Moss Products (a)	Fort Frances	Pinewood
Pringle, J. A. (*) (a)	Arden	Arden
MANITOBA—		
Winnipeg Supply & Fuel Co. Ltd. (a)	812 Boyd Bldg., Winnipeg	Shelley
McCabe Bros. Grain Co. Ltd. (a)	980 Grain Exchange Bldg., Winnipeg	Shelley
BRITISH COLUMBIA—		
Acme Peat Products Ltd. (a)	789 W. Pender St., Vancouver	
Alouette Peat Products Ltd. (a)	Pitt Meadows	Pitt Meadows
B.C. Peat Company Ltd. (a)	302 Royal Bank Bldg., Vancouver	Ladner
Byrnerood Peat Farm (a)	2707 McKay Ave., New Westminster	Burnaby
Coast Peat Co. Ltd. (a)	736 Granville St., Vancouver	Burnaby
Columbia Products Ltd. (a)	Box 699, New Westminster	Lulu Island
Commercial Peat Co. Ltd. (d)	R.R. 2, Eburne	
Excelsior Peat Ltd. (a)	7675 Olser Ave., Vancouver	Burnaby
Industrial Peat Co. (a)	Box 329, New Westminster	Delta Municipality
Lulu Island Peat Co. Ltd. (a)	R.R. 2, Vancouver	Richmond Tp.
Nielsen, E. and M. F. (a)	R.R. 2, Vancouver	Westminster
Northern Peat Moss Co. Ltd. (a)	R.R. 2, Vancouver	Richmond Tp.
Pacific Peat Products Ltd. (a)	811 Hall Bldg., Vancouver	New Westminster
Richmond Peat Products Limited (a)	R.R. 2, Vancouver	New Westminster
Western Peat Co. Ltd. (a)	Box 699, New Westminster	Lulu Island

The Salt Industry

Name of firm	Head or executive office	Location of plant
NOVA SCOTIA—		
Malagash Salt Co. Limited	196 Provost St., New Glasgow	Cumberland Co.
ONTARIO—		
Brunner, Mond Canada, Ltd.	Canadian Bank of Commerce Bldg., Toronto	Essex Co.
Canadian Industries Limited	Box 10, Montreal, Que.	Essex Co.
Goderich Salt Co. Ltd.	Box 577, Goderich	Goderich
Sifto Salt Co. Ltd.	2240 Sun Life Bldg., Montreal, Que.	Sarnia
Warwick Pure Salt Co. Ltd.	R.R. 5, Watford	Lambton Co.
Purity Flour Mills Ltd.	287 MacPherson Ave., Toronto	Goderich
MANITOBA—		
Canadian Industries Ltd.	Box 10, Montreal, Que.	Neepawa
ALBERTA—		
Industrial Minerals Ltd.	2240 Sun Life Bldg., Montreal, Que.	Waterways

DIRECTORY OF FIRMS—Continued

The Talc and Soapstone Industry

Name of firm	Head office address	Location of plant or mine
QUEBEC—		
Baker Mining & Milling Co. Ltd	4010 St. Catherine St. W., Montreal	Highwater
Broughton Soapstone & Quarry Co. Ltd	Broughton Station	Broughton
Fortin, Charles	Robertsonville	Thetford Tp.
Pharo, L. C. Co. Ltd	187 St. Maurice St., Thetford Mines	Leeds Tp.
ONTARIO—		
Canada Talc Limited	Madoc	Huntingtdon Tp.

THE MISCELLANEOUS NON-METAL MINING INDUSTRIES

(*) Active but not producing.
(†) Recover sulphur compounds from smelter gas.

Name of operator	Head office address	Location of plant
Barite—		
NOVA SCOTIA—		
Canadian Industrial Minerals Ltd	Walton	Walton
ONTARIO—		
Woodhall Mines Ltd	347 Bay St., Toronto	Langmuir
BRITISH COLUMBIA—		
Mountain Minerals Ltd	Box 273, Lethbridge, Alberta	Golden M. D.
Brucite—		
QUEBEC—		
Aluminum Company of Canada Ltd	Sun Life Bldg., Montreal	Wakefield
Corundum—		
ONTARIO—		
Craigmont Corundum Project	Dept. of Reconstruction, Ottawa	Raglan Tp.
Diatomite—		
NOVA SCOTIA—		
Wightman, Mrs. G. W.	Smiths' Cove	Digby Co.
BRITISH COLUMBIA—		
Fairey and Co.	661 Taylor St., Vancouver	Cariboo M. D., Vancouver
Fluorspar—		
ONTARIO—		
Dominion Magnesium Ltd	67 Yonge St., Toronto	Cobden
Gilman, R. T.	13 Government Road W., Kirkland Lake	Madoc Dist.
Millwood Fluorspar Mines Ltd	Box 206, Madoc	Madoc Dist.
Reliance Fluorspar Mining Synd. Ltd	Madoc	Huntingdon Tp.
Stocklosar, Chas. A.	Box 198, Madoc	Huntingdon Tp.
Tops Mining Synd. Ltd. (*)	c/o W. E. Clark, Harcourt	Cardiff Tp.
Garnet—		
ONTARIO—		
Niagara Garnet Co.	c/o Wm. A. Yarwood, 8573 Krull Parkway, Niagara Falls, N.Y., U.S.A.	River Valley
Graphite—		
ONTARIO—		
Frobisher Exploration Co. Ltd	Black Donald Mines	Brougham Tp.
Grindstones—		
NEW BRUNSWICK—		
Read, H. C.	Bathurst	Stonehaven
Bay of Chaleur Grindstone Co.	Clifton	Clifton

THE MISCELLANEOUS NON-METAL MINING INDUSTRIES—*Concluded*

DIRECTORY OF FIRMS—Continued

Name of firm	Head office address	Location of plant
Lithium Minerals—		
MANITOBA—		
Lithium Corp. of Canada Ltd. (*)	403 Avenue Bldg., Winnipeg	Bernic and Cat Lakes
Sherritt Gordon Mines Ltd. (*)	25 King St. W., Toronto, Ontario	Herb Lake
Magnesitic Dolomite		
QUEBEC—		
Canadian Refractories Ltd.	1050 Canada Cement Bldg., Montreal	Kilmar and Harrington
Mineral Waters—		
QUEBEC—		
Cie d'eau Minérale de St-Hyacinthe	632 Concord Ave., St-Hyacinthe	St-Hyacinthe
Eau Minérale Étoile	Ste-Geneviève-de-Batiscan	Batiscan
Doré Daird	Desbiens, Lac-St-Jean	Roberval
Gurd, Charles & Co. Ltd.	1016 Bleury St., Montreal	Varennes
Lemay, Lucien	St-François-du-Lac	Nicolet Tp.
Lévesque, Ernest (*)	Rivière-du-Loup Station	St-Louis-de-Kamouraska
Gauthier, Charles	Louisville	St-Léon
Minard, Edward	Maskinonge	Maskinongé
Montclair-Richelieu Spring Water Co. Ltd.	Chambly Basin	Chambly
Pellerin, A., and Sons	St-Barnabé-N	St-Maurice
Sources Abenakis Springs Ltd.	366, rue Racine, Granby	St-François-du-Lac
Source Coulombia	L'Épiphanie	L'Épiphanie
Source d'eau Minérale Radnor	St-Maurice	St-Maurice
Usine d'Embouteillage Maski	St-Justin	St-Justin
ONTARIO—		
Carlsbad Springs, The	Carlsbad Springs	Gloucester Tp.
Deneault, J. F.	Bourget	Bourget
Gurd, Chas., & Co. Ltd. (*)	1016 Bleury St., Montreal, Quebec	Caledonia Springs
Renaud, Victor	Blackburn	Blackburn
Phosphate—		
QUEBEC—		
Bigelow, Robert	Buckingham	Bowman Tp.
Blackburn Bros. Ltd.	85 Sparks St., Ottawa, Ontario	Perkins
High-Rock Phosphates Ltd.	41 Main St., Buckingham	Portland W. Tp.
Cross, Stanley	28 Warren Ave., Ottawa, Ontario	Hull Tp.
ONTARIO—		
Ontario Phosphate Industries Ltd. (*)	Room 1101, 62 Richmond St. W., Toronto	Bedford Tp.
Silica Brick—		
NOVA SCOTIA—		
Dominion Steel & Coal Corp. Ltd.	Sydney	Sydney
ONTARIO—		
Algoma Steel Corp. Ltd.	Sault Ste. Marie	Sault Ste. Marie
Sodium Carbonate—		
BRITISH COLUMBIA—		
Bishop, V. C. (Mrs)	c/o Boyds Garage, Clinton	Clinton area
Sodium Sulphate—		
SASKATCHEWAN—		
Horseshoe Lake Mining Co. Ltd. (*)	Ormiston	Ormiston
Midwest Chemicals Ltd.	Palo	Whiteshore Lake
Natural Sodium Products Ltd.	Bishopric	Frederic Lake, Alsask
Sybouts Sodium Sulphate Co. Ltd.	Gladmar	Gladmar
Sulphur (Pyrites)		
QUEBEC—		
Noranda Mines Ltd.	Royal Bank Bldg., Toronto, Ontario	Noranda
Waite-Amulet Mines Ltd.	Noranda	Duprat Tp.
ONTARIO—		
International Nickel Company of Canada Ltd. (*)	Copper Cliff	Copper Cliff
BRITISH COLUMBIA—		
Consolidated Mining & Smelting Company of Canada Ltd. (*)	Trail	Trail
Britannia Mining & Smelting Co. Ltd.	Britannia Beach	Britannia Beach

CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS

DIRECTORY OF FIRMS—Continued

PORTLAND CEMENT PRODUCERS

Name of firm	Head office address	Location of plant
QUEBEC—		
Canada Cement Company Limited	Box 290, Station B, Montreal	Hull, Montreal East
ONTARIO—		
Canada Cement Company Limited	Box 290, Station B, Montreal, Que	Belleville, Port Colborne
St. Mary's Cement Co. Limited	357 Bay St., Toronto	St. Mary's
MANITOBA—		
Canada Cement Company Limited	Box 290, Station B, Montreal, Que	Fort Whyte
ALBERTA—		
Canada Cement Company Limited	Box 290, Station B, Montreal, Que	Exshaw
BRITISH COLUMBIA—		
British Columbia Cement Co. Limited	500 Fort St., Victoria	Bamberton

OPERATORS WHO SHIPPED BRICK, TILE, SEWER PIPE, ETC., MADE FROM DOMESTIC CLAYS—

(a) Clay used (b) Shale used
(c) Idle 1946 (d) Produce bentonite

Name of firm	Head office address	Location of plant
NOVA SCOTIA—		
Brooks, Stephen & Son (a) (b)	Box 159, New Glasgow	New Glasgow
Harriss & Harriss	5 Byng Ave., Sydney	Sydney
Shaw, L. E. Ltd. (a) (b)	74 Bedford Road, Halifax	Elmsdale
Standard Clay Products Ltd. (a) (b)	St. Johns, Que	New Glasgow
NEW BRUNSWICK—		
Ryan, M. & Son Ltd. (a)	Fredericton	Fredericton
Shaw, L. E. Ltd. (b)	74 Bedford Road, Halifax, N.S.	Chipman
QUEBEC—		
Ascot Tile & Brick Co. Ltd. (c)	Ascot Corner	Ascot Corner
Canada China Clay & Silica Ltd.	Kasil	Kasil
Castonguay, Hubert	Deschaillons	Deschaillons
Citadelle Brique Ltée (d)	14 rue St-Joseph, Quebec	Boischatel and Beauport E.
Desmarais, S. E. & Co. (a)	Richmond	Richmond
East-Angus Brick & Tile (a)	Box 553, East Angus	Westbury Tp.
Laprairie Co. Inc., The (a) (b)	906 University Tower Bldg., Montreal	Laprairie and Delson Junction
Montreal Terra Cotta Ltd. (a)	911 Dominion Square Bldg., Montreal	Lakeside and Deschaillons
Potvin, Arthur (c)	Mitchell Station	Mitchell Station
Potvin & Chandonnet (a)	Deschaillons	Deschaillons
Roy, O. & P. (a)	St. George West	St. George West
St. Lawrence Brick Co. Ltd. (b)	1010 St. Catherine St. W., Montreal	Laprairie
St. Tite Briqueterie Ltée (a)	132 rue St-Paul, St-Tite	St-Tite
Scott Brique Reg., La (a)	Scott Junction	Scott Junction
Standard Clay Products Ltd. (a)	Box 189, St. Johns	St. Johns
ONTARIO—		
Barnes, Wm. R. Co. Ltd. (a)	243 Cumberland Ave., Hamilton	Waterdown
Brampton Pressed Brick Co. Ltd. (b)	Brampton	Brampton
Broadwell, B. & Son (a)	Kingsvillle	Gosfield S. Tp.
Canadian Pressed Brick Co. Ltd. (b)	Kenilworth S. Ave., Hamilton	Hamilton
Central Tile Brick Corp. Ltd. (a)	Tilbury	Tilbury and Bells River
Construction Materials Ltd. (a) (b)	Drawer 70, New Toronto	Etobicoke Tp.
Cooksville Co. Ltd. (b)	46 Bloor St. W., Toronto	Cooksville
Cornhill, James & Sons Ltd.	Box 36, Chatham	Harwich Tp.
Coultis, George & Son (b)	Thedford	Bosanquet Tp.
Curtin, F. Estate (a)	R.R. 4, Lindsay	Lindsay
Curtis Bros. (a)	Box 809, Peterborough	Otonabee Tp.
Deller, Albert & Son (a)	Brownsville	Brownsville
Dochart Brick, Tile & Terra Cotta Works (a)	Arnprior	Arnprior
Donaldson, Thos. G. (a)	R.R. 1, Greenock	Culross Tp.
Douglas, John R. (a) (c)	Wilkesport	Lambton Co.
Dresden Tile Yard (a)	R.R. No. 2, Dresden	Dresden
Elliott, James Jr. (a)	519 Wellington St. W., Sault Ste. Marie	Korah Tp.
Elliott, Wm. (a)	R.R. 1, Glenannan	Bruce Co.
Fletcher Brick & Tile (a)	Fletcher	Tilbury E. Tp.
Frid Bros. Ltd. (a)	790 Main St. W., Hamilton	Hamilton
Hamilton Pressed Brick Co. Ltd. (a) (b)	211 Kensington Ave. S., Hamilton	Wentworth, Co.

DIRECTORY OF FIRMS—Continued

OPERATORS WHO SHIPPED BRICK, TILE, SEWER PIPE, ETC., MADE FROM DOMESTIC CLAYS,—Concluded

Name of firm	Head office address	Location of plant
ONTARIO—Concluded		
Hill, Aaron (a)	Box 217, Essex	Essex
Hill, A. W. & Sons (a)	Coatsworth	Tilbury E. Tp.
Holders Tile Yard	Dutton	Elgin County
Howlett, Fred W. & Sons Ltd. (a)	Petrolia	Lambton Co.
Huntsville Brick Works (a)	Box 219, Huntsville	Chaffey Tp.
Interprovincial Brick Co. Ltd. (b)	46 Bloor St. W., Toronto	Cheltenham, Milton
Janes, D. A. (a) (c)	Mt. Brydges	Caradoc Tp.
Koebel Bros (a)	St. Clements	St. Clements
Lindsay, Earl & Sons (a)	R.R. 2, Wallaceburg	Kent Co.
Martin, Amos C. (a)	R.R. 3, Wallenstein	Peel Tp.
McComb, Chester (a)	R.R. 2, London	Middlesex
McFarlane, W. J. (b)	Forest	Forest
McFarren, F. B. Ltd. (b)	120 Wellington St. W., Toronto	Streetsville
Milton Brick Co. Ltd. (b)	170 Bloor St. W., Toronto	Esquesing Tp.
Napanee Brick & Tile Works (a)	R.R. 3, Napanee	Lennox Co.
National Fireproofing Co. of Canada Ltd. (a) (b)	57 Bloor St. W., Toronto 5	Wentworth Tp.
National Sewer Pipe Co. Ltd. (a) (b)	320 Bay St., Toronto	Hamilton, Swansea
Norwich Brick & Tile Works (a)	R.R. 2, Norwich	Oxford Co.
Ontario Reformatory (a) (b)	Mimico	Etobicoke Tp.
Ottawa Brick & Terra Cotta Co. Ltd. (a) (b)	Billings Bridge	Billings Bridge
Owen Sound Brick Co. Ltd. (a)	Owen Sound	Owen Sound
Paxton, Fred R. (a)	70 Herrick Ave., St. Catharines	St. Catharines
Phinn Brick Co. (a)	238 Briscoe St., London	London
Phippen & Son (a)	390 Dawes Road, East York	East York
Seegmiller, E. & E. Ltd. (a)	525 Wendell Ave., Kitchener	Kitchener
Sproat & Sproat (a)	R.R. 4, Seaforth	Tuckersmith Tp.
Superior Brick & Tile Co. Ltd. (a)	426 Victoria Ave., Fort William	Paipoonge Tp.
Taylor Bros. (a)	Beaverton	Beaverton
Thomson, Ralph (a)	R.R. 4, Atwood	Grey Tp.
Toronto Brick Co. Ltd. (a) (b)	897 Bay St., Toronto 5	York Tp.
Wagstaff Brick Tile Co. (a)	R.R. 4, Lindsay	Victoria
Wallace, R. & Son (a)	92 First Ave., North Bay	Widdifield
Winch, Stuart A. (a)	Paisley	Bruce
Wright, F. M. (a)	Comber	Tilbury W. Tp.
MANITOBA—		
Alsip Brick, Tile & Lumber Co. Ltd. (a)	537 Portage Ave., Winnipeg	Winnipeg, Whitemouth and Portage la Prairie
Marion Brick, Tile & Clay Products Ltd. (a)	219 Laverendrye St., St. Boniface	Old Kildonan
Pembina Mountain Clays Ltd.	915 Paris Bldg., Winnipeg	Morden
SASKATCHEWAN—		
Alberta Clay Products Co. Ltd. (a)	Medicine Hat, Alta	Ravenscrag, Eastend, Willows
Bruno Clay Works Ltd. (a)	411 Alberta Ave., Saskatoon	Bruno
Dominion Fire Brick & Clay Products Ltd. (a)	Box 99, Moose Jaw	Claybank
Medalia Potteries Ltd. (a)	Industrial Ave., Medicine Hat	Willows, Eastend
Medicine Hat Potteries (a)	Box 672, Medicine Hat, Alta	Readlyn
Midland Clay Co. (a) (c)	Willow Bunch	Willow Bunch
Saskatchewan Clay Products Corp. (a)	Estevan	Estevan
Yorkton Brick Yard (a)	Yorkton	Yorkton
ALBERTA—		
Acme Brick Co. Ltd. (a)	125 Alberta Block, Edmonton	Cannell
Aetna Coal Co. (d)	East Coulee	Rosedale Ferry
Alberta Clay Products Co. Ltd. (a)	Medicine Hat	Medicine Hat
Grande Prairie Brick Yard	Grande Prairie	Grande Prairie
Gunderson Brick & Coal Co. Ltd. (b)	Redcliff	Redcliff
Kidd, Gordon L. (d)	Box 230, Drumheller	Drumheller
Little, J. B. & Sons Ltd. (a)	10015—93 Street, Edmonton	Edmonton
Medicine Hat Brick & Tile Co. Ltd. (a)	Box 100, Medicine Hat	Medicine Hat
Redcliff Pressed Brick Co. Ltd. (a) (b)	Redcliff	Redcliff
BRITISH COLUMBIA—		
Abbotsford Fire & Pressed Brick Co. Ltd. (b)	Abbotsford	New Westminster
Baker Brick & Tile Co. Ltd. (a)	3191 Douglas St., Victoria	Victoria
Bazan Bay Brick & Tile Co.	Saanichton	Bazan Bay
Clayburn Co. Ltd. (a) (b)	850 W. Hastings St., Vancouver	Kilgard
Coast Clay Producte (a)	Pleasantside	Port Moody
Evans, Coleman & Evans (b)	902 Columbia Ave., Vancouver	Gabriola Island
Fairey & Co. (a)	661 Taylor St., Vancouver	Vancouver
Glover, F. (c)	Princeton	Princeton
Haug, Wm. & Son (a) (c)	Box 220, Kelowna	Kelowna
Port Haney Brick Co. Ltd. (a)	846 Howe St., Vancouver	Haney
Port Moody Brick Co. (a) (c)	1875 E. 38th Ave., Vancouver	Port Moody
Richmond, George W. (a) (c)	4190 Blenheim St., Vancouver	Kilgard
Vancouver Brick & Tile Co. Ltd. (a) (c)	902 Columbia St., New Westminster	Sullivan

DIRECTORY OF FIRMS—Continued

PRODUCERS OF STONEWARE AND POTTERY

Name of firm	Head office address	Location of plant
NEW BRUNSWICK—		
Canuck Pottery	198 Union St., Saint John	Saint John
Deichmann, K.	Moss Glen	Moss Glen
Foley Pottery Ltd. (c)	Saint John	Saint John
QUEBEC—		
Elsterman Quebec Art Pottery (a)	Box 552 Ste. Agathe des Monts	Ste-Agathe-des-Monts
Laurentian Art Pottery Inc.	St-Jérôme	St-Jérôme
Poterie de Saguenay, La	Chicoutimi	Chicoutimi
Syndicat des Céramistes paysans de Beauce	St-Joseph-de-Beauce	St-Joseph-de-Beauce
ONTARIO—		
Foster Pottery Co.	Main St. W., Hamilton	Hamilton
ALBERTA—		
Medalta Potteries Ltd.	Industrial Ave., Medicine Hat	Medicine Hat
Medicine Hat Potteries	Medicine Hat	Medicine Hat

FIRMS IN THE IMPORTED CLAY PRODUCTS INDUSTRY

Name of firm	Address
QUEBEC—	
Canada Firebrick Company Limited	4741 St. Ambroise St., Montreal
Canadian Potteries Limited	5 Mackenzie King St., St. Johns
Elsterman Quebec Art Pottery	22 Leblanc St., Ste-Agathe-des-Monts
Standard Clay Products	St. Johns
Walker-Hind-Sutherland Refractories Ltd.	309 St. Ferdinand St., Montreal
ONTARIO—	
Ajax Clay Products	4160 Dundas St. W., Toronto
Armaco Limited	Bower St., Acton
Ball, R. N.	419 Drew St., Woodstock
Canadian Ohio Brass Company Limited	Thorold Rd., Niagara Falls
Canadian Porcelain Company Limited	Paradise Rd., Hamilton
Canada Vitrified Products Limited	Talbot St. E., St. Thomas
Iva Crumback China	58 Perry St., Woodstock
Dominion Potteries	Dundas St. N., Oakville
Donvale Pottery Company	27 Davies Ave., Toronto 8
Electro Porcelain Limited	2 Stewart St., Kitchener
Ecanada Art Pottery	206 Dundurn St. S., Hamilton
Frontenac Floor & Wall Tile Co. Limited	Kingston
Georgetown Clay Products Limited	King St., Georgetown
Green, A. P. Fire Brick Co. Ltd.	Commercial St. (Leaside) Toronto 12
Hamilton Porcelains Limited	38 Elgin St., Brantford
Hamilton Potteries Limited	100 Locke St., Hamilton
McMaster Pottery	Main St., Dundas
National Refractories Limited	Port Robinson
Plibrico Jointless Firebrick Ltd.	Horner Ave., Toronto 18
Robinson Clay Product Co. of Canada Ltd.	110 Shaftesbury Ave., Toronto
Smith Potteries	353 King St. W., Oshawa
Sovereign Potteries Limited	282 Sherman Ave. N., Hamilton
York China and Artware Co. Ltd.	615 Spadina Ave., Toronto
Royal Canadian Art Pottery	Kenilworth Ave., Hamilton
John Petrik Limited	290 Dundas St., Woodstock
MANITOBA—	
Steinbach Pottery	Steinbach
BRITISH COLUMBIA—	
Allen Refractories	69-E—1st Ave., Vancouver

DIRECTORY OF FIRMS—Continued

THE LIME INDUSTRY

(*) Inactive
(a) Use calcium or high calcium limestone
(b) Use dolomite limestone.
(c) Purchase lime.
(d) Kind of limestone not reported.
(e) Brucitic limestone.

Name of firm	Head office address	Location of plant
NOVA SCOTIA—		
Dominion Steel & Coal Corp. Ltd. (b)	Sydney	Sydney
Eastern Lime Co. Ltd. (a) (*)	Windsor	Windsor
NEW BRUNSWICK—		
Bathurst Power & Paper Co. Ltd. (a)	Bathurst	Bathurst
Purdy & Green Ltd. (a)	204 Metcalfe St., Saint John	Saint John
Snowflake Lime Ltd. (a) (b)	Saint John	Saint John
QUEBEC—		
Aluminum Company of Canada Ltd. (e)	1700 Sun Life Bldg., Montreal	Wakefield
Arnaud, Edwilda (d)	Joliette	Joliette
Bousquet, Adrien (d)	St-Dominique	St-Dominique
Canadian Refractories Ltd. (e)	1050 Canada Cement Bldg., Montreal	(c)
Carriere Trois-Rivieres Ltd. (a)	St-Louis-de-France	St-Louis-de-France
Dominion Lime Ltd. (a)	Lime Ridge	Lime Ridge
Core, Joseph (a)	Metabetchouan	Metabetchouan
Dontigny, Raymond & Armand (d)	Ste-Thècle	Ste-Thècle
Filion, Narcisse (d)	St-Joachim	St-Joachim
Laurentain Stone Co. Ltd. (a)	195 Nicholas St., Ottawa, Ont.	Hull
Limoges, Henri (a)	552 Poupart St. Montreal	St-Michel
Mercure, Camille (a)	555, 16th Ave., St. Hyacinthe	St-Dominique
Shawinigan Chemicals Ltd. (a)	Craig St. W., Montreal	Shawinigan Falls
Standard Lime Co. Ltd. (a)	St-Paul-de-Joliette	St-Paul-de-Joliette
Trottier, David (d)	St-Marc des Carrières	St-Marc-des-Carrières
ONTARIO—		
Bell, Cecil N. (b)	R.R. No. 4, Chesley	Sulllivan Tp.
Brunner Mond (Canada) Ltd. (a)	Canadian Bank of Commerce Bldg., Toronto	Anderdon Tp.
Canada & Dominion Sugar Co. Ltd. (a)	Chatham	Chatham and Wallaceburg
Canadian Gypsum Co. Ltd. (b)	Windsor, N.S.	Guelph
Carleton Lime Products Ltd. (a)	Box 26, Carleton Place	Carleton Place
Chemical Lime Ltd. (a)	Beachville	Beachville
Gypsum Lime & Alabastine, Canada, Ltd. (a) (b)	Paris	Beachville, Glen Christie Halton
Jamieson Lime Co. (a)	Renfrew	Horton Tp.
North American Cyanamid Ltd. (a)	Niagara Falls	Niagara Falls
Rockwood Lime Co. (b)	Box 46, Rockwood	Rockwood
Shane Lime & Charcoal Co. Ltd. (a)	Eganville	Grattan Tp.
MANITOBA—		
Building Products & Coal Co. Ltd. (b)	111 Christie St., Winnipeg	Inwood
Gypsum Lime, & Alabastine, Canada Ltd. (b)	Paris Ont.	(c)
Manitoba Sugar Co. Ltd. (a)	Fort Garry	Fort Garry
Winnipeg Supply & Fuel Co. Ltd. (a) (b)	812 Boyd Bldg., Winnipeg	Moosehorn and Stonewall
ALBERTA—		
Canadian Sugar Factories Ltd. (a)	Raymond	Raymond and Picture Butte
Errico, M. (d)	Cadomin	Cadomin
Loder's Lime Co. Ltd. (a)	Kananaskis	Kananaskis
Summit Lime Works Ltd. (a)	Box 273, Lethbridge	Crow's Nest District
BRITISH COLUMBIA—		
Pacific Lime Co. Ltd. (a)	744 W. Hastings St., Vancouver	Texada Island
Pacific Mills Ltd. (a)	Campbell Ave., Vancouver	Ocean Falls

PRINCIPAL SAND AND GRAVEL OPERATORS

In addition to the names listed below, production has been reported by the railway companies for ballast, and also a considerable amount by counties and townships in Ontario for road use.

(w) Markets washed or screened material.

Name of firm	Head office address	Location
NOVA SCOTIA—		
Crockett, V. B.	Wallace	Belmont
Nova Scotia Department of Highways	Halifax	Various
Rayner Construction Ltd. (w)	29 Commercial Rd., Leaside	Debert
Warren Bituminous Paving Co. Ltd.	1454 Bloor St. W., Toronto 9, Ont.	Yarmouth

DIRECTORY OF FIRMS—Continued

PRINCIPAL SAND AND GRAVEL OPERATORS—Continued

Name of firm	Head office address	Location
NEW BRUNSWICK—		
Anderson, A. W. Estate	Fairville	Fairville
Likely, Jos. A. Ltd	Saint John	East Saint John
Maxwell, Elmer E.	St. Stephen	Bay Road
New Brunswick Department of Highways	Fredericton	Various
Stuart and Smith	Fairville	Fairville
Warren Bituminous Paving Co. Ltd. (w)	1454 Bloor St. W., Toronto 9, Ont.	Sussex
QUEBEC—		
Asselin, Adrien	112, ave. des Oblats, Quebec	Ste-Foy
Beaudry, Antoine	Lachenaie, Co. L'Assomption	Mascouche
Bigras, Omer	Sainte-Rose West	Sainte-Rose West
Bonner Sand and Ballast Ltd. (w)	1434 St. Catherine St. W., Montreal	South Durham
Bouchard, Raoul, Industriel	819-8e Ave., Port Alfred	Grande-Baie
Breen, Mary Ann	Guigues	Guigues
Brouillet Sand & Gravel Co. Ltd. (w)	Rawdon	St-Julienne
Camarda, Nick	6876 De Gaspé St., Montreal	Pointe-Calumet
Canadian Johns-Manville Co. Ltd.	Sun Life Bldg., Montreal	Asbestos
Coaticook, City of	Coaticook	Coaticook
Compagnie de Sable Ltée (w)	10-3e ave., Quebec	St. Charles River
Consolidated Oka Sand & Gravel Co. Ltd. (w)	248 McCord St., Montreal	Lake of Two Mountains
Gagnon, Arthur	1740 Fourth St., Grand'Mère	Grand'Mère
Goyer, Edouard & Frère	St-Bruno	St-Bruno
Granby, City of	Granby	Granby
Hains, A. Limitée	837 Avenue Royale, Beauport	Ste-Thérèse-de-Lisieux
Laberge, Evariste	Ste-Foy	Ste-Foy
Latulippe, Philippe (w)	240, de la Ronde, Quebec	St-Charles River
Magog, City of	Magog	Magog
Marchand & Frère	505-8e rue Almaville-en-haut, Quebec	Mont-Carmel
Montreal Dual Mixed Concrete Ltd.	6301 Park Ave., Montreal	Charette, St. Maurice Co.
Potier & Frères	8645, rue Casgrain, Montreal	Two Mountains
Provost Cartage Co. Ltd.	236, rue St-Augustin, Montreal	Pointe-Calumet
Quebec, City of	Quebec	Ste-Thérèse-de-Beauport
Robert & Dufour Enrg.	929 Avenue Royale, Beauportville	Ste-Thérèse-de-Beauport
St. Francis River Dredging Co. (w)	St-François-du-Lac	St-Francois River
Sables des Mille Iles Ltée, Les	19 rue Dupont, Montreal	St-Henri-de-Mascouche
Sherbrooke, City of	Sherbrooke	Oxford Tp.
Standard Lime Co. Ltd. (w)	Joliette	Ste-Emelie
Standard Sand & Gravel Ltd. (w)	St-Félix-de-Valois	St-Félix-de-Valois
Telfer Construction Co. Ltd.	248 McCord St., Montreal	Calumet, (Oka)
Tremblay, Jos.	376 George St., Shawinigan Falls	Almaville
Two Mountains Sand Co.	517 Canada Cement Bldg., Montreal	St-Joseph-du-Lac
Venne, Oscar	Lachenaie	Lachenaie
ONTARIO—		
Axford, J. B., & Son	35 Elm St., St. Thomas	South Yarmouth
Bailey, E. R.	R.R. 5, Embro	Oxford
Barnes, Wm. R. Co. Ltd. (w)	243 Cumberland Ave., Hamilton	Waterdown
Bast, Aaron	Bridgeport	Bridgeport Road
Bellyou, N. E.	R.R. 4, Trenton	Trenton
Boyd Bros.	Osgoode	Osgoode
Braas Bros. Sand Co.	R.R. 3, Niagara Falls	Stamford
Brantford City, Corporation of the	Brantford	Brantford
Burrows, J. W.	647 Lavery St., North Bay	Widdifield Tp.
Coleman, Gordon T. (w)	235 Sydney St., Cornwall	Bonville
Consolidated Sand & Gravel Ltd. (w)	420 Harbour Commission Bldg., Toronto	Waterford, Fuller, Paris
Cooper, A. & Co. (w)	212 North May St., Fort William	Thunder Bay
Corley, E. & Sons	94 Adelaide St. N., Lindsay	Ops Tp.
Crosby, William	Princeton	Blenheim Tp.
Cudmore, Harold T.	R.R. 1, Hensall	Hensall
Curran & Briggs Ltd. (w)	61 Haverson Blvd., Toronto	Bancroft, Hagar, Gravenhurst, Burwash, Whitefish
Davison, Lloyd	R.R. 3, Georgetown	Essa Tp.
Dibblee Construction Co. Ltd. (w)	248 Albert St., Ottawa	Burnstown, Cardinal, Chesterville
Dixie Sand & Gravel Limited	Dixie	Dixie
Dobie, Mrs Draper (w)	Port Colborne	Humberstone Tp.
Dome Mines Limited	South Porcupine	Cochrane
Eagen, Wm.	R.R. 4, Embro	Embro
Eberhart, George B.	Seaforth	Seaforth
Elgin Construction Co. Ltd.	St. Thomas	St. Thomas
Ellins Bros. (w)	304 Scarlett Rd., Toronto	Etobicoke Tp.
Elliott, Jack (w)	Box 284, Kapuskasing	O'Brien Tp.
Fewster, Stanley	R.R. 4, St. Marys	Oxford Co.
Forwell Sand & Gravel Ltd. (w)	31 Whitney Place, Kitchener	Waterloo Tp.
Foster, R.R. & Sons Limited	86 Spadina Ave., Ottawa	Britannia Heights
Foy, G. C. (w)	R.R. 2, Wardsville	Wardsville
Fraser Brace Ltd. (w)	1910 Royal Bank Bldg., 360 St. James West, Montreal, Que.	Chalk River
Galbraith, Frank (w)	Rodney	Rodney
Gauthier, J. T.	Porcupine	Whitney Tp.
Goodreau, Charles E. (w)	R.R. 3, Northwood	Harwich Tp.
Grandmaitre, Donat	71 Montreal Rd., Eastview	McKays Lake
Guelph Sand & Gravel Ltd. (w)	Inkerman St., Guelph	Guelph Tp.
Guelph, City of	Guelph	Guelph

DIRECTORY OF FIRMS—Continued

PRINCIPAL SAND AND GRAVEL OPERATORS—Continued

Name of firms	Head office address	Location
ONTARIO—(Concluded)		
Hall, Thomas G.	Box 67, Plattsville	Blenheim Tp.
Halliburton Estate	101 Strangest, Guelph	Guelph
Harvey, John R.	Box 811, Arnprior	Arnprior
Hayward, Gordon	Embro	West Zorra Tp.
Highland Creek Sand & Gravel Ltd. (w)	Highland Creek	Highland Creek
Hill, Walter (w)	Merlin	Romney Tp.
Hollinger Consolidated Gold Mines Ltd.	Timmins	Tisdale Tp.
Howard Sand & Gravel Co. Ltd. (w)	Aldershot	Flamboro E. Tp.
Jones, J. D.	R.R. 2, Wilton Grove	Wilton Grove
Jupp, A. E. Construction Co. Ltd.	56 Blake St., Toronto 6, Ontario	Medante Tp.
Kettle, Mrs. Wm.	Petrolia	Enniskillen Tp.
Keyes, Mrs. S.	R.R. 8, Woodstock	Woodstock
Kilbourne, H. & Son	London	Westminster Tp.
Kingston Sand & Gravel Ltd.	235 Wellington St., Kingston	Kingston
Kirkland, Gordon B.	R.R. 3, Lucknow	Ashfield Tp.
Liley, William	R.R. 6, London	London
Madill, Bert	R.R. 1, Arkona	Middlesex County
Martin & Dayman	Drumbo	Blenheim Tp.
McAdams, Harry	R.R. 3, Zurich	Hay Tp.
McCall, Wm.	Carleton Place	Lanark Tp.
McCready, D.	R.R. 2, Thamesford	Thamesford
McLellan, Jas. L.	Thamesford	East Nissouri
McGovern, C. L. (w)	Sherkston	Shertkson
McLean, A. B. & Sons (w)	Sault Ste. Marie	Sault Ste. Marie
Morris, P. R. (w)	26 John St. N., Hamilton	Saltfleet Tp.
Nagle, J. M.	Dublin	Hibbert Tp.
National Sand & Material Co., Ltd. (w)	402 Harbour Commission Bldg., Toronto	River
Nevill, George	R.R. 5, Aylmer West	Elgin
Nicholson Transit Co. (w)	Box 66 River Rouge 18, Michigan U.S.A.	St. Clair River
Ontario Sand & Gravel Co. Ltd.	1211 Bathurst St. Toronto	Maple
Park Bros	Lucan	Lucan
Parisien, Fernand	Alfred	Alfred
Quigley's Foundry Sands Ltd. (w)	Bartonville	Waterdown
Quinn, Howard	R.R. 9, Peterborough	Douro Tp.
Radford, George E.	Blyth	Blyth
Richardson, J. E.	Thamesville	Thamesville
Sarjeant Co. Ltd.	Barrie	Barrie
Sarnia Board of Parks Management (w)	184½ N. Front St., Sarnia	Lake Huron
Scott, T.	R.R. 1, Seaforth	Seaforth
Shelton, Russell A.	R.R. 5, Ingersoll	Durham
Smythe, C. Ltd. (w)	Box 8, Postal Station D. Toronto 9	Mt. Dennis
Speiran, G. A.	R.R. 2, Brussels	Guy Tp.
Spratt, G. H. (w)	Billings Bridge	Gloucester Tp.
Sutherland, Hugh A.	R.R. 4, Embro	Oxford Co.
Tees Transit Co. (w)	58 Whitton Road, Hamilton	Niagara Bar
Towland Conctruction Co. Ltd.	294 Dundas St., London	West Nissouri Tp.
United Towing & Salvage Co. Ltd. (w)	635 Common St. Montreal	Thunder Bay
Warren Bituminous Paving Co. Ltd.	1454 Bloor St. West, Toronto	Smith Tp.
Woodbridge Sand and Gravel Co.	R.R. 3, Woodbridge	Woodbridge
Woolatt Fuel & Supply Co. Ltd. (w)	2171 Ottawa St., Windsor	Leamington
Wylie, Greer	Wingham	Huron Tp.
Yundt, William (w)	29 Downie St., Stratford	Ellice Tp.
MANITOBA—		
Alsip Brick, Tile & Lumber Co. Ltd.	537 Portage Ave., Winnipeg	Beausejour
Brandon, City of	City Hall, Brandon	Brandon
Building Products & Coal Co. Ltd.	111 Christie St., Winnipeg	Birds Hill
Cummings & Dobbie	233 Ninth Street, Brandon	Brandon
Greater Winnipeg Water District	185 King St., Winnipeg	Mile 39 and Mile 80 G.W. WD Ry.
Manitoba Department of Highways	Winnipeg	Various
McCurdy Supply Co. Ltd. (w)	Sargent & Erin Streets, Winnipeg	.....
Provincial Gravel & Coal Co.	608-356 Main Street, Winnipeg	.....
Rosser, Municipality of	Rosser	Rosser
Universal Lumber & Supply Co.	1034 Arlington St., Winnipeg	Molson
Winnipeg, City of	223 James Ave., Winnipeg	Birds Hill
SASKATCHEWAN—		
Chetwridge, Stanley	Pilot Butte	Pilot Butte
Easson, H. G. & Co.	Biggar	Biggar
Elsender, John	Flin Flon	Flin Flon
Hudson Bay Mining & Smelting Co. Ltd.	500 Royal Bank Bldg., Winnipeg, Man.	Flin Flon
North Battleford, City of	1201 King St., North Battleford	North Battleford
Prince Albert, City of	Prince Albert	Prince Albert
Saskatchewan Department of Highways	Regina	Various
ALBERTA—		
Alberta Department of Highways	Edmonton	Various
Doomaster Construction Co. Ltd.	Garneau Theatre Bldg., Edmonton	Edmonton
Grimall Sand Ltd.	10165-104 St., Edmonton	Perryvale
Jeffories & Sons Limited (w)	Calgary	Calgary
Mountain View, District of	Didsbury	Mountain View
Nanton, Town of	Nanton	Nanton
Western Engineers Ltd.	300 Leeson Lineham Bldg., Calgary	Calgary

DIRECTORY OF FIRMS—Continued

PRINCIPAL SAND AND GRAVEL OPERATORS—Concluded

Name of firm	Head office address	Location
BRITISH COLUMBIA—		
Armstrong, City of	P.O. Box 40, Armstrong	Armstrong
B.C. Electric Ry. Co.	Vancouver	Various
British Columbia Department of Highways	Victoria	Various
Burnaby, District of	New Westminster	Burnaby
Chilliwack, City of	Chilliwack	Chilliwack Tp.
Colebrook Sand & Gravel Co. Ltd.	Box 120, White Rock	Surrey Municipality
Consolidated Mining & Smelting Co. of Canada Ltd.	Trail	Fort Steele and Trail
Cranbrook, City of (w)	Cranbrook	Fort Steele
Deeks Sand & Gravel Co. Ltd. (w)	101 West First Ave., Vancouver	Seymour Creek, North Vancouver and Coquitlam
Delta, Corporation of	Ladner	Ladner
Fernie, City of	Fernie	Fort Steele
Gilley Bros. Ltd. (w)	902 Columbia St., New Westminster	Port Coquitlam
Greening, Wm. H.	Armstrong	Larkin
Highland Sand & Gravel Co., Ltd. (w)	Lynmour	Lynmour
Hillside Sand & Gravel Ltd. (w)	1075 Main St., Vancouver	Hillside
Kamloops City of	288 First Avenue, Kamloops	Kamloops
McIntyre & Harding Gravel Co., Ltd. (w)	Saanich	Cordova Bay
Nelson, City of (w)	501 Front St., Nelson	Nelson
Pitkethly Bros. (w)	8699 Angus Drive, Vancouver	Vancouver
Port Alberni, City of	Port Alberni	Port Alberni
Producers Sand & Gravel Co., (1929) Ltd. (w)	1902 Store Street, Victoria	Royal Bay
Road Materials Ltd. (w)	8699 Hudson St., Vancouver	North Vancouver
Saanich, District of	Royal Oak P.O., Vancouver Island	Saanich District
Trail, City of	1394 Pine Avenue, Trail	West Kootenay

THE STONE QUARRYING INDUSTRY

(*) Firms operating dressing works in conjunction with quarry.
(†) Did not ship in 1946.

Granite

Name	Head office address	Location
NOVA SCOTIA—		
Bower, A. R.	Box 255, Shelburne	Shelburne
Dauphinee, W. T. (*)	Shelburne	Shelburne
Nixon, W. H. & Sons (*)	R.R. 3, Middleton	Nictaux West
Rice Bros. (*)	Lawrencetown	Nictaux West
Rice, W. D. (*)	Middleton	Nictaux West
NEW BRUNSWICK—		
Granite Street Pavement & Construction Co. Ltd.	Box 1137, Saint John	Hampstead
Milne Coutts & Co. Ltd. (*)	St. George	St. George
Mooney & Sons Realty Ltd., B.	Box 727, Saint John	Hampstead
O'Brien & Baldwin (*)	St. George	St. George
Spinney's Quarry	Box 96, St. George	St. George
QUEBEC—		
Adru Granite Inc.	4023 Dorchester St. W., Montreal	Beebe
Anderson, James (*)	Box 125, Beebe	Beebe
Bérubé, Lucien (*)	Brownsburg	Chatham Tp.
Bolduc, Antonio (*)	St-Sébastien	Beauce
Bourbonnais, J. A.	Rigaud	Rigaud
Boyer, Herve	Mount Royal	New Glasgow
Brodies' Ltd. (*)	1070 Bleury St., Montreal	Guenette Graniteville Mount Johnson
Bussière & Frère (*)	St. Sebastien	Ste-Cécile
Canada Black Granite Co. Ltd.	Box 550, Rouyn	Beauschastel Tp.
Canadian Red Granite Reg'd.	Box 19, Grenville	Scotch Road
Carrière Shawinigan	57a First St., Shawinigan Falls	Ste-Flore
Cie de Marbre & de Tuile de Quebec Ltée	327 Dorchester St., Quebec	Ste-Cécile
Cloutier, R. L. (*)	Beebe	Beebe
Delwaide & Coffin (*)	1365 St-Valier St., Quebec	Chicoutimi
Deschambault Quarry Corp. (*)	58 St. Pierre St., Quebec	St-Gérard
Dostie & Trepanier Engr.	R.R. 1, Meganitc Ville	Ste-Cécile
Drummond, La Compagnie Pierre Concassee	Box 712, Sherbrooke	Drummond
Dubois, Honore (*)	Rivière-à-Pierre	Rivière-à-Pierre
Dumas & Voyer	Rivière-à-Pierre	Portneuf Co.
Gaboriault & Nevers (*)	Box 65, Grenville	Grenville Tp.
Gagnon, Arthur	1740 Fourth St., Grand'Mère	Grand'Mère
Giguere, H. Camille	Rouyn	Rouyn

DIRECTORY OF FIRMS—Continued

THE STONE QUARRYING INDUSTRY—Continued

Granite—Concluded

Name	Head office address	Location
QUEBEC—Concluded		
Gosselin, Oscar	Lac-Mégantic	St-Samuel
Granit National Ltée (*)	St-Joseph-d'Alma	St-Cédéon, St-Joseph-d'Alma
Granit Noir Du Canada Ltée	Box 550, Rouyn	Beauchastel Tp.
Granit St. Jerome Ltée	Box 10, Rosemount, Montreal	St-Eustache, Est.
Grenier, Elie	Glenada	Glenada
Hamilton Granite Quarries	Beebe	Beebe
Jacques, Arthur	Rivière-à-Pierre	Rivière-à-Pierre
Lacasse & Boulais	Box 23, Beebe	Beebe
Laforce, H. & Fils (*)	1327 St-Valier St., Quebec	Chicoutimi
Laroche, Omer	Rivière-à-Pierre	Portneuf Co.
Maltais, Charles	St-Joseph-d'Alma	St-Joseph-d'Alma
Marvel Granite Reg.	17 Notre Dame Donnacona	St-Raymond
Pare, Elzear	441 Lagauchetière E., Montreal	Guenette
Perron, Arthur	Rivière-à-Pierre	Portneuf Co.
Quebec North Shore Paper Co.	680 Sherbrooke St. W., Montreal	Baie-Comeau
Riverin & Riverin	Chicoutimi	Chicoutimi
Rousseau, Ben	283 Heriot St., Drummondville	St-Charles
St. Bruno Quarry & Paving Co. Ltd.	636 Ave. Querbes, Outremont	St-Bruno
St. Samuel Granite	St. Samuel Station	Frontenac Co.
Scotstown Granite Co. Ltd. (*)	Cap St. Martin	Cap-St-Martin
Sherbrooke, City of	Box 754, Sherbrooke	Sherbrooke
Silver Granite Co. Ltd. (*)	2251 rue Delormier	St-Cédéon
Stanstead Granite Quarries Co. Ltd. (†)	Beebe	Beebe
Super Service Inc.	77 Perrault Est., Rouyn	Rouyn
ONTARIO—		
Bancroft Mica & Stone Products Mining Synd. Ltd.	Selby	Hastings Co.
Building Products Limited	Box 6063, Montreal	Madoc
Hall, Wilfred J. R.	36 Burritt St., Parry Sound	McDougall Tp.
Horne Granite Quarries	Butler via Ignace	Butler
Ontario Rock Co., Limited	Room 303, 2 College St., Toronto	Belmont Tp.
MANITOBA—		
Winnitoba Marble Co. Ltd. (*)	1180 Wall St., Winnipeg	West Hawk Lake
BRITISH COLUMBIA—		
B.C. Monumental Works Ltd.	27 Kingsway, Vancouver	Granite Island
Canadian National Railways	Montreal	Skeena, Ashcroft
Canadian Pacific Railway Co.	Montreal	Albert Canyon
Coast Quarries Ltd.	1840 West Georgia St., Vancouver	Granite Falls
Corporation of the City of Nelson	501 Front St., Nelson	Nelson, M.D.
Nelson Granite and Monumental Co.	550 Front St., Nelson	Nelson, M.D.
Prince Rupert, City of (†)	Prince Rupert	Skeena
Valley Granite Ltd.	Cheam-View	Yale Dist.
Vancouver Granite Co. Ltd.	308 Pacific Bldg., Vancouver	Nelson Island
Vernon Granite & Marble Co.	Box 265, Vernon	Yale Dist.
Wilson Son & Co. Ltd., James	Sirdar	Nelson

Limestone

NOVA SCOTIA—		
Dillman Bros.	Admiral Rock	Admiral Rock
Dominion Steel and Coal Co. Ltd.	Sydney	Sydney
Eastern Lime Co. Ltd. (*)	Box 60, Windsor	Windsor
Mersey Paper Co. Ltd.	Liverpool	East River Point
Mosher Limestone Co. Ltd.	Upper Musquodoboit	Upper Musquodobait
Nairn, J. S.	24 Whitney Ave., Sydney	Scotch Lake
Nova Scotia Department of Agriculture	Halifax	Various
Windsor Foundry	Windsor	Windsor
NEW BRUNSWICK—		
Alward, Roy M.	Butternut Ridge	Springhill
Brookville Manufacturing Co. Ltd.	Brookville	Brookville
Elm Tree Limestone Co-operative Co. (*)	Petit Rocher North	Petit Rocher North
Havelock Lime Works	Havelock	Havelock
Snowflake Lime Limited	3 Pokiok Rd., Saint John	Saint John
QUEBEC—		
Amendements Calcaires de R-B, Les	Rivière-Bleue	Rivière-Bleue
Andoro, Jean (*)	Cap-St-Martin	Cap-St-Martin
Beaudry, J. P.	Joliette	Joliette
Beauregard, La Compagnie Ltd.	Stukley North	Stukley North
Beco Engr.	Box 219, Rimouski	Lallèche Co.
Bédard, Jean Ltée (*)	270—33rd Ave., Lachine	Lachine
Boucher, Louis	Percé	Gaspé Co.
Boucher, Telesphore	Notre-Dame-de-la-Salette	Notre-Dame-de-la-Salette
Bourget, John D.	Deforceville	Gaspé Co.
Canada Cement Co. Ltd.	Box 290, Montreal	Hull

DIRECTORY OF FIRMS—Continued

THE STONE QUARRYING INDUSTRY—Continued

Limestone—Continued

Name	Head office address	Location
QUEBEC—Concluded		
Canadian Quarries Co.	2251 Chemin-de-la-Côte-St-Michel	St-Michel
Carrière Bernier Enrg.	R.R. 2, St-Jean	St-Jean
Carrière du Cap St. Martin	636 Ave. Querbes, Outremont	Cap-St-Martin
Carrière Gravel Ltée.	Château-Richer	Château-Richer
Carrière Pointe-Claire	Pointe-Claire	Pointe-Claire
Currière St. Barthelemi Ltée.	St-Barthelemi	St-Barthelemi
Carrière de St. Dominique Ltée (*)	555-16th Ave., St.Hyacinthe	St-Dominique
Carrière St. Maurice Inc.	1497 Craig St., Trois-Rivières	St-Louis-de-France
Carrière Trois Rivières Ltée.	St-Louis-de-France	St-Louis-de-France
Charbonneau, L. & Cie	St-François-de-Sales	Laval Co.
Charron Ferdinand	Canton Bélanger	Laval Co.
Charron & Fils	3896 St. Dominique St., Montreal	Bélanger Village
Cyr, Arsene	St-Alphonse-de-Caplan	Bonaventure
Department de la Justice (*)	Ottawa, Ontario	St-Vincent-de-Paul
Deschambault Quarry Corp. (*)	56 rue St-Pierre, Quebec	St-Marc-des-Carrières
Dominion Lime Ltd.	Lime Ridge	Lime Ridge
Durocher, Cyrville	11021 Notre-Dame E. Montreal	Montreal East
Eastern Quarries Co.	1043 Blvd. des Forges, Three Rivers	Portneuf
Filion, Aldege	Lachute	Lachute
Fiset, Eliodore	St-Marc-des-Carrières	St-Alban
Fortin, Camille	Chambrod Junction	Lac-St-Jean
Fuger & Smith Ltd.	78 Victoria Ave., Pointe-Claire	Pointe-Claire
Gagné, Octave	St-Ulric	St-Ulric
Gagnon & Leclerc	St-Joachim	St-Joachim
Gaspesian Fertilizer Co.	Port Daniel E.	Port Daniel E.
Gauthier, J. O. (*)	St-Marc-des-Carrières	St-Marc des Carrières
Gingras & Frère Ltée.	St-Marc-des-Carrières	St-Marc des Carrières Portneuf
Goulet, Sarto	242 Blvd. Benoit XV, Quebec	Trinity Bay
Gosselin, Alphonse	St-Laurent	St-Laurent
Hargnte Quarries Limited	Cap-St-Martin	Laval Co.
Kennedy Construction Co. Ltd.	407 McGill St., Montreal	Actonvale
Laberge & Marchand Enrg.	Chateauguay	Chateauguay
Lagace Quarry	130 Blvd. Labelle, L'Abord-à-Plouffe	L'Abord-à-Plouffe
Lakeshore Construction Co. Ltd.	137 Cartier Ave., Pointe-Claire	Pointe-Claire
Landry, J. P. A.	St-André, Matapedia	St-André
Langlois, Adjutor	St-Marc-des-Carrières	St-Marc-des-Carrières
Larouche, J. B.	Baie-St-Paul	Baie-St-Paul
Lasalle Quarry Ltd.	8413 Blvd. St-Michel, Montreal	Ville-St-Michel
Laurentian Stone Co. Ltd.	195 Nicholas St., Ottawa, Ontario	Hull
Leclerc, J. J.	Drapeau	Drapeau
Martineau, La Cie de Pierre de Taille Ltée (*)	Box 10, Rosemont, Montreal	Pont-Viau
McDonald, R. & Co. Ltd.	2020 Union Ave., Montreal	Wakefield
Mercure, Camille	555-16th Ave., St-Hyacinthe	St-Dominique-de-Bagot
Miner, R. H. Co. Ltd.	Room 719, Sun Life Bldg., Montreal	Bélanger Village St-Laurent
Ministère de la Voirie	Quebec	St-Charles-de-Bellechasse
Montreal Cut Stone Co. (*)	1869 rue St-André, Montreal	St-François-de-Sales
Montreal Quarry & Cut Stone Co.	2020 Union Ave., Montreal	St-Michel
National Quarries Ltd.	6301 Park Ave., Montreal	Laval Co.
Paquette, Levis	Cap-St-Martin	Cap-St-Martin
Pelletier, Jos. E.	Ste-Anne-des-Monts	Gaspé N.
Pulverized Products Ltd.	4829 Fourth Ave., Rosemount	St-Armand
Rioux, Paul & Maurice	Cowansville	Cowansville
Roberval Construction Ltée.	Roberval	Roberval
St. Francis Rock Products & Equipment Ltd.	St-Laurent	St-Laurent
St. Laurent Stone Products & Supplies Ltd.	St-Laurent	St-Laurent
Salaberry de Valleyfield, La Cite	Valleyfield	Valleyfield
Shawinigan Chemicals Ltd.	Montreal	Bedford
Standard Lime Co. Ltd.	Joliette	St. Paul de Joliette
Syndicat Co-operatif de la Carrière de Ferme-Neuve	Ferme-Neuve	Ferme Neuve
Syndicat de Broyage de Lévis	St-Joseph-de-Lévis	St-Joseph-de-Lévis
Tanguay & Royer Enrg.	Ste-Justine	Ste-Justine
Trappe de N. D. de Mistassini, La	Le Village des Pères (Roberval)	Mistassini
Tremblay, Napoléon	31 rue Joffre, Hull	Hull
Tremblay, Wellie	Ste-Anne-de-Chicoutimi	Canton Tremblay
Turcotte & Asselin	370 Dorchester St., Quebec	Château-Richer
Union des Carrières & Pavages Ltée.	48 Second Ave., Quebec	Charlesbourg
Varin, Joseph	3275 Chemin St-Michel, St-Michel	St-Michel
Verreault, Elz. Ltée.	194 du Pont, Quebec	Giffard
Viau, Paul	340 Blvd. du Havre, Valleyfield	Grande Isle
ONTARIO—		
Abitibi Power & Paper Co. Ltd.	408 University Ave., Toronto	Bucke Tp.
Bonter Marble & Calcium Co. Ltd.	Box 61, Marmora	Marmora
Bonter, W. F.	Malone	Malone
Brunner Mond Canada Ltd.	Canadian Bank of Commerce Bldg., Toronto	Anderson Tp.
Canada Cement Co. Ltd.	Box 290, Montreal, Que.	Belleville
Canada Crushed Stone Ltd.	72 Sun Life Bldg., Hamilton	Dundas, Hagersville
Carleton Lime Products Co.	Box 26, Carleton Place	Ramsay Tp.
Chemical Lime Ltd.	Beachville	Beachville
Chem-Ore Mines Ltd.	156 Yonge St., Toronto	Bobcaygeon

DIRECTORY OF FIRMS—Continued

THE STONE QUARRYING INDUSTRY—Continued

Limestone—Concluded

Name	Head office address	Location
ONTARIO—Concluded		
Cook, J. S. Stone Quarries (*)	Wiarton	Amabel Tp.
Gypsum, Lime & Alabastine, Canada, Ltd.	Paris	Beachville
		Hespeler
Hagersville Quarries Ltd.	Hagersville	Hagersville
Hesselmand Quarries & Construction Ltd.	137 Wellington St. W., Toronto	Hagersville
Kingston Penitentiary	Box 22, Kingston	Kingston
Kirkfield Crushed Stone Ltd.	2700 Dufferin St., Toronto	Kirkfield
Laperre, M. C.	1949—8th Ave., E., Owen Sound	Owen Sound
Law, R. E. Crushed Stone Ltd.	Port Colborne	Port Colborne
Limestone Products Ltd.	1109 Millwood Rd., Toronto	N. Orillia Tp.
Marlhill Mines Ltd.	Thorold	Marlbank
McDonald, A. G.	Bronte	Lake Ontario
McGinnis & O'Connor	394 King St., Kingston	Pittsburg Tp.
Mica & Stone Products	Bancroft	Bancroft
Mitchell, William	Limehouse	Limehouse
North American Cyanamid Ltd.	Niagara Falls	Ingersoll
Ontario Rock Co. Ltd.	2 College St., Toronto	Belmont Tp.
Pembroke, Town of	Pembroke	Pembroke
Queenston Quarries Ltd. (*)	72 Sun Life Bldg., Hamilton	St. Davids
Verona Rock Products Ltd.	Verona	Verona
Walker Bros	Box 586, Thorold	Stamford Tp.
Webman, John	578 Division St., Kingston	Kingston Tp.
Welland Crushed Stone & Building Co.	R.R. 2, Niagara Falls	Stamford Tp.
MANITOBA—		
Building Products & Coal Co. Ltd.	111 Christie St., Winnipeg	Inwood
Gillis Quarries Ltd.	Richard & Spruce Streets, Winnipeg	Garson
Tyndall Quarry Co. Ltd. (*)	1591 Erin St., Winnipeg	Garson
Winnipeg, City of	223 James Ave., Winnipeg	Stoney Mountain
Winnipeg Supply & Fuel Co. Ltd.	812 Boyd Bldg., Winnipeg	Moosehorn, Stonewall
ALBERTA—		
Errico, M.	Cadomin	Cadomin
Loder's Lime Co. Ltd.	Kananaskis, Exshaw P.O.	Kananaskis
Summit Lime Works Ltd.	Box 273, Lethbridge	Lethbridge
BRITISH COLUMBIA—		
Agassiz Lime Quarry	Box 178, Agassiz	New Westminster M.D.
Beale Quarries Ltd.	744 West Hastings St., Vancouver	Van Anda
British Columbia Department of Highways	Victoria	Various
Canadian Pacific Railway Co.	Montreal, Quebec	Golden M.D.
Consolidated Mining & Smelting Company of Canada Ltd.	Trail	Grand Forks
Cutler, Hiram & Ethel	Agassiz	Agassiz
Fernie, City of	Fernie	Fernie
Koeye Limestone Co.	Nanaimo	Koeye River
Pacific Lime Co. Ltd.	302 Pacific Bldg., Vancouver	Blubber Bay

Marble

QUEBEC—		
Canadian Dolomite Co.	Portage-du-Fort	Portage-du-Fort
MAB Ltée.	77 Cremazie, Quebec	St-Joseph-de-Beauce
Mississquoi Stone & Marble Co. Ltd. (*)	Philipsburg	Philipsburg
Orford Marble Co. Ltd. (†)	65 Beaudet, St-Laurent	St-Laurent
Pulverized Products Ltd.	4820-4th Avenue, Rosemount, Montreal 36	St-Armand
ONTARIO—		
Silvertone Black Marble Quarries Ltd.	328 Waverley St., Ottawa	St. Albert
Stockloser, K. & Son	Madoc	Madoc
White Star Mines	Haliburton	Eagle Lake
BRITISH COLUMBIA—		
Marble & Associated Products	607 Ellice St., Victoria	Malahat

Sandstone

NOVA SCOTIA—		
Arsenault, F. W.	Antigonish	North Grant
Department of Highways	Halifax	Halifax
Dillman, Bros.	Admiral Rock	Hants Co.
Fairview Crushed Stone Ltd. (†)	637A Gottingen St., Halifax	Halifax
Wallace Quarries Ltd.	Wallace	Wallace
NEW BRUNSWICK—		
Read Stone Company Ltd. (†)	Sackville	Stonehaven
Smith, E. A. (*)	Shediac	Shediac
QUEBEC—		
Bissonnette, Alfred	Ville-St-Laurent, Montreal	Montebello
Blais, Joseph	32 Mont-Marie Ave., Lévis	St-Romuald
Côté & Forbes	Matane	Matane

DIRECTORY OF FIRMS—Continued

THE STONE QUARRYING INDUSTRY—Concluded

Sandstone—Concluded

Name	Head office address	Location
QUEBEC—Concluded		
Gagnon, L. P.	St-David-de-Lévis	St-David-de-Lévis
Peel Construction Co. Ltd.	Brampton	Trois-Pistoles
Rousseau, T. E.	105, Côte-de-la-Montagne, Quebec	New Carlisle
Sherbrooke, City of	Sherbrooke	Sherbrooke
Simard, Adjutor	Pointe-au-Pic	Pointe-au-Pic
Vezina, Joseph	St-Foy	St-Foy
ONTARIO—		
Austin Corner	Belfountain	Inglewood
Campbell Sandstone Quarries Ltd. (*)	Box C19, Westboro	Bells Corners
Kingston Silica Mines Ltd.	R.R. 6, Kingston	Kingston
Mather, E.	Glen Williams	Halton
McHarg, B.	Georgetown	Georgetown
Mountain Sandstone Quarry	Box 307, Georgetown	Inglewood
Norton, A. W.	Limehouse	Limehouse
Sinfield, E. W.	Cheltenham	Terra Cotta
Sykes Quarries	Young St., Georgetown	Glen Williams
BRITISH COLUMBIA—		
Consolidated Mining & Smelting Co. of Canada Ltd.	Trail	Kimberley

Slate

QUEBEC—		
Bombardier, Geo.	Kingsbury	Richmond
Thermo Coal Compound	7465, St-Denis, Montreal	Granby
Williamson & Crombie	Kingsbury	Kingsbury
BRITISH COLUMBIA—		
Brown, O. M.	1903 Lansdowne Rd., Victoria	Leachtown

THE STONE PRODUCTS INDUSTRY

Name of company	Location of Plant
PRINCE EDWARD ISLAND—	
Beck, Vere & Son	Main St., Montague
NOVA SCOTIA—	
Coughlan, James S., Marble and Granite Works	Simpson's Siding, Halifax
Elmac Co., The	Box 130, Amherst
Kelly Monumental Works	Bridgewater
Nictaux Granite Canada Limited	Middleton
Nixon's Granite Works	R.R. 3, Middleton
Steele, John D., & Sons	Commercial St., North Sydney
Tingley, Harold W.	13 Merkel St., Halifax
Tingley, J. A., Granite Works	Amherst
NEW BRUNSWICK—	
Kane, M. T., & Co. Ltd.	Westmoreland Rd., Saint John
Miramichi Granite & Marble Works	Chatham
St. Stephen Granite Works	Queen St., St. Stephen
Sherrard, T. F., & Son	135 Victoria St., Moncton
Stults Monument Works	Rothesay Ave., Saint John
QUEBEC—	
Anco Granites Limited	72 Fifth Ave., Iberville
Anderson, James	Beebe
Beaubien, Elzear & Fils Ltée Reg'd	Ste-Hélène, Co. Kamouraska
Bergstrand, N.	Waterville
Berson, L. & Son	3884 St. Lawrence Blvd., Montreal
Brault, A.	3 Champlain St., Valleyfield
Brodie's Limited	9th Ave., Iberville
Brunet, J., Limitée	4485 Côte-des-Neiges, Montreal
Canadian Johns-Manville Co. Ltd.	Manville St., Asbestos
Caron, Eugene	Ste-Anne-de-Beaupré

DIRECTORY OF FIRMS—Continued

THE STONE PRODUCTS INDUSTRY—Continued

Name of company	Location of plant
QUEBEC—Concluded	
Chabot, J. Ray	Scott Junction, Co. Beauce
Chausse, Edouard & Fils	524 King St. West, Sherbrooke
Crete, James	190 Sophie St., Sorel
Dalceggio, F.	4588 Chemin Côte-des-Neiges, Montreal
Daudelin, Rolland	1395 St. Antoine St., St-Hyacinthe
Ducharme, J. Maurice	257 Notre Dame St., Victoriaville
Electric Reduction Co. of Canada Ltd.	Buckingham
Fortin, Dollard	St-David-de-Lévis
Gingras, Roch	Ste-Foy
Gignac, Joseph	St-Alban Village
Godin & Delisle	1253 St. Vallier St., Quebec
Gosselin, Omer	Beauceville Est.
Gosselin, Oscar	Rue Maisonneuve, Mégantic
Houde & Frère Enrg.	404 Notre-Dame, Cap-de-la-Madeleine
Jacques André	20 Desjardins St., Lévis
Jeune, E. H.	Sutton
La Cie de Pierre de Taille Martineau Ltée	5000—13th Avenue, Rosemont, Montreal
Laforce, H. & Fils, Enrg.	1327 St. Valier, Quebec
Liben, A. M.	12 Bagg Ave., Montreal
Parent, G. H.	349 rue Montigny, St-Jérôme
Picard, Wilfred	3285 Desautels, Montreal
Provost, J. A.	187 Belmont, Sherbrooke
Quebec Granite & Marble Reg'd.	7877 Chateaubriand, Montreal
Quinlan, Harold Cut Stone Ltd.	Wanklyn St., Ville La Salle
Rousseau, O., Enrg.	St-Fabien
Smith Bros. Memorial Art Ltd.	1195 Ducharme St., Montreal
Smith Marble & Construction Co. Ltd.	207 Van Horne Ave. W., Montreal
Stanstead Granite Quarries Co. Ltd.	Beebe
St-Louis & Fils	Cap-St-Martin
Thuot & Denicourt	87 Fourth St., Iberville
Todoro & Bigras	Sherbrooke E., Montreal
Vincent, Chas. A., & Sons	5731 St. Denis St., Montreal
ONTARIO—	
Angers, B. & Son	140 Montreal Rd., Eastview
Ambroise Monuments	48 Alma St., Guelph
Ambroise, J. D.	Montreal Road, Eastview
Bayview Memorial Co.	Willow Cove
Brown, Geo., & Sons	473 Bronson Ave., Ottawa
Campbell, A. C.	21 Bridge St. W., Belleville
Canadian Art Memorials	Joseph St., Port Credit
Canadian Cut Stone Co. (Louis H. Gavard)	7 Isabella St., Ottawa
Canadian Gypsum Co. Limited	Oak St., Weston
Creber Son & Company	1333 St. Clair Ave. W., Toronto
Central Granite & Marble Works	1283 Dundas St. W., Toronto.
Chesley Memorial Works	Chesley
Davis Monument Co.	3205 Danforth Ave., Toronto
Eglinton Monumental Works	1702 Eglinton Ave. W., Toronto
Excelsior Granite & Marble Works	163 Pitt St. E., Windsor
Gladstone & Ross	388 East Brock St., Fort William
Geard Brothers	612 William St., London
Gypsum, Lime and Alabastine, Canada, Limited	Caledonia
Hardwick, H. G. & Son	676 King St. W., Hamilton
Hargrave's Monumental Works	Haileybury
Humberstone Cut Stone and Monument Works	590 King St., Humberstone
Insulation Products Ltd.	Beechwood Drive, Toronto 6
Johnston & Cranston	1849 Yonge St., Toronto
Kilvington Granite Company	2A Caledonia Rd., Toronto
Kingsway Monument Works	3673 Dundas St., Toronto
Kitchener Monument Works	1015 King St. E., Kitchener
Laurin, J. P.	95 George St., Ottawa
London Marble & Granite Co. Ltd.	493 Richmond St., London
McIntosh Granite Company Ltd.	1623 Yonge St., Toronto
McIntyre Monument Co.	60 Danforth Ave., Toronto
McKay Cut Stone Co.	65 Shulmar Ave., Forest Hill
McMillan Granite Co. Ltd.	105 Ontario St., Sarnia
Memorial Company of Toronto	2299 Bloor St. W., Toronto
Memorial Craftsmen Co.	429 Spadina Ave., Toronto
Monumental Art Co.	2168 Dundas St. W., Toronto
National Cut Stone Limited	355 Logan Ave., Toronto
Ontario Marble Co. Ltd.	Maria St., Peterborough
Orillia Monument Co.	252 Coldwater Rd. W., Orillia
Patterson & Cornelius	428 Queenston Rd., St. Catharines
Pollock & Ingham	151 Main St., Galt
Rhodes Memorials Ltd.	Box 61, Cayuga
Riggs Memorial Works	605 Queen St., Niagara Falls
The Ritchie Cut Stone Co., Ltd.	203 New Toronto St., New Toronto
Rivercourt Memorials	296 O'Connor Drive, Toronto
Ronald, Wellington	Listowel
Sanderson, J. R., Marble Co.	33 Peter St. S., Orillia
Sault Granite & Marble Works	715 Queen St. E., Sault Ste. Marie
Sinclair Cut Stone	Frid St., Hamilton
Sharp Bros. Cut Stone Company Limited	516 Kenilworth St. N., Hamilton
Skelton, E. J. & Son	Yonge St., Walkerton

DIRECTORY OF FIRMS—Continued

THE STONE PRODUCTS INDUSTRY—Concluded

Name of company	Location of plant
ONTARIO—Concluded	
Smith Monument Works	1539 Main St. E., Hamilton
Smith Monument Co.	349 Weston Road, Toronto
Spun Rock Wools Limited	65 Ormond St., Thorold
Standard Stone Company, Limited	1704 Howard Ave., Windsor
Strathroy Granite & Marble Co. Ltd.	Strathroy
Sudbury Memorial Works	453 Arnley St., Sudbury
Thomson Monument Co. Ltd.	862 Dupont St., Toronto
Twin City Monument Company	541 King St. E., Kitchener
Wardell Monument Works	2696 Dundas St. W., Toronto
Wilcox Granite Co.	Plains Road, Hamilton
MANITOBA—	
Brooke, J. H. & Sons	266 Main St., Winnipeg
Brunet, Joseph O.	26 Lyndale Drive., Norwood
Cassan Monumental Co.	1417 Rosser Ave., Brandon
Guinn & Simpson Company Limited	52 Tupper St. N., Portage la Prairie
Hooper's Memorial Co.	481 Notre Dame Ave., Winnipeg
MacIntyre, A. L.	361 Bannatyne Ave., Winnipeg
Memorial Marble & Tile Co. Ltd.	1180 Wall St., Winnipeg
Neepawa Marble & Granite Works	Neepawa
Somerville Marble & Granite Works	1417 Rosser Ave., Brandon
SASKATCHEWAN—	
Best Monumental Co.	721 Caribou St. W., Moose Jaw
Glacial Rock Insulation Ltd.	Township 17, Moose Jaw
Molaro Marble & Stone Works	23 St. & Pacific Ave., Saskatoon
Moose Jaw Marble & Granite Works Ltd.	706 Athabasca St. E., Moose Jaw
Regina Monumental Co.	2536 Railway St., Regina
Yorkton Monumental Works	20 Agricultural Ave., Yorkton
Young, Alex., Ltd.	Scarth St. and 4th Ave., Regina
ALBERTA—	
Alberta Granite, Marble & Stone Co. Ltd.	10702—101st St., Edmonton
Hart, Albert J.	1821 Second St. E., Calgary
Maclean Granite Co.	Red Deer
McDonald Granite Co. Ltd.	2313 Second St. E., Calgary
Somerville Calgary Monumental Co.	129—13th Ave., W., Calgary
BRITISH COLUMBIA—	
Art Monument Co. Ltd.	609 East 16th Ave., Vancouver
Burnaby Monumental Works	2655 Patterson Ave., Burnaby
Chandler, W. R., Memorials & Western Granite Co.	5498 Fraser St., Vancouver
Continental Marble Company Limited	1002 Georgia St. E., Vancouver
Forster Monumental Works	5528 Fraser St., Vancouver
Kingsway Monumental Works	3070 Kingsway St., Vancouver
Mortimer, J., & Son	George Road & Government St., Victoria
Stewart Monumental Works Ltd.	1401 May St., Victoria
Westway's Monumental Works	143 Columbia St. E., New Westminster

DIAMOND DRILLING CONTRACTORS

Name of firm	Head office address
Allard Bros.	Val-d'Or, Quebec.
Albert, E.	Box 134, Val-d'Or, Quebec
Anderson, Anton	20 Patricia Blvd., Timmins, Ontario
Andercheck, John M.	61 Third Ave., Timmins, Ontario
Arno Diamond Drilling Co. Ltd.	249 Algonquin Blvd. E., Timmins, Ontario
Baderski, Frank & Son	464 Algonquin Blvd. E., Timmins, Ontario
Baker, L. J.	Box 520, Val-d'Or, Quebec
Bergeron Diamond Drilling Co.	Box 386, Timmins, Ontario
Biladeau, Chatrand, Girard	Senneterre, Quebec
Boyles Bros. Drilling Co. Ltd.	1291 Parker St., Vancouver, British Columbia
Brochu, W. C.	Room 2, Richardson Bldg., Timmins, Ontario
Bourgeois, Larry	57 Laurier St., Bourlamaque, Quebec
Burry, Herbert	New Liskeard, Ontario
Burton, Archie S.	352 Howey Crescent, Sudbury, Ontario
Connors, T. Diamond Drilling Co. Ltd.	744 West Hastings St., Vancouver, British Columbia
Continental Diamond Drilling Co. Ltd.	82 Perreault St. W., Rouyn, Quebec
Demorest Drilling Ltd.	Noranda, Quebec
Developers of Canada Reg'd.	Box 78, Val-d'Or, Quebec
Eco Exploration Co. Ltd.	711 McArthur Bldg., Winnipeg, Manitoba
Edwards, Jack H.	Red Lake, Ontario
Geraldton Diamond Drilling Co.	Geraldton, Ontario
Globe Drilling & Exploration Co.	Kenora, Ontario
Groleau Bros.	40 Taschereau E., Rouyn, Quebec

DIRECTORY OF FIRMS—Continued

DIAMOND DRILLING CONTRACTORS—Concluded

Name of firm	Head office address
Grondin, M.	Box 2013 Val-d'Or, Quebec
Heath & Sherwood	6 Duncan Ave., Kirkland Lake, Ontario
Hawkins, H.	11 Pine St. N., Timmins, Ontario
Hudson Diamond Drilling Co. Ltd.	Noranda, Quebec
Houle-Truneau	Bourlamaque, Quebec
Inspiration Mining & Development Co. Ltd.	184 Bay St., Toronto, Ontario
Jones & Bradley Ltd.	Drawer 1050, Noranda, Quebec
Keyes Construction Co. Ltd.	260 Industrial Ave., Vancouver, British Columbia
Kirk, J. B.	Nakina, Ontario
Kuntz, H. J.	Box 300, Malartic, Quebec
Labine Bros.	McKenzie Island, Quebec
LaRocque, T. E.	10 Frontenac St., Val-d'Or, Quebec
Lee & Euler	Box 123, Red Lake, Ontario
Lipasti, E.	Larder Lake, Ontario
Matheson Drilling & Exploration	Matheson, Ontario
Mikelait, J. A.	Box 127, Rouyn, Quebec
Morissette Diamond Drilling Ltd.	Box 440, Haileybury, Ontario
McCall Diamond Drilling Co.	Box B, Geraldton, Ontario
Midwest Diamond Drilling Co. Ltd.	Flin Flon, Manitoba
McGinn, J. R.	5 Elgin St., Sudbury, Ontario
National Diamond Drilling Co. Ltd.	Box 508, Rossland, British Columbia
Niemetz, Bros.	Red Lake, Ontario
Ontario Diamond Drilling Co. Ltd.	203 Mackey Bldg., Sudbury, Ontario
Pearson, A. H.	369 7th Ave., Noranda, Quebec
Poulson & Newman	26 Rowan Ave., Kirkland Lake, Ontario
Portelance, A.	626 Leslie Ave., Port Arthur, Ontario
Prochick, M. J.	McKenzie Island, Ontario
Robinson Contracting Co. Ltd.	804-850 Hastings St. W., Vancouver, British Columbia
Rowan, Angus	744 Fifth Ave., Timmins, Ontario
Scarboro, George	46 Carlin Ave., Timmins, Ontario
Smith & Travers Co. Ltd.	208 Walnut St., Sudbury, Ontario
Sudbury Diamond Drilling Co. Ltd.	184 Bay St., Toronto, Ontario
Territories Exploration & Drilling	Box 149, Yellowknife, Northwest Territories
Thompson Drilling & Mining Development Co. Ltd.	4 North Ave., Flin Flon, Manitoba
Timmins Diamond Drilling Development Co. Ltd.	174 Maple St. N., Timmins, Ontario
Traynor Diamond Drilling Co. Ltd.	15 Toronto St., Toronto, Ontario
Tremblay, Paul E.	Rouyn, Quebec
Wilson, A.	Box 270, Noranda, Quebec
Zagozewski, Joseph	McKenzie Island, Ontario

FUEL WELL DRILLING CONTRACTORS

NOVA SCOTIA—	
Kennedy, O. V.	Bridgetown
QUEBEC—	
Boileau, E.	1080 Osborne St., Montreal
ONTARIO—	
Ashton, J. L.	550 King St. W., Chatham
Culver, Marvin & Son	R.R. 2, Selkirk
Culver & Havill	Stevensville
Davidson, Fred L.	Wingham
Demaray, C.	Kerrwood
Dennis, G.	R.R. 2, Selkirk
Dolphin Bros.	Saulsbury St., Strathroy
Dominion Petroleum Co. Ltd.	Glencoe
E.K. Development Syndicate	Box 82, Bradford, Pa., U.S.A.
Emerson, H. L.	R.R. 1, Dunnville
Emerson & Rose	Wainfleet
Evans, Harry	Tillsonburg
Garringer, W.	Dunnville
Harris, W.	Welland
Heal, A.A.	Box 264, Watford
Hodgson, Roy	Cayuga
Hoover & Donald	Hagersville
House, C. C.	Stevensville
Irving, D.	509 Queen St., Dunnville
Jackson, P. L. & Co.	211 George St., Dunnville
Kiser Bros.	Hicks Bldg., Chatham
Lamburner Bros. & Webber	Dunnville
Maudley, R.	Dunnville
McKillop, Wm. & Son	Box 102, Hamilton
McLister, J. J.	Dunnville
Nagel, Elmer	Stevensville
Nauman, Bros.	Fisherville
Patterson & Culver	Box 93, Dunnville
Patterson Gas Co. Ltd.	Jamestown, N.Y., U.S.A.
Perkins, J. E.	Dunnville
Renwick, S.	Bright

DIRECTORY OF FIRMS—Concluded

FUEL WELL DRILLING CONTRACTORS—Concluded

Name of firm	Head office address
Ricker, Arthur	Canboro
Shank Bros.	R.R. 2, Selkirk
Stewart, E.	R.R. 3, Jarvis
Stubble, H. H.	225 Grand Ave. E., Chatham
Swayze & Nauman	R.R. 5, Simcoe
Swent, W. N.	Selkirk
Warren, G.	R.R. 1, Canboro
Werner, D. E.	Fisherville
Wilson-Sullivan Development Co.	112 S. Christina St., Sarnia
Windover, Wm.	R.R. 2, Sarnia
MANITOBA—	
Coyle, D. J.	796 McDermot Ave., Winnipeg
SASKATCHEWAN—	
Clark Drilling Co.	Waterous
Creelman, R. E. & Son	1113 Ave. B. North, Saskatoon
Northern Development Co. Ltd. (N.P.L.)	Lloydminster
ALBERTA—	
Bush, O. D.	231 8th Ave. West, Calgary
Canokla Drillers Ltd.	1010 Security Bldg., Windsor, Ontario
Can-Tex Drilling Co. Ltd.	617 Lancaster Bldg., Calgary
Commonwealth Drilling Co. Ltd.	4 Clarence Block, Calgary
Culbert & Hayden	Black Diamond
Drilling Contractors Ltd.	902 Lancaster Bldg., Calgary
G & C Drilling Co.	Millarville
General Petroleums Ltd.	509 8th Ave. West, Calgary
Kartmeyer, F.	Black Diamond
Machinery Depot Ltd.	1029 10th Ave. West, Calgary
McAllister, R. W.	527 1st Ave. West, Calgary
National Petroleum Corp. Ltd.	401 Leeson-Lineham Bldg., Calgary
Newell & Chandler Ltd.	203 Wilson Electric Bldg., Calgary
Regent Drilling Co. Ltd.	Vermilion
Roxana Oils Co. Ltd.	408 Lancaster Bldg., Calgary
Union Drilling & Development Co. Ltd.	403 Lancaster Bldg., Calgary

EXPLANATORY NOTES

Method of Computing Quantities and Values of the Mineral Production of Canada in 1946.

Arsenic.—White arsenic (A_2sO_3) produced at Canadian plants at its sales value.

Bismuth.—(a) Recoverable metal in silver-lead-bismuth bullion shipped to foreign smelters for refining at an arbitrary price; (b) Bismuth metal produced at Canadian smelters valued at the average New York price for the year.

Cadmium.—Canadian refinery production valued at the amount received by shippers.

Cobalt.—Cobalt content of the various cobalt products sold by the Ontario smelters producing these products added to the cobalt content of ores and residues exported for treatment in foreign smelters; the value given is the gross amount received by the shippers.

Copper.—(a) Recoverable copper in ores and concentrates exported valued at the average New York price for the year, in Canadian funds; (b) Copper in blister copper made at Manitoba; Ontario and Quebec smelters valued at the average London price for the year in Canadian funds; (c) Copper in copper-nickel matte exported from Canadian smelters valued at an arbitrary price agreed upon between the Dominion Bureau of Statistics and the Ontario Department of Mines.

The price per pound used throughout 1946 to evaluate Canadian production was that agreed upon by the Canadian Producers and the British Government, with necessary adjustments.

Gold.—Gold in bullion produced and the recoverable gold in all other Canadian mine products is valued at the standard rate of $20·671834 per fine ounce until the end of 1930. For succeeding years, unless otherwise specified, gold is valued at the average price on world markets transposed to Canadian funds.

Lead.—Recoverable lead in ores exported from Canada added to lead contained in base bullion made at Trail, B.C., valued at the average London quotations for the year in Canadian funds. The average price used for 1946 was that agreed upon by contract between Canadian producers and the British Government, with necessary adjustments.

Nickel.—(a) Refined and electrolytic nickel produced at Canadian refineries valued in Canadian funds at the average price obtained for such products sold during the year; (b) Nickel in oxides and salts sold from Canadian smelters and refineries at its total selling value in Canadian funds in the form in which it was sold; (c) Nickel in matte exported from Canada valued at an arbitrary figure agreed upon by the Ontario Department of Mines and the Dominion Bureau of Statistics (representative of the value of the nickel in matte form).

Platinum Group Metals.—Recoverable metals in smelter products and placer platinum at the average London price and transposed to Canadian funds.

Silver.—Silver bullion produced and the recoverable silver in other primary plant products; and the recoverable silver in Canadian ores exported, at the average New York price for foreign ores in Canadian funds for the refined metal.

Tellurium and Selenium.—Refinery production valued at the average New York price for the year.

Zinc.—Refined zinc produced by the Consolidated Mining and Smelting Co., Ltd., at Trail B.C., and by the Hudson Bay Mining and Smelting Co., Ltd., Flin Flon, Manitoba, and the recoverable zinc in concentrates exported, valued at the average monthly price quoted in London, in Canadian funds.

The average price used for 1946 was that agreed upon by contract between Canadian producers and the British Government, with necessary adjustments.

Coal.—Output tonnage evaluated pro rata according to income from sales.

Other Non-Metallic Minerals, Clay Products and Structural Materials.—Shipments during the year at their respective sales values.

Imports.—Statements and quantities and values are based on the declarations of importers, as subsequently checked by government officials.

The value of imported merchandise is the fair market value or the price thereof when sold for home consumption in the principal markets of the country whence and at the time when the same were exported directly to Canada. The price and value of the goods in every case are stated as in condition packed ready for shipment, the fair value being shown in the currency of the country of export, and the selling price to the purchaser in Canada shown in the actual currency in which the goods were purchased. In the case of goods that are the manufacture or produce of a foreign country, the currency of which is substantially depreciated, the value stated is the value that would be placed on similar goods manufactured or purchased in the United Kingdom and imported from that country, if such similar goods are made or produced there. If similar goods are not made or produced in the United Kingdom, the value stated is the value of similar goods made or produced in any European country, the currency of which is not substantially depreciated.

Exports.—Statements of quantities and values are based on the declaration of exporters as subsequently checked by government officials.

The value of exports of Canadian merchandise is the actual cost or the value at the time of exportation at the points in Canada whence originally shipped.

Weight.—Weight, where shown in imports and exports is the net weight of the goods, excluding the weight of the covers or receptacles, except in the cases of certain goods, as provided in the tariff.

The expression "ton" means 2,000 pounds, and cwt. 100 pounds, avoirdupois. Where other units of quantity are used, imperial standards apply.

Unless otherwise arranged, the data relating to the operations of less than three firms producing the same commodity or mineral are not published separately.

LIST OF PUBLICATIONS

(Mining, Metallurgical and Chemical Section)

The letter (A) means annual and (M) means monthly.

Mining—

Subscription price for complete mining series, listed under this heading, with exception of **Coal Statistics**, $7 a year.

Subscription price for all mining reports, and chemical and metallurgical reports (iron and steel, non-ferrous metals and non-metallic minerals) listed under MANUFACTURING INDUSTRIES, $15 a year.

Mineral Production of Canada. Final. A. Printed. $1. General review, principal statistics of the mineral industries with analyses and extensive comparative figures; detailed statistics and analyses separately of gold mining, silver mining, nickel-copper mining, miscellaneous metal mining, non-ferrous smelting and refining, coal mining, coke, natural gas and petroleum industries, non-metal mining industries (excluding fuels), clay products and other structural materials industries; directory of principal operators in the mining industry, 336 pp.

Mineral Production, Preliminary Report on. A. 25 cents. Value by classes of minerals by provinces, quantity and value by kinds, statistical data for each mineral separately. 28 pp.

Miscellaneous Industrial or Non-Metallic Minerals. A. 25 cents. Principal statistics of miscellaneous non-metal mining industries; data on each mineral. 25 pp.

Miscellaneous Metals in Canada. A. 50 cents. Principal statistics of miscellaneous metal mining, data separately for each metal. 38 pp.

Asbestos. M. $1 a year, 10 cents a copy. Shipments and exports by grades. 1 p.

Asbestos Mining Industry. A. 6 pp. 25 cents.

Cement. M. $1 a year, 10 cents a copy. Production, shipments, stocks. 1 p.

Cement Manufacturing Industry. A. 6 pp. 25 cents.

Clay and Clay Products Industry. A. 17 pp. 25 cents. Also listed under MANUFACTURING: Non-Metallic Minerals.

Coal Statistics. A. Printed. 50 cents. Quantity and value of output by kinds and provinces; disposition and shipments; exports, imports, by grades, kinds and provinces; consumption, detailed; average price of Canadian coal, by grades for each district and province; employment in detail; average output per man-day; numerous analyses of the foregoing, and other data. 96 pp.

Coal and Coke Statistics. M. See MANUFACTURING: Non-Metallic Minerals.

Contract Drilling in the Canadian Mining Industry. A. 25 cents. Footage drilled, income, employment, drillings completed by class of deposits, list of firms. 9 pp.

Copper and Nickel Production. M. $1 a year, 10 cents a copy. Monthly quantities for year and two preceding years, exports each month of year. 2 pp.

Crude Petroleum Industry. A. 10 pp. 25 cents.

Feldspar and Quartz Mining Industry. A. 7 pp. 25 cents.

Gold Mining Industry in Canada: Summary Review. A. 50 cents. Review in detail of gold mining operations; data on consumption, world gold stocks and other related information. 58 pp.

Gold Production in Canada. M. $1 a year, 10 cents a copy. Quantity produced with breakdown by provinces and by auriferous quartz and base metal mines, employment by month. 2 pp.

Gypsum Industry. A. 25 cents. Covers the two branches: the gypsum mining and the gypsum products industries. 9 pp.

Iron Oxides (Ochre) Industry. A. 4 pp. 15 cents.

Mining—Concluded

Lime Industry. A. 8 pp. 25 cents.

Mica Mining Industry. A. 8 pp. 25 cents.

Natural Gas Industry. A. 12 pp. 25 cents.

Nickel-Copper Mining Smelting and Refining Industry. A. 12 pp. 25 cents.

Nickel Production. M. See **Copper and Nickel Production** above.

Non-Ferrous Smelting and Refining Industry. A. 14 pp. 25 cents.

Peat Industry. A. 7 pp. 25 cents.

Petroleum and Natural Gas Production. M. $1 a year, 10 cents a copy. Quantities of crude petroleum produced by provinces and producing areas of Alberta, with cumulative and comparative figures; natural gas output by provinces. 3 pp.

Production of Leading Minerals. M. $1 a year, 10 cents a copy. Quantity or value of output of 14 minerals, with cumulative and comparative figures. 1 p.

Products Made from Canadian Clays. M. $1 a year, 10 cents a copy. Sales, production, exports, imports by kinds; employment. 3 pp.

Salt. M. $1 a year, 10 cents a copy. Quantity produced and shipped by kinds, month-end stocks, imports and exports. 1 p.

Salt Industry. A. 6 pp. 25 cents.

Sand and Gravel Industry. A. 9 pp. 25 cents.

Silver, Lead and Zinc Production. M. $1 a year, 10 cents a copy. Monthly quantity figures for year and preceding year, quantity and value of exports by months. 3 pp.

Silver Mining Industry: Summary Review. A. 25 cents. Deals separately with silver-cobalt and silver-lead-zinc mining industries. 25 pp.

Stone Industry. A. 25 cents. Covers stone quarrying and stone products industries. 29 pp.

Talc and Soapstone Industry. A. 4 pp. 15 cents.

CHEMICALS AND ALLIED PRODUCTS

Chemicals and Allied Products: Preliminary Summary Statistics. A. 3 pp. 15 cents.

Chemicals and Allied Products: Final Summary Statistics. A. 3 pp. 15 cents.

Chemicals and Allied Products. Biennial. Printed. 50 cents. Summary of principal statistics for plants making or using chemicals as principal materials, statistics separately for groups of plants classified according to main products, materials used and products made in each industry. 112 pp.

Canada's Chemical Industries. Sp. Printed. 25 cents. General review of size and diversity. 68 pp.

Directory of the Chemical Industries in Canada. Sp. Printed. 144 pp. $1.

Acids, Alkalies and Salt Industry. A. 5 pp. 15 cents.

Adhesives Industry. A. 6 pp. 15 cents.

Ammonium Sulphate. A. 25 cents. Production and factory sales, imports, exports, sales for fertilizer use. 2 pp.

Coal Tar Distillation Industry. A. 4 pp. 15 cents.

Compressed Gases Industry. A. 6 pp. 15 cents.

Fertilizer Manufacturing Industry. A. 9 pp. 25 cents.

Hardwood Distillation Industry. A. 4 pp. 15 cents.

CHEMICALS AND ALLIED PRODUCTS—Concluded

Inks Industry. A. 7 pp. 15 cents.

Medicinal and Pharmaceutical Preparations Industry. A. 10 pp. 25 cents.

Miscellaneous Chemical Products Industry. A. 4 pp. 15 cents.

Paints and Varnishes Industry. A. 10 pp. 25 cents.

Polishes and Dressing Industry. A. 7 pp. 15 cents.

Sales of Fertilizers in Canada. A. 25 cents. Breakdown by kinds of fertilizer, year ending June 30; sales for manufacturing purposes excluded. 3 pp.

Sales of Paints, Varnishes and Lacquers. M. $1 a year, 10 cents a copy. Values of sales, classified by outlets. 1 p.

Soaps, Washing Compounds and Cleaning Preparations Industry. A. 12 pp. 25 cents.

Toilet Preparations Industry. A. 10 pp. 25 cents.

IRON AND STEEL AND THEIR PRODUCTS

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