Minister of Mines and Petroleum Resources

PROVINCE OF BRITISH COLUMBIA

ANNUAL REPORT

for the Year Ended December 31

1962

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1963

BRITISH COLUMBIA
DEPARTMENT OF MINES AND PETROLEUM RESOURCES

VICTORIA, B.C.

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P. J. MULCAHY, *Deputy Minister.*

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Major-General the Honourable GEORGE RANDOLPH PEARKES,
V.C., P.C., C.B., D.S.O., M.C.,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The Annual Report of the Mineral Industry of the Province for the year 1962 is herewith respectfully submitted.

W. K. KIERNAN,
Minister of Mines and Petroleum Resources.

Minister of Mines and Petroleum Resources Office,
March 31, 1963.

Howard Allan Sharp, engineering assistant with the Petroleum and Natural Gas Branch, British Columbia Department of Mines and Petroleum Resources, died from asphyxiation by hydrogen sulphide gas at 2 p.m. on March 6, 1963, in the Peejay oilfield, 53 miles north of Fort St. John. Mr. Sharp was witnessing a production test being conducted on the well Sinclair et al Peejay d-39-E, and became exposed at 9.30 a.m. to a lethal concentration of the gas when he opened the thief hatch of an oil-storage tank. Mr. Sharp is survived by his wife, Janet Grace, his son, Kevin David, born July 6, 1960, and his daughter, Lynda Christine, born January 7, 1962.

Mr. Sharp was born in Shaunavon, Sask., on August 31, 1935, and was educated there and at Maple Creek. At the time of his death he was enrolled as an engineering pupil with the British Columbia Association of Professional Engineers. After working with Royalite Oil Company Limited for five years as draughtsman and geological and engineering assistant, he joined the Department of Mines and Petroleum Resources at Dawson Creek on March 31, 1958. Mr. Sharp was transferred to the field office at Charlie Lake in June, 1960.

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ANNUAL REPORT OF THE MINISTER OF MINES AND PETROLEUM RESOURCES, 1962

Introduction

A report of the Minister of Mines of the Province of British Columbia has been published each year from 1874 to 1959. Beginning in 1960, it is the Report of the Minister of Mines and Petroleum Resources.

The Annual Report records the salient facts in the progress of the mineral industry, also much detail about individual operations, including those undertaken in the search for, exploration of, and development of mineral deposits, as well as the actual winning of material from mineral deposits.

The Annual Report of the Minister of Mines and Petroleum Resources now contains introductory sections dealing with Statistics and Departmental Work, followed by sections dealing with Lode Metals; Placer; Structural Materials and Industrial Minerals; Petroleum and Natural Gas; Inspection of Lode Mines, Placer Mines, and Quarries; Coal; and Inspection of Electrical Equipment and Installations at Mines and Quarries, each with its own table of contents. A table listing the properties described, in geographic groupings, precedes the index.

An introductory review of the mineral industry and notes at the first of several of the main sections deal generally with the industry or its principal subdivisions. Notes in the various sections deal briefly with exploration or production operations during the year or describe a property in more complete detail, outlining the history of past work and the geological setting as well as describing the workings and the mineral deposits exposed in them. Some notes deal with areas rather than with a single property.

The work of the branches of the Department is outlined briefly in the section on Departmental Work. This section is followed by notes dealing briefly with the work of other British Columbia or Federal Government services of particular interest to the mineral industry of British Columbia. Information concerning mine operations and some of the activities of the Inspection Branch of the Department of Mines and Petroleum Resources is contained in the section on Inspection of Lode Mines, Placer Mines, and Quarries, early in the section on Coal, and in the section on Inspection of Electrical Equipment and Installations at Mines and Quarries.

The section on Statistics begins with an outline of current and past practice in arriving at quantities and calculating the value of the various products.

Review of the Mineral Industry, 1962*

The year 1962 was marked by a high level of activity and of production in almost all phases of the mineral industry of British Columbia. The total value of products, $229,276,385,† the greatest for any year to date, exceeds the previous record year, 1956, by more than $40,000,000. Record production of copper, iron, asbestos, natural gas, and petroleum with high production of most other products and prices, that were generally good, account for the increase. Metals made up 69.6 per cent of the total; industrial minerals, 6.2 per cent; structural materials, 9.3 per cent; and fuels, 14.9 per cent.

The Canadian dollar was at a discount in the United States throughout 1962, reaching a low of less than 92 cents in June. Thereafter it ranged between 92 and 93 cents. Consequently, British Columbia producers of minerals for export gained by the Canadian premium on United States funds, which for the year averaged almost 7 per cent.

As consequences of price movements in the United States and of the exchange premium, the prices of gold, silver, copper, zinc, and iron were significantly higher than in 1961. The United States price for silver began to rise in the latter part of 1961 and rose further in 1962. The average for 1962, 116.029 cents an ounce in Canadian funds, is much higher than for any previous year, including 1919, when the previous record of 105.57 cents was reached. The prices for copper, lead, and zinc in the United States were quite steady throughout 1962. Copper rose about half a cent, and zinc and lead fell about half a cent a pound. Lead had fallen late in 1961 and fell a further half cent early in 1962, but regained half a cent in November. The average price in Canadian funds for lead was 0.71 cents a pound below the 1961 price, for copper the price was higher than 1961 by 2.18 cents a pound, and for zinc higher than 1961 by 0.73 cents a pound.

Gold and silver were produced in lesser quantities than the averages for the preceding decade, although the high price gave silver a value close to the decade average. Lead and zinc both exceeded the decade averages in quantity; lead fell below and zinc exceeded the decade average value.

Copper output established new records in quantity and value. The previous records were for 1929 quantity, 102,793,669 pounds; value, $18,612,850, compared with 1962 quantity, 108,979,144 pounds; value, $33,209,215. The 1962 output was more than three times that of 1961, and reflects the first full year of production of the Craigmont mine, increased capacity of Phoenix Copper Company, and the beginning of production at the Sunro and Coast Copper mines. Bethlehem Copper Corporation started " tuning up " in December, but shipments of copper did not begin until 1963. Phoenix, Sunro and Coast Copper, and Bethlehem are expected to operate at capacity throughout 1963, and it is apparent that a new record for copper production will be set.

Compared with 1961, iron production increased 34 per cent in quantity. The increase reflects production from three new mines, Brynnor Mines Limited, Jedway Iron Ore Limited, and Zeballos Iron Mines Limited, and increased production by Texada Mines Limited. The four mines shipped concentrates averaging from 62 to 66 per cent iron. Higher average grade of concentrates combined with the ex-

* By Hartley Sargent, Chief of the Mineralogical Branch.

† *See* note page A14 *re* adjustment in asbestos pricing in 1962 and preceding years.

change premium gave a significant increase in the average price per ton, and combined with the increase in quantity gave a total value more than 50 per cent greater than that of 1961. The total value for iron includes $533,199 for by-product concentrates converted to pig iron at the Sullivan mine, and brings the combined value of iron concentrates exported from and used in British Columbia in 1962 to $18,326,911. This is by far the greatest value for iron for any year to date and puts it in the fourth place among the metals and also fourth of any mineral product, exceeding oil by $710,000.

The lode-metal mining industry produced just over 11,000,000 tons of ore, of which open-pit copper and iron mines produced nearly one-half.

Industrial minerals established a new record in 1962. The gain came mainly from an increase of about 18 per cent in asbestos. Sulphur sales declined slightly in quantity and more in value. Gains were recorded in fluxes and in granules. Structural-materials production exceeded 1961 and the ten-year average but did not reach the 1957 value.

The fuels group, including coal, petroleum, natural gas, and liquid by-products of natural gas, recorded a great increase over previous values because of a great increase in oil and a considerable increase in natural gas. However, coal continued to decline in quantity and in value. Oil production in 1962 was 9,747,729 barrels, compared with 1,810,984 barrels in 1961, and production of natural gas was 108,699,997 thousand cubic feet in 1962, compared with 95,967,110 thousand cubic feet in 1961. The outstanding increase in oil marks the first year of operation for the Western Pacific Oil and Products pipe-line, bringing British Columbia output to the market in the populous southwestern part of the Province. The combined value for fuels rose to $34,000,000, compared with $11,000,000 as the annual average for the preceding decade. The group contributed almost 15 per cent of the total value of mineral products in 1962, coal contributing 2.7 per cent; natural gas, about 4.5 per cent; and oil, 7.7 per cent.

Exploration for copper was pursued actively in northwestern British Columbia, on Vancouver Island, and in the Merritt-Highland Valley area. Exploration for iron was done mainly on Vancouver Island and the Queen Charlotte Islands. Molybdenum was the objective of much work in central British Columbia. The improved price for silver stimulated activity in the Alice Arm area, and two projects looking toward the discovery of deep silver-lead-zinc ore were started in the Slocan district. Exploration for lode metals included much diamond drilling. Increasing use was made of geophysical and geochemical surveys.

A campaign of airborne magnetometer surveying was carried on at the joint expense of the Geological Survey of Canada and the Department of Mines and Petroleum Resources. This work was done with a nuclear precession magnetometer in northern Vancouver Island, primarily as a research project with the objective of solving problems of airborne magnetometer surveying in areas of high relief.

In the non-metallic field, interest was shown in magnesite in the East Kootenay district and interest was revived in coal at Bowron River.

In northeastern British Columbia, drilling for oil and gas was at an accelerated rate—320 wells were started, compared with 207 in 1961. The total footage drilled was 1,554,408 feet, compared with 1,074,243 feet in 1961. Of the 1962 drilling in proven fields, close to 64 per cent was classed as development, almost 14 per cent as exploratory outpost, and 22 per cent as exploratory wildcat wells. Of the holes completed in 1962, ninety-six were abandoned as dry wells, 163 were completed as oil wells, and seventy-seven as gas wells; 212 new oil wells and thirty-seven new gas wells were placed on production. Intensified development drilling for oil in the

latter part of 1961 and in 1962 was stimulated by the construction of the Western Pacific Products and Crude Oil pipe-line, which provides access to the market in the southwestern part of the Province.

The number of lode-mineral claims recorded was 20,602, compared with 19,064 in 1961, and the number of certificates of work issued was 22,957, compared with 16,665 in 1961. Revenue from the sale of free miners' certificates and from recording fees, lease rentals, etc., amounted to $316,672.60, compared with $295,608.88 in 1961.

Revenue to the Government from iron ore subject to royalty amounted to $92,282.17, paid on 369,128.7 long tons of iron concentrates.

Revenue to the Government from petroleum and natural gas amounted to $22,214,283, including rentals, fees, and miscellaneous, $7,183,276; sale of Crown reserves, $11,364,734; royalties—gas, $1,260,419; oil, $2,265,167; processed products, $108,737; miscellaneous fees, $31,950.

At the end of 1962 land held for petroleum and natural gas amounting to 27,665,218 acres was mainly in northeastern British Columbia, but also included holdings in the Groundhog Basin, Chilcotin River, and Flathead River areas. An additional 600,000 acres was held in Hecate Strait and Georgia Strait.

The average number employed through 1962 in placer, lode, coal, industrial-mineral, and structural-material mining was 11,560. Major expenditures by those branches of the industry included: Salaries and wages, $53,693,063; fuel and electricity, $9,315,324; process supplies (inclusive of explosives, chemicals, drill-steel lubricants, etc.), $10,802,386; Federal taxes, $11,413,763; Provincial taxes, $5,861,606; municipal and other taxes, $1,235,473; levies for workmen's compensation (including silicosis), unemployment insurance, and other items, $2,259,-387. Dividends amounted to $24,394,297. The lode-mining industry spent $34,-274,698 in freight and treatment charges on ores and concentrates. Returns from some operators in the metal-mining and industrial-mineral sections of the industry indicate that they spent $59,089,281 on roads, new construction, machinery, major repairs, and alterations, plus cost of goods, materials, and supplies not chargeable to fixed-assets account. Some of this latter amount is duplicated in the cost of fuel and electricity used and process supplies.

Returns from twenty-seven operators in the petroleum and natural-gas industry show the following expense items: Salaries and wages, $1,829,108; fuel and electricity, $190,235; process supplies, $3,222,413.

In addition to the expenditures shown in the preceding paragraph, and to the information on revenue to the Government contained in an earlier paragraph, the Canadian Petroleum Association presented the following estimates of expenditures: (1) Exploration—(*a*) geological and geophysical work, $7,500,000, (*b*) exploratory drilling, $14,900,000; (2) development drilling, $17,500,000; (3) operation of wells and flow-lines, $3,900,000; (4) operation of gas plants, $1,500,000; (5) capital expenditures, $5,500,000; (6) general—(*a*) taxes excluding income tax, $500,000, (*b*) additional items not including capital expenditure, land acquisition, nor overhead, $3,000,000.

Statistics

The statistics of the mineral industry are collected and compiled and the statistical tables for this Report are prepared by the Bureau of Economics and Statistics, Department of Industrial Development, Trade, and Commerce.

The tabulated statistics are designed to cover mineral production in quantity and value, employment, principal expenditures of the mineral industry, and dividends paid. The data are arranged so as to facilitate comparison of the production records for the various mining divisions, and from year to year (1951, 1958).*

In the 1960 Report, Tables I and II were given new forms, Table VIII has been amalgamated with Table VII, and subsequent tables were renumbered.

From time to time, revisions have been made to earlier figures as additional data became available or errors came to light.

METHODS OF COMPUTING PRODUCTION

The tables of statistics recording the mineral production of the Province for each year are compiled from certified returns made by the operators, augmented by some data obtained from the Royal Canadian Mint, from the operators of custom smelters, and from the records of the Petroleum and Natural Gas Branch of the Department of Mines and Petroleum Resources. The values are in Canadian funds. Weights are avoirdupois pounds and tons (2,000 lb.) and troy ounces.

Metals

Prior to 1925 the average prices for gold and copper are true average prices, but, as a means of correcting for losses in smelting and refining, the prices of other metals were taken at the following percentages of the year's average price for the metal: Silver, 95 per cent; lead, 90 per cent; and zinc, 85 per cent. For 1925 and subsequent years the value has been calculated using the true average price and the net metal contents, in accordance with the procedures adopted by the Dominion Bureau of Statistics and the Department of Mines and Petroleum Resources.

Placer Gold

The value of placer gold in dollars is obtained from returns received annually from the operators (1958) and other sources. A fineness of 822½ is taken for crude placer gold (p. A 16) if Mint records of the actual fineness are not available. Prior to 1962 the fineness 822½ has been used for all placer gold reported.

Lode Metals, Gross and Net Contents, and Calculated Value

The gross contents are compiled from the returns made each year by the producers and for any metal are the total assay contents, obtained by multiplying the assay by the weight of ore, concentrates, or bullion.

The value for each principal metal is calculated by multiplying the quantity (gross for gold, net for silver, copper, lead, and zinc) by the average price for the year. The net contents are calculated by taking a percentage of the gross content: in lead ores and concentrates and zinc concentrates—silver, 98 per cent; lead, 95 per cent; zinc, 85 per cent† of the total assay content; and in copper concentrates,

* In these notes, references such as (1958) are to this section of the Report of the Minister of Mines for the year indicated, where additional information will be found.

† For zinc concentrates shipped to foreign smelters the net contents are calculated as the assay content less eight units of zinc per ton of concentrate.

95 per cent of the silver and the total assay content of copper less 10 pounds per ton of concentrates.

Other metals, including by-product metals refined in British Columbia and iron, tin, and tungsten exported as ores and concentrates, are treated similarly, except that quantities and values for several are as reported by shippers for sales in the year. The value of by-product iron ore used in making pig iron at Kimberley has been computed from the value per ton of ore of comparable grade, at the point of export from British Columbia, 1960 and 1961 valuations have been recalculated on this basis.

Industrial Minerals and Structural Materials

Prices for these materials approximate the price at the point of origin. From 1953 to 1961 asbestos was valued at the shipping point in North Vancouver. For 1962 the value has been taken as the value at that pricing point less the shipping cost from the mine to North Vancouver. The values for the preceding years have also been reduced by the amount of the shipping charges.

Average Metal Prices

The methods of computing prices have varied because of changing conditions (1958). The prices are now arrived at by methods given in footnotes to the table of average prices on page A 16.

Fuel

Coal

All coal produced, including that used in making coke, is shown as primary mine production (1959, tables renumbered in 1960). Washery loss and changes in stocks, year by year, are shown in the table " Collieries of British Columbia, Production and Distribution by Collieries and by Districts " (p. 258).

*Natural Gas**

Commercial production of natural gas began in 1954. The production shown in Tables I, III, and VIIa is the total dry and residue gas sold; that is, the quantity delivered to the main transmission-line. The quantity is net after deducting gas used on leases, metering difference, and gas used or lost in the cleaning plant. The gross well output is shown in Table 12, page 222. The quantity is reported as thousands of cubic feet at standard conditions (standard conditions—14.4 pounds per square inch pressure, 60° F. temperature up to and including the year 1960, and thereafter 14.65 pounds per square inch pressure, 60° F. temperature).

*Natural-gas Liquid By-products**

This heading covers condensate removed from natural gas in preparation for transmission through the main gas pipe-line. The by-products consist of butane and propane. Prior to the 1962 Report the by-products included butane, propane, and condensate/pentanes plus. Beginning with the 1962 Report, the figure for liquid by-products covers only butane and propane, natural gasoline in quantity and value being included with petroleum. Figures for the preceding years have been brought to conformity with the new practices.

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* For petroleum, natural gas, and liquid by-products, production figures are supplied by the Petroleum and Natural Gas Branch of the Department of Mines and Petroleum Resources and are compiled from the monthly disposition report, and Crown royalty statement filed with the Department by the producers.

*Petroleum**

Production of petroleum began in 1955, and is shown in Tables I, III, and VIIA. The quantity is " net sales " (*see* Tables 11 and 14, pp. 221 and 226), reported in barrels (35 imperial gallons=1 barrel). *See* preceding paragraph *re* natural gasoline.

CO-OPERATION WITH DOMINION BUREAU OF STATISTICS

In the interests of uniformity and to avoid duplication of effort, beginning with the statistics for 1925, the Dominion Bureau of Statistics and the various Provincial Departments have co-operated in the collection and processing of mineral statistics.

Producers of metals, industrial minerals, structural materials, coal, and petroleum and natural gas are requested to submit returns in duplicate on forms prepared for use by the Province and by the Dominion Bureau of Statistics.

So far as possible both organizations follow the same practice in processing the data. The final compilation by the Dominion Bureau is usually published considerably later than the Report of the Minister of Mines and Petroleum Resources for British Columbia. Differences between the figures published by the two organizations arise mainly from the facts that the Dominion Bureau bases its quantities of lode metals on returns made by smelter operators, whereas the British Columbia mining statistician uses the returns covering shipments from individual mines in the same period, and the Dominion Bureau uses average prices for metals considered applicable to the total Canadian production, whereas the British Columbia mining statistician uses prices considered applicable to British Columbia production. Peat, included under the classification of fuel by the Dominion Bureau, has not been regarded as mineral or fuel, and accordingly has not been included in the British Columbia statistics of mineral production.

* For petroleum, natural gas, and liquid by-products, production figures are supplied by the Petroleum and Natural Gas Branch of the Department of Mines and Petroleum Resources and are compiled from the monthly disposition report, and Crown royalty statement filed with the Department by the producers.

AVERAGE PRICES USED IN VALUING PROVINCIAL PRODUCTION OF GOLD, SILVER, COPPER, LEAD, ZINC, AND COAL

Year	Gold,[1] Crude, Oz.	Gold, Fine, Oz.	Silver, Fine, Oz.	Copper, Lb.	Lead, Lb.	Zinc, Lb.	Coal, Short Ton
	$	$	Cents	Cents	Cents	Cents	$
1901	17.00	20.67	56.002 N.Y.	16.11 N.Y.	2.577 N.Y.	.....	2.679
1902	.....	.....	49.55 ,,	11.70 ,,	3.66 ,,	.....	.....
1903	.....	.....	50.78 ,,	13.24 ,,	3.81 ,,	.....	.....
1904	.....	.....	53.36 ,,	12.82 ,,	3.88 ,,	.....	.....
1905	.....	.....	51.33 ,,	15.59 ,,	4.24 ,,	.....	.....
1906	.....	.....	63.45 ,,	19.28 ,,	4.81 ,,	.....	.....
1907	.....	.....	62.06 ,,	20.00 ,,	4.80 ,,	.....	3.125
1908	.....	.....	50.22 ,,	13.20 ,,	3.78 ,,	.....	.....
1909	.....	.....	48.93 ,,	12.98 ,,	3.85 ,,	.....	.....
1910	.....	.....	50.812 ,,	12.738 ,,	4.00 ,,	4.60 E. St. L.	.....
1911	.....	.....	50.64 ,,	12.38 ,,	3.98 ,,	4.90 ,,	.....
1912	.....	.....	57.79 ,,	16.341 ,,	4.024 ,,	5.90 ,,	.....
1913	.....	.....	56.80 ,,	15.27 ,,	3.93 ,,	4.80 ,,	.....
1914	.....	.....	52.10 ,,	13.60 ,,	3.50 ,,	4.40 ,,	.....
1915	.....	.....	47.20 ,,	17.28 ,,	4.17 ,,	11.25 ,,	.....
1916	.....	.....	62.38 ,,	27.202 ,,	6.172 ,,	10.88 ,,	.....
1917	.....	.....	77.35 ,,	27.18 ,,	7.91 ,,	7.566 ,,	.....
1918	.....	.....	91.93 ,,	24.63 ,,	6.67 ,,	6.94 ,,	4.464
1919	.....	.....	105.57 ,,	18.70 ,,	5.19 ,,	6.24 ,,	.....
1920	.....	.....	95.80 ,,	17.45 ,,	7.16 ,,	6.52 ,,	.....
1921	.....	.....	59.52 ,,	12.50 ,,	4.09 ,,	3.95 ,,	.....
1922	.....	.....	64.14 ,,	13.38 ,,	5.16 ,,	4.86 ,,	.....
1923	.....	.....	61.63 ,,	14.42 ,,	6.54 ,,	5.62 ,,	.....
1924	.....	.....	63.442 ,,	13.02 ,,	7.287 ,,	5.39 ,,	.....
1925	.....	.....	69.065 ,,	14.042 ,,	7.848 Lond.	7.892 Lond.	.....
1926	.....	.....	62.107 ,,	13.795 ,,	6.751 ,,	7.409 ,,	.....
1927	.....	.....	56.37 ,,	12.92 ,,	5.256 ,,	6.194 ,,	.....
1928	.....	.....	58.176 ,,	14.570 ,,	4.575 ,,	5.493 ,,	.....
1929	.....	.....	52.993 ,,	18.107 ,,	5.050 ,,	5.385 ,,	.....
1930	.....	.....	38.154 ,,	12.982 ,,	3.927 ,,	3.599 ,,	.....
1931	.....	.....	28.700 ,,	8.116 ,,	2.710 ,,	2.554 ,,	4.018
1932	19.30	23.47	31.671 ,,	6.380 Lond.	2.113 ,,	2.405 ,,	3.795
1933	23.02	28.60	37.832 ,,	7.454 ,,	2.391 ,,	3.210 ,,	.....
1934	28.37	34.50	47.461 ,,	7.419 ,,	2.436 ,,	3.044 ,,	.....
1935	28.94	35.19	64.790 ,,	7.795 ,,	3.133 ,,	3.099 ,,	.....
1936	28.81	35.03	45.127 ,,	9.477 ,,	3.913 ,,	3.315 ,,	.....
1937	28.77	34.99	44.881 ,,	13.078 ,,	5.110 ,,	4.902 ,,	.....
1938	28.93	35.18	43.477 ,,	9.972 ,,	3.344 ,,	3.073 ,,	.....
1939	29.72	36.14	40.488 ,,	10.092 ,,	3.169 ,,	3.069 ,,	.....
1940	31.66	38.50	38.249 ,,	10.086 ,,	3.362 ,,	3.411 ,,	.....
1941	31.66	38.50	38.261 ,,	10.086 ,,	3.362 ,,	3.411 ,,	.....
1942	31.66	38.50	41.166 ,,	10.086 ,,	3.362 ,,	3.411 ,,	.....
1943	31.66	38.50	45.254 ,,	11.75 ,,	3.754 ,,	4.000 ,,	.....
1944	31.66	38.50	43.000 ,,	12.000 ,,	4.500 ,,	4.300 ,,	.....
1945	31.66	38.50	47.000 ,,	12.550 ,,	5.000 ,,	6.440 ,,	.....
1946	30.22	36.75	83.650 ,,	12.80 ,,	6.750 ,,	7.810 ,,	4.68
1947	28.78	35.00	72.000 ,,	20.39 ,,	13.670 ,,	11.230 ,,	5.12
1948	28.78	35.00	75.000 Mont.	22.35 U.S.	18.040 ,,	13.930 ,,	6.09
1949	29.60	36.00	74.250 U.S.	19.973 ,,	15.800 U.S.	13.247 U.S.	6.51
1950	31.29	38.05	80.635 ,,	23.428 ,,	14.454 ,,	15.075 ,,	6.43
1951	30.30	36.85	94.55 ,,	27.70 ,,	18.4 ,,	19.9 ,,	6.46
1952	28.18	34.27	83.157 ,,	31.079 ,,	16.121 ,,	15.874 ,,	6.94
1953	28.31	34.42	83.774 ,,	30.333 ,,	13.265 ,,	10.675 ,,	6.88
1954	27.52	34.07	82.982 ,,	29.112 ,,	13.680 ,,	10.417 ,,	7.00
1955	28.39	34.52	87.851 ,,	38.276 ,,	14.926 ,,	12.127 ,,	6.74
1956	28.32	34.44	89.373 ,,	39.787 ,,	15.756 ,,	13.278 ,,	6.59
1957	27.59	33.55	87.057 ,,	26.031 ,,	14.051 ,,	11.175 ,,	6.76
1958	27.94	33.98	86.448 ,,	23.419 ,,	11.755 ,,	10.009 ,,	7.45
1959	27.61	33.57	87.469 ,,	27.708 ,,	11.670 ,,	10.978 ,,	7.93
1960	27.92	33.95	88.633 ,,	28.985 ,,	11.589 ,,	12.557 ,,	6.64
1961	29.24	35.46	93.696 ,,	28.288 ,,	11.011 ,,	11.695 ,,	7.40
1962	**30.77**	**37.41**	**116.029** ,,	**30.473** ,,	**10.301** ,,	**12.422** ,,	**7.43**

[1] Unrefined placer gold, average price per ounce, is taken as $17 divided by $20.67 times the price of an ounce of fine gold.

Prices for fine gold are the Canadian Mint buying prices. Prices for other metals are those of the markets indicated, converted into Canadian funds. The abbreviations are: Mont.=Montreal; N.Y.=New York; Lond.=London; E. St. L.=East St. Louis; and U.S.=United States.

Prior to 1925 the prices for gold and copper are true average prices, but the prices of other metals were taken at the following percentages of the year's average price for the metal: Silver, 95 per cent; lead, 90 per cent; and zinc, 85 per cent.

TABLE I.—MINERAL PRODUCTION: TOTAL TO DATE, LATEST DECADE, AND LATEST YEAR

	Total Quantity to Date	Total Value to Date	Total Quantity, 1953–62	Total Value, 1953–62	Quantity, 1962	Value, 1962
Principal Metals		$		$		$
Gold—placer, crude ..... oz.	5,224,235	96,629,855	61,335	1,724,947	3,456	100,550
,, lode, fine ..... oz.	16,026,856	466,148,590	2,059,312	70,930,206	156,847	5,867,175
Silver ..... oz.	437,347,023	272,255,037	76,882,215	68,895,371	6,186,937	7,178,641
Copper ..... lb.	3,121,339,212	536,449,766	420,875,327	131,044,731	108,979,144	33,209,215
Lead ..... lb.	13,918,259,800	1,060,106,263	3,133,170,503	398,078,015	335,282,537	34,537,454
Zinc ..... lb.	11,866,502,762	1,008,279,885	4,077,880,754	471,594,794	413,430,817	51,356,376
Totals		3,439,869,396		1,142,268,064		132,249,411
Miscellaneous Metals						
Antimony ..... lb.	42,691,896	11,222,327	15,807,170	5,547,678	1,931,397	748,223
Bismuth ..... lb.	5,638,950	9,717,413	1,820,653	3,887,243	228,601	507,494
Cadmium ..... lb.	29,523,851	43,250,223	14,839,726	23,775,316	2,086,692	3,839,513
Chromite ..... tons	796	32,295				
Cobalt ..... lb.	1,730	420				
Iron concentrates ..... tons	9,722,803	75,886,476	8,634,010	69,376,824	1,793,847	18,326,911
Magnesium ..... lb.	204,632	88,184				
Manganese ..... tons	1,724	32,668				
Mercury ..... lb.	4,163,662	10,409,609	75	250		
Molybdenite (MoS_2) ..... lb.	52,171	46,198	9,023	9,500		
Nickel ..... lb.	14,188,497	10,570,105	13,907,044	10,482,381	3,476,467	2,902,850
Palladium ..... oz.	749	30,462				
Platinum ..... oz.	1,405	134,858	13	1,043	5	375
Selenium ..... lb.	731	1,389				
Tin ..... lb.	14,469,474	11,137,426	7,471,968	5,296,019	650,941	442,640
Tungsten (WO_3) ..... lb.	16,019,324	38,663,751	11,132,374	30,639,526		
Other		4,477,079		4,455,253		535,537
Totals		215,700,883		153,471,033		27,303,543
Industrial Minerals						
Arsenious oxide ..... lb.	22,019,420	273,201				
Asbestos[1] ..... tons	285,933	61,814,006	285,913	61,792,406	55,133	10,297,360
Barite ..... tons	194,127	2,394,020	134,437	2,145,067	6,511	57,062
Bentonite ..... tons	791	16,858				
Diatomite ..... tons	2,044	55,310	675	24,595	211	10,228
Fluorspar ..... tons	35,341	784,964				
Fluxes ..... tons	3,723,397	6,195,863	863,411	2,468,412	62,743	228,477
Granules ..... tons	179,281	2,466,547	142,554	1,954,329	18,251	311,902
Gypsum and gypsite ..... tons	2,294,572	9,299,402	1,229,157	3,462,317	147,900	443,700
Hydro-magnesite ..... tons	2,253	27,536				
Iron oxide and ochre ..... tons	18,108	155,050				
Magnesium sulphate ..... tons	13,894	254,352				
Mica ..... lb.		185,818		36,820		
Natro-alunite ..... tons	522	9,398				
Perlite ..... tons	1,112	11,120	1,112	11,120		
Phosphate rock ..... tons	3,842	16,894				
Sodium carbonate ..... tons	10,492	118,983				
Sulphur ..... tons	4,757,974	50,648,723	2,264,628	27,224,770	239,191	2,934,725
Talc ..... tons	1,805	34,871				
Totals		134,762,916		99,119,836		14,283,454
Structural Materials						
Clay products		46,260,390		20,065,389		2,507,438
Cement ..... tons	7,867,372	113,796,608	3,839,371	63,371,557	397,435	7,112,890
Lime and limestone ..... tons		32,256,216	4,377,630	14,798,702	559,028	1,513,579
Rock[2] ..... tons	27,911,414	29,711,042	14,596,200	16,424,792	1,897,272	1,284,301
Sand and gravel ..... tons		110,082,367	123,414,931	72,849,704	17,757,391	8,862,767
Stone ..... tons	1,071,826	8,706,725	103,016	1,039,852	8,023	85,290
Not assigned		7,010,452				
Totals		347,823,800		188,549,996		21,366,265
Fuels						
Coal[3] ..... tons	136,161,251	569,796,907	10,547,691	73,944,448	825,339	6,133,986
Natural gas—						
To pipe-line ..... M s.c.f.	414,891,356	33,915,721	414,891,356	33,915,721	108,699,997	10,226,323
Liquid by-products[4] ..... bbl.	1,821,195	307,479	1,821,195	307,479	464,036	96,347
Petroleum crude ..... bbl.	15,889,791	26,863,664	15,889,791	26,863,664[5]	59,747,729	17,617,056[6]
Totals		630,883,771		135,031,312		34,073,712
Grand totals		4,769,040,766		1,718,440,241		229,276,385[7]

[1] *See* note under "Industrial Minerals and Structural Materials," page A14.

[2] Rubble, riprap, and crushed stone.

[3] Quantity from 1836 to 1909 is gross mine output and includes material lost in picking and washing. From 1910 and subsequent years the quantity is that sold and used.

[4] Butane and propane.

[5] 8,900,284 barrels of crude petroleum sold and 847,445 barrels of condensate/pentanes plus produced.

[6] Value to producer of $16,845,302 for crude petroleum and $771,754 for condensate/pentanes plus.

[7] Does not include 75,880.4 tons of peat moss valued at $2,703,064.

TABLE II.—TOTAL VALUE OF PRODUCTION, 1836–1962

1836–1910	$375,474,891	1952	$171,203,321	1958	$144,952,994
1911–20	331,334,419	1953	152,840,132	1959	147,638,139
1921–30	533,190,993	1954	152,893,626	1960	177,354,648
1931–40	521,179,200	1955	173,852,478	1961	179,786,043
1941–50	941,352,650	1956	188,853,229	1962	229,276,385
1951	176,865,051	1957	170,992,567		
				Total	$4,769,040,766

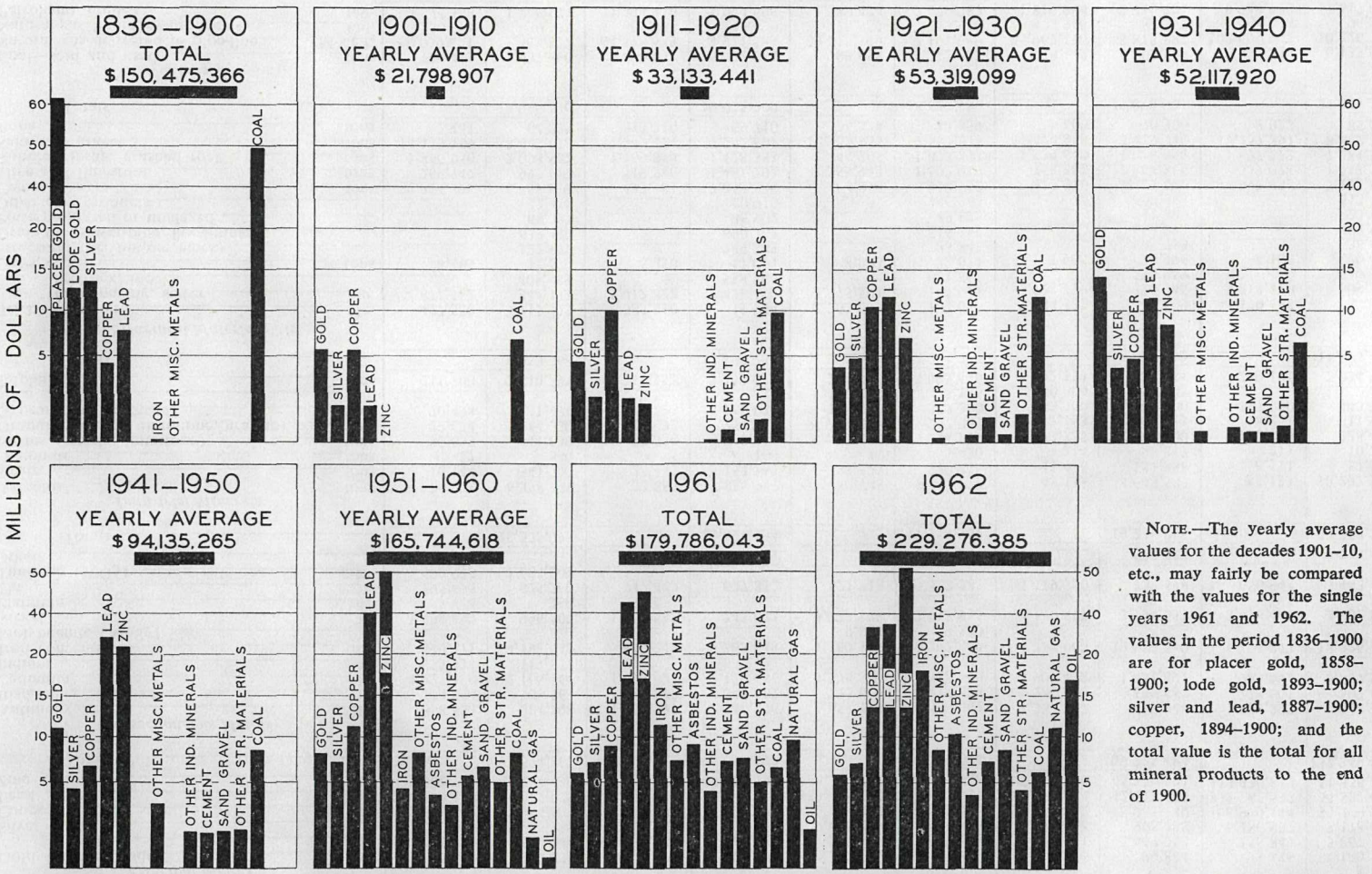
TABLE III.—QUANTITY AND VALUE OF MINERAL PRODUCTS FOR YEARS 1953 TO 1962

Description	1953		1954		1955		1956		1957	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Principal Metals		$		$		$		$		$
Gold—placer, crude ..... oz.	14,245	403,230	8,684	238,967	7,666	217,614	3,865	109,450	2,936	80,990
„ lode, fine ..... oz.	253,553	8,727,294	258,388	8,803,279	242,477	8,370,306	191,743	6,603,628	223,403	7,495,170
Silver ..... oz.	8,376,953	7,017,709	9,825,153	8,153,108	7,902,145	6,942,113	8,404,600	7,511,443	8,129,047	7,076,904
Copper ..... lb.	49,021,013	14,869,544	50,150,087	14,599,693	44,328,031	16,932,549	43,360,575	17,251,872	31,387,441	8,170,465
Lead ..... lb.	297,634,712	39,481,244	332,474,456	45,482,505	302,567,640	45,161,245	283,718,073	44,702,619	281,603,346	39,568,086
Zinc ..... lb.	382,300,862	40,810,618	334,124,560	34,805,755	429,198,565	52,048,909	443,853,004	58,934,801	449,276,797	50,206,681
Totals	.....	111,309,639	.....	112,083,307	.....	129,672,736	.....	135,113,813	.....	112,598,296
Miscellaneous Metals										
Antimony ..... lb.	1,551,043	570,474	1,302,333	382,104	2,021,721	667,776	2,140,432	768,843	1,360,731	577,344
Bismuth ..... lb.	71,298	157,569	225,351	493,519	160,767	356,903	156,753	346,424	145,634	314,569
Cadmium ..... lb.	787,158	1,411,698	680,734	1,123,211	1,593,591	2,677,233	1,937,927	3,236,338	1,946,397	3,172,627
Indium ..... oz.	6,752	9,588	477	1,278	104,774	232,389	363,192	795,390	384,360	693,770
Iron concentrates ..... tons	991,248	6,763,105	535,746	3,733,891	610,930	3,228,756	369,955	2,190,847	357,342	2,200,637
Mercury ..... lb.	.....	.....	.....	.....	75	250	.....	.....	.....	.....
Platinum ..... oz.	.....	.....	4	408	.....	.....	.....	.....	.....	.....
Tin ..... lb.	1,092,228	581,746	587,528	263,359	391,228	311,613	756,934	637,792	709,102	555,936
Tungsten (WO_3) ..... lb.	2,168,977	5,950,323	2,172,163	5,752,172	1,914,000	5,460,967	2,264,775	6,351,376	1,921,483	5,240,479
Totals	.....	15,444,503	.....	11,749,942	.....	12,935,887	.....	14,327,010	.....	12,755,362
Industrial Minerals										
Asbestos[1] ..... tons	3,102	779,641	8,599	2,329,906	17,187	3,234,751	20,356	5,398,730	31,714	7,342,966
Barite ..... tons	3,560	52,845	5,056	115,337	9,465	238,825	11,436	287,626	20,072	433,200
Diatomite ..... tons	.....	.....	.....	.....	14	280	40	800	120	2,400
Fluxes (quartz, limestone) ..... tons	37,358	110,698	39,897	40,804	111,759	208,198	176,311	392,429	137,433	442,204
Granules (quartz, limestone, granite) ..... tons	4,620	59,321	4,541	65,507	6,355	73,858	13,220	173,214	17,295	221,864
Gypsum and products ..... tons	172,665	387,655	175,480	421,734	149,719	383,934	72,973	391,919	66,499	142,751
Mica ..... lb.	604,000	11,338	284,000	5,326	505,300	2,861	198,000	4,884	180,000	1,200
Perlite ..... tons	1,112	11,120	.....	.....	.....	.....	.....	.....	.....	.....
Sulphur ..... tons	151,954	1,590,055	234,252	2,525,500	227,530	2,796,783	212,885	2,523,190	228,882	2,887,465
Totals	.....	3,002,673	.....	5,504,114	.....	6,939,490	.....	9,172,792	.....	11,474,050
Structural Materials										
Brick—common ..... No.	1,382,883	51,381	1,289,911	35,550	4,853,940	232,139	2,248,447	75,767	663,828	24,345
„ face, paving, sewer ..... No.	4,307,894	226,459	5,651,262	316,676	3,901,866	248,913	6,913,682	485,176	4,660,231	345,081
„ firebrick, blocks	.....	426,783	.....	372,528	.....	578,578	.....	604,063	.....	658,873
Clays ..... tons	5,226	31,990	6,609	36,425	8,033	46,757	7,985	30,263	3,849	29,495
Structural tile, hollow blocks	.....	123,469	.....	122,903	.....	114,460	.....	129,257	.....	200,216
Drain-tile, sewer-pipe, flue-linings	.....	627,097	.....	753,297	.....	801,019	.....	696,385	.....	697,611
Pottery—glazed or unglazed	.....	30,012	.....	31,081	.....	38,035	.....	38,385	.....	47,612
Other clay products	.....	19,267	.....	32,697	.....	55,514	.....	69,659	.....	38,868
Cement ..... tons	319,645	5,071,260	305,117	4,935,298	334,057	5,474,875	396,138	6,339,071	443,469	7,078,108
Lime and limestone ..... tons	338,005	1,357,958	317,976	1,555,002	318,152	1,711,348	396,012	1,220,792	334,303	1,494,578
Rubble, riprap, crushed rock ..... tons	770,415	1,122,516	920,707	1,253,856	890,613	962,272	2,028,143	2,210,315	2,364,301	4,272,768
Sand and gravel ..... tons	7,564,574	4,388,594	8,547,021	4,850,469	9,650,699	4,886,890	13,762,227	8,535,348	16,829,816	10,503,274
Stone ..... tons	2,611	78,252	3,055	99,392	26,079	148,454	35,266	139,150	2,403	236,110
Totals	.....	13,555,038	.....	14,395,174	.....	15,299,254	.....	20,573,631	.....	25,626,939
Fuels										
Coal—sold and used ..... tons	1,384,138	9,528,279	1,308,284	9,154,544	1,332,874	8,986,501	1,417,209	9,346,518	1,085,657	7,340,339
Natural gas delivered to pipe-line ..... M s.c.f.	.....	.....	60,883	6,545	168,651	18,130	187,846	20,143	7,126,346	433,830
Natural-gas liquid by-products[3] ..... bbl.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Petroleum, crude[4] ..... bbl.	.....	.....	.....	.....	582	480	148,454	299,322	373,284	763,751
Totals	.....	9,528,279	.....	9,161,089	.....	9,005,111	.....	9,665,983	.....	8,537,920
Provincial totals	.....	152,840,132	.....	152,893,626	.....	173,852,478	.....	188,853,229	.....	170,992,567

Description	1958		1959		1960		1961		1962	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Principal Metals		$		$		$		$		$
Gold—placer, crude ..... oz.	5,650	157,871	7,570	208,973	3,847	107,418	3,416	99,884	3,456	100,550
„ lode, fine ..... oz.	194,354	6,604,149	173,146	5,812,511	205,580	6,979,441	159,821	5,667,253	156,847	5,867,175
Silver ..... oz.	7,040,416	6,086,299	6,197,159	5,420,593	7,446,237	6,599,823	7,373,568	6,908,738	6,186,937	7,178,641
Copper ..... lb.	12,658,649	2,964,529	16,233,546	4,497,991	33,064,429	9,583,724	31,692,412	8,965,149	108,979,144	33,209,215
Lead ..... lb.	294,573,159	34,627,075	287,423,357	33,542,306	333,608,699	38,661,912	384,284,524	42,313,569	335,282,537	34,537,454
Zinc ..... lb.	432,002,790	43,234,839	402,342,850	44,169,198	403,399,319	50,656,726	387,951,190	45,370,891	413,430,817	51,356,376
Totals		93,674,762		93,651,572		112,589,044		109,325,484		132,249,411
Miscellaneous Metals										
Antimony ..... lb.	858,633	284,208	1,657,797	540,276	1,651,786	538,482	1,331,297	469,948	1,931,397	748,223
Bismuth ..... lb.	154,034	308,068	181,843	345,502	213,009	419,628	283,363	637,567	228,601	507,494
Cadmium ..... lb.	1,425,108	2,166,164	1,695,821	2,170,651	1,778,866	2,525,990	907,432	1,451,891	2,086,692	3,839,513
Indium ..... oz.	75,434	117,677								
Iron concentrates ..... tons	630,271	4,193,442	849,248	6,363,848	1,160,355	10,292,847	1,335,068	12,082,540	1,793,847	18,326,911
Molybdenite (MoS_2) ..... lb.					9,023	9,500				
Nickel ..... lb.	1,408,490	996,507	1,061,532	743,072	3,779,878	2,645,915	4,180,677	3,194,037	3,476,467	2,902,850
Platinum ..... oz.	4	260							5	375
Tin ..... lb.	795,496	625,260	747,443	627,852	621,718	522,243	1,119,350	727,578	650,941	442,640
Tungsten (WO_3) ..... lb.	690,976	1,884,209								
Others				632,933		760,364		676,327		535,537
Totals		10,575,795		11,424,134		17,714,969		19,239,888		27,303,543
Industrial Minerals										
Asbestos[1] ..... tons	30,078	6,398,679	33,883	7,878,947	40,748	9,482,923	45,113	8,648,503	55,133	10,297,360
Barite ..... tons	16,144	341,700	23,142	187,368	23,573	279,716	15,478	151,388	6,511	57,062
Diatomite ..... tons	27	540	5	100	44	1,430	214	8,817	211	10,228
Fluxes (quartz, limestone) ..... tons	90,635	311,630[2]	70,570	248,913	83,370	294,559	53,335	190,500	62,743	228,477
Granules (quartz, limestone, granite) ..... tons	22,674	284,330	19,072	254,251	19,063	257,067	17,463	253,015	18,251	311,902
Gypsum and products ..... tons	70,498	211,494	112,223	282,030	107,900	337,200	153,300	459,900	147,900	443,700
Mica ..... lb.					122,000	3,186	250,000	8,025		
Sulphur ..... tons	211,300	2,410,395	251,552	3,253,677	264,765	3,095,696	242,377	3,207,284	239,191	2,934,725
Totals		9,958,768		12,105,286		13,751,777		12,927,432		14,283,454
Structural Materials										
Brick—common ..... No.	427,550	15,125	385,810	11,954	2,262,653	187,673	244,532	14,809	1,179,165	54,849
„ face, paving, sewer ..... No.	4,871,562	344,133	5,412,822	428,100	1,775,591	145,091	3,728,779	326,346	3,313,179	309,582
„ firebrick, blocks		405,485		538,566		621,865		584,969		640,307
Clays ..... tons	4,105	12,579	6,250	17,001	8,003	22,671	7,908	28,396	8,105	30,027
Structural tile, hollow blocks		122,877		149,383		83,842		45,753		36,665
Drain-tile, sewer-pipe, flue-linings		639,173		680,702		616,858		686,998		898,908
Pottery—glazed or unglazed		68,387		46,902		48,825		11,890		23,947
Other clay products		32,416		80,910		346,883		667,303		513,153
Cement ..... tons	414,396	6,755,619	427,181	7,049,638	384,853	6,432,752	417,336	7,122,046	397,435	7,112,890
Lime and limestone ..... tons	269,747	997,819	519,580	1,481,292	565,945	1,602,019	758,882	1,864,315	559,028	1,513,579
Rubble, riprap, crushed rock ..... tons	1,866,950	2,098,952	1,169,854	1,128,353	1,148,305	1,075,373	1,539,640	1,016,086	1,897,272	1,284,301
Sand and gravel ..... tons	14,173,169	8,442,676	11,349,121	7,342,698	12,355,955	7,597,278	11,424,958	7,439,710	17,757,391	8,862,767
Stone ..... tons	2,141	64,335	13,710	69,710	4,328	48,859	5,400	70,300	8,023	85,290
Totals		19,999,576		19,025,209		18,829,989		19,878,921		21,366,265
Fuels										
Coal—sold and used ..... tons	796,413	5,937,860	690,011	5,472,064	788,658	5,242,223	919,142	6,802,134	825,339	6,133,986
Natural gas delivered to pipe-line ..... M s.c.f.	58,039,491	3,368,327	64,525,633	3,921,583	80,115,399	7,101,949	95,967,110	8,818,891	108,699,997	10,226,323
Natural-gas liquid by-products[3] ..... bbl.	150,704	30,935	303,954	43,695	428,553	53,910	473,948	82,592	464,036	96,347
Petroleum, crude[4] ..... bbl.	845,168	1,406,971	1,374,116	1,994,596	1,589,474	2,070,787	1,810,984	2,710,701	9,747,729[5]	17,617,056[5]
Totals		10,744,093		11,431,938		14,468,869		18,414,318		34,073,712
Provincial totals		144,952,994		147,638,139		177,354,648		179,786,043		229,276,385

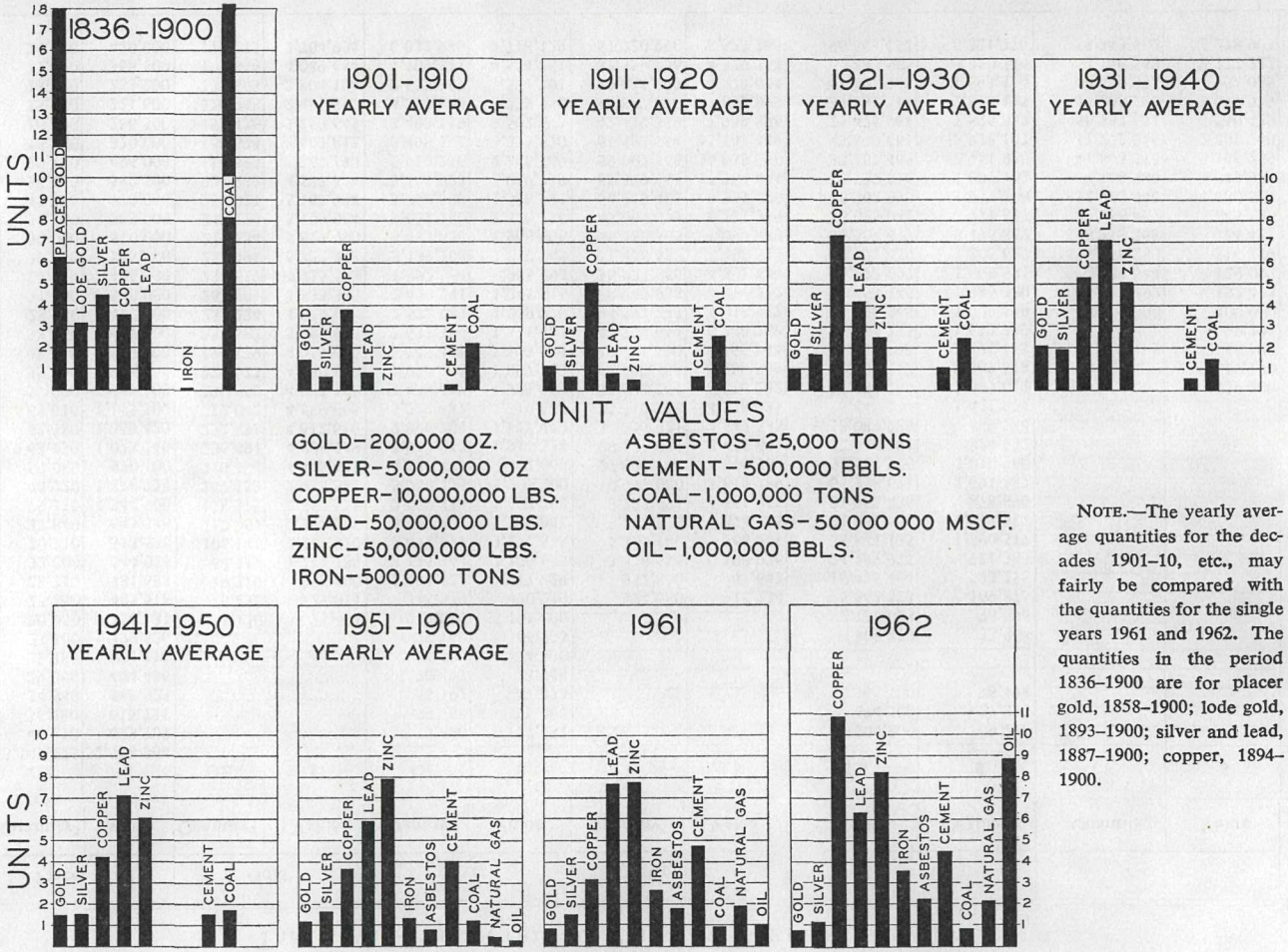
[1] *See* note under "Industrial Minerals and Structural Materials," page A 14. [2] Includes 32 tons of fluorspar mined in 1958. [3] Butane and propane.
[4] All petroleum sales including well-head sales, refinery sales, and condensate/pentanes plus. [5] *See* footnotes 5 and 6, page A 17.

TABLE IV.—MINERAL PRODUCTION OF BRITISH COLUMBIA—VALUES



NOTE.—The yearly average values for the decades 1901–10, etc., may fairly be compared with the values for the single years 1961 and 1962. The values in the period 1836–1900 are for placer gold, 1858–1900; lode gold, 1893–1900; silver and lead, 1887–1900; copper, 1894–1900; and the total value is the total for all mineral products to the end of 1900.

TABLE V.—MINERAL PRODUCTION OF BRITISH COLUMBIA—QUANTITIES



NOTE.—The yearly average quantities for the decades 1901–10, etc., may fairly be compared with the quantities for the single years 1961 and 1962. The quantities in the period 1836–1900 are for placer gold, 1858–1900; lode gold, 1893–1900; silver and lead, 1887–1900; copper, 1894–1900.

TABLE VI.—PRODUCTION OF PRINCIPAL METALS, 1858–1962

Year	Placer Gold		Gold		Silver		Copper		Lead[3]		Zinc[3 4]		Total Value
	Quantity[1]	Value	Quantity[2]	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
	Oz.	$	Oz.	$	Oz.	$	Lb.	$	Lb.	$	Lb.	$	$
1858–86, incl.	3,105,775	52,798,364											52,798,364
1887	40,810	693,709			17,690	17,331			204,800	9,216			720,256
1888	36,280	616,731			79,780	75,000			674,500	29,813			721,544
1889	34,640	588,923			53,192	47,873			165,100	6,498			643,294
1890	29,080	494,436			70,427	73,948							568,384
1891	25,280	429,811			4,500	4,000							433,811
1892	23,500	399,526			77,160	66,935			808,420	33,064			499,525
1893	20,950	356,131	1,170	23,404	227,000	195,000			2,135,023	78,996			653,531
1894	23,850	405,516	6,252	125,014	746,379	470,219	324,680	16,234	5,662,523	169,875			1,186,858
1895	28,330	481,683	39,270	785,400	1,496,522	977,229	952,840	47,642	16,475,464	532,255			2,824,209
1896	32,000	544,026	62,259	1,244,180	3,135,343	2,100,689	3,818,556	190,926	24,199,977	721,384			4,801,205
1897	30,210	513,520	106,141	2,122,820	5,472,971	3,272,836	5,325,180	266,258	38,841,135	1,390,517			7,565,951
1898	37,840	643,346	110,061	2,201,217	4,292,401	2,375,841	7,271,678	874,781	31,693,559	1,077,581			7,172,766
1899	79,110	1,344,900	138,315	2,857,573	2,939,413	1,663,708	7,722,591	1,351,453	21,862,436	878,870			8,096,504
1900	75,220	1,278,724	167,153	3,453,381	3,958,175	2,309,200	9,997,080	1,615,289	63,358,621	2,691,887			11,348,481
1901	57,060	970,100	210,384	4,348,605	4,396,447	2,462,008	27,603,746	4,446,963	51,582,906	2,010,260			14,237,936
1902	63,130	1,073,140	236,491	4,888,269	3,917,917	1,941,328	29,636,057	3,446,673	22,536,381	824,832			12,174,242
1903	62,380	1,060,420	232,831	4,812,616	2,996,204	1,521,472	34,359,921	4,547,535	18,089,283	689,744			12,631,787
1904	65,610	1,115,300	222,042	4,589,608	3,222,481	1,719,516	35,710,128	4,578,037	36,646,244	1,421,874			13,424,335
1905	57,020	969,300	238,660	4,933,102	3,439,417	1,971,818	37,692,251	5,876,222	56,580,703	2,399,022		139,200	16,288,664
1906	55,790	948,400	224,027	4,630,639	2,990,262	1,897,320	42,990,488	8,288,565	52,408,217	2,667,578		17,100	18,449,602
1907	48,710	828,000	196,179	4,055,020	2,745,448	1,703,825	40,832,720	8,166,544	47,738,703	2,291,458		46,100	17,090,947
1908	38,060	647,000	255,582	5,282,880	2,631,389	1,321,483	47,274,614	6,240,249	43,195,733	1,632,799		99,296	15,223,707
1909	28,060	477,000	238,224	4,924,090	2,532,742	1,239,270	45,597,245	5,918,522	44,396,346	1,709,259	8,500,000	400,000	14,668,141
1910	31,760	540,000	267,701	5,533,380	2,450,241	1,245,016	38,243,934	4,871,512	34,658,746	1,386,350	4,184,192	192,473	13,768,731
1911	25,060	426,000	228,617	4,725,513	1,892,364	958,293	36,927,656	4,571,644	26,872,397	1,069,521	2,634,544	129,092	11,880,063
1912	32,680	555,500	257,496	5,322,442	3,132,108	1,810,045	51,456,537	8,408,513	44,871,454	1,805,627	5,358,280	316,139	18,218,266
1913	30,000	510,000	272,254	5,627,490	3,465,856	1,968,606	46,460,305	7,094,489	55,364,677	2,175,832	6,758,768	324,421	17,700,838
1914	33,240	565,000	247,170	5,109,004	3,602,180	1,876,736	45,009,699	6,121,319	50,625,048	1,771,877	7,866,467	346,125	15,790,061
1915	45,290	770,000	250,021	5,167,934	3,366,506	1,588,991	56,918,405	9,835,500	46,503,590	1,939,200	12,982,440	1,460,524	20,762,149
1916	34,150	580,500	221,932	4,587,334	3,301,923	2,059,739	65,379,364	17,784,494	48,727,516	3,007,462	37,168,980	4,043,985	32,063,514
1917	29,180	496,000	114,523	2,367,190	2,929,216	2,265,749	59,007,565	16,038,256	37,307,465	2,951,020	41,848,513	3,166,259	27,284,474
1918	18,820	320,000	164,674	3,403,812	3,498,172	3,215,870	61,483,754	15,143,449	43,899,661	2,928,107	41,772,916	2,899,040	27,910,278
1919	16,850	286,500	152,426	3,150,645	3,403,119	3,592,673	42,459,339	7,939,896	29,475,968	1,526,855	56,737,651	3,540,429	20,036,998
1920	13,040	221,600	120,048	2,481,392	3,377,849	3,235,980	44,887,676	7,832,899	39,331,218	2,816,115	47,208,268	3,077,979	19,665,965
1921	13,720	233,200	135,663	2,804,154	2,673,389	1,591,201	39,036,993	4,879,624	41,402,288	1,693,354	49,419,372	1,952,065	13,153,598
1922	21,690	368,800	197,856	4,089,684	7,101,311	4,554,781	32,359,896	4,329,754	67,447,985	3,480,316	57,146,548	2,777,322	19,600,657
1923	24,710	420,000	179,245	3,704,994	6,032,986	3,718,129	57,720,290	8,323,266	96,663,152	6,321,770	58,343,462	3,278,903	25,767,062

	Oz.	$	Oz.	$	Oz.	$	Lb.	$	Lb.	$	Lb.	$	$
1924	24,750	420,750	247,716	5,120,535	8,341,768	5,292,184	64,845,393	8,442,870	170,384,481	12,415,917	79,130,970	4,266,741	35,958,997
1925	16,476	280,092	209,719	4,335,269	7,654,844	5,286,818	72,306,432	10,153,269	237,899,199	18,670,329	98,257,099	7,754,450	46,480,227
1926	20,912	355,503	201,427	4,163,859	10,748,556	6,675,606	89,339,768	12,324,421	263,023,937	17,757,535	142,876,947	10,586,610	51,863,534
1927	9,191	156,247	178,001	3,679,601	10,470,185	5,902,043	89,202,871	11,525,011	282,996,423	14,874,292	145,225,443	8,996,135	45,133,329
1928	8,424	143,208	188,087	3,888,097	10,627,167	6,182,461	97,908,316	14,265,242	305,140,792	13,961,412	181,763,147	9,984,613	48,425,033
1929	6,983	118,711	145,387	3,005,411	9,960,172	5,278,194	102,793,669	18,612,850	307,999,153	15,555,189	172,096,841	9,268,792	51,839,147
1930	8,955	152,235	160,853	3,325,126	11,328,263	4,322,185	92,362,240	11,990,466	321,803,725	12,638,198	250,479,310	9,017,005	41,445,215
1931	17,176	291,992	146,133	3,020,837	7,550,331	2,254,979	64,134,746	5,365,690	261,902,236	7,097,812	202,071,702	5,160,911	23,192,221
1932	20,400	395,542	181,651	4,263,349	7,150,655	2,264,729	50,608,036	3,228,892	252,007,574	5,326,432	192,120,091	4,621,641	20,100,585
1933	23,928	562,787	223,589	6,394,645	7,021,754	2,656,526	43,149,460	3,216,701	271,689,217	6,497,719	195,963,751	6,291,416	25,619,794
1934	25,181	714,431	297,216	10,253,952	8,613,977	4,088,280	49,651,733	3,683,662	347,366,967	8,461,859	249,152,403	7,584,199	34,786,383
1935	30,929	895,058	365,343	12,856,419	9,269,944	6,005,996	39,428,208	3,073,428	344,268,444	10,785,930	256,239,446	7,940,860	41,557,691
1936	43,389	1,249,940	404,578	14,172,367	9,547,124	4,308,330	21,671,711	2,053,828	377,971,618	14,790,029	254,581,393	8,439,373	45,013,867
1937	54,153	1,558,245	460,781	16,122,727	11,308,685	5,075,451	46,057,584	6,023,411	419,118,371	21,416,949	291,192,278	14,274,245	64,471,028
1938	57,759	1,671,015	557,522	19,613,624	10,861,578	4,722,288	65,769,906	6,558,575	412,979,182	13,810,024	298,497,295	9,172,822	55,548,348
1939	49,746	1,478,492	587,336	21,226,957	10,821,393	4,381,365	73,254,679	7,392,862	378,743,763	12,002,390	278,409,102	8,544,375	55,026,441
1940	39,067	1,236,928	583,416	22,461,516	12,327,944	4,715,315	77,980,223	7,865,085	466,849,112	15,695,467	312,020,671	10,643,025	62,617,336
1941	43,775	1,385,962	571,026	21,984,501	12,175,700	4,658,545	66,435,583	6,700,693	456,840,454	15,358,976	367,869,579	12,548,031	62,636,708
1942	32,904	1,041,772	444,518	17,113,943	9,677,881	4,080,775	50,097,716	5,052,856	507,199,704	17,052,054	387,236,469	13,208,636	57,550,036
1943	14,600	462,270	224,403	8,639,516	8,526,310	3,858,496	42,307,510	4,971,132	439,155,635	16,485,902	336,150,455	13,446,018	47,863,334
1944	11,433	361,977	186,632	7,185,332	5,705,334	2,453,293	36,300,589	4,356,070	292,922,888	13,181,530	278,063,373	11,956,725	39,494,927
1945	12,589	398,591	175,373	6,751,860	6,157,307	2,893,934	25,852,366	3,244,472	336,976,468	16,848,823	294,791,635	18,984,581	49,122,261
1946	15,729	475,361	117,612	4,322,241	6,365,761	5,324,959	17,500,538	2,240,070	345,862,680	23,345,731	274,269,956	21,420,484	57,128,846
1947	6,969	200,585	243,282	8,514,870	5,707,691	4,109,538	41,783,921	8,519,741	313,733,089	42,887,313	253,006,168	28,412,593	92,644,640
1948	20,332	585,200	286,230	10,018,050	6,718,122	5,038,592	43,025,388	9,616,174	320,037,525	57,734,770	270,310,195	37,654,210	120,646,996
1949	17,886	529,524	288,396	10,382,256	7,636,053	5,669,769	54,856,808	10,956,550	265,378,899	41,929,866	288,188,620	38,176,346	107,644,311
1950	19,134	598,717	283,983	10,805,553	9,507,225	7,666,151	42,212,133	9,889,458	284,024,522	41,052,905	290,344,227	43,769,392	113,782,176
1951	23,691	717,911	261,274	9,627,947	8,215,884	7,768,118	43,249,658	11,980,155	273,456,604	50,316,015	337,511,324	67,164,754	147,574,900
1952	17,554	494,756	251,393	8,615,238	8,796,720	7,315,088	42,005,512	13,054,893	284,949,396	45,936,692	372,871,717	59,189,656	134,606,323
1953	14,245	403,230	253,553	8,727,294	8,376,953	7,017,709	49,021,013	14,869,544	297,634,712	39,481,244	382,300,862	40,810,618	111,309,639
1954	8,684	238,967	258,388	8,803,279	9,825,153	8,153,108	50,150,087	14,599,693	332,474,456	45,482,505	334,124,560	34,805,755	112,083,307
1955	7,666	217,614	242,477	8,370,306	7,902,145	6,942,113	44,238,031	16,932,549	302,567,640	45,161,245	429,198,565	52,048,909	129,672,736
1956	3,865	109,450	191,743	6,603,628	8,404,600	7,511,443	43,360,575	17,251,872	283,718,073	44,702,619	443,853,004	58,934,801	135,113,813
1957	2,936	80,990	223,403	7,495,170	8,129,047	7,076,904	31,387,441	8,170,465	281,603,346	39,568,086	449,276,797	50,206,681	112,598,296
1958	5,650	157,871	194,354	6,604,149	7,040,416	6,086,299	12,658,649	2,964,529	294,573,159	34,627,075	432,002,790	43,234,839	93,674,762
1959	7,570	208,973	173,146	5,812,511	6,197,159	5,420,593	16,233,546	4,497,991	287,423,357	33,542,306	402,342,850	44,169,198	93,651,572
1960	3,847	107,418	205,580	6,979,441	7,446,237	6,599,823	33,064,429	9,583,724	333,608,699	38,661,912	403,399,319	50,656,726	112,589,044
1961	3,416	99,884	159,821	5,667,253	7,373,568	6,908,738	31,692,412	8,965,149	384,284,524	42,313,569	387,951,190	45,370,891	109,325,484
1962	3,456	100,550	156,847	5,867,175	6,186,937	7,178,641	108,979,144	33,209,215	335,282,537	34,537,454	413,430,817	51,356,376	132,249,411
Totals	5,224,235	96,629,855	16,026,856	466,148,590	437,347,023	272,255,037	3,121,339,212	536,449,766	13,918,259,800	1,060,106,263	11,866,502,762	1,008,279,885	3,439,869,396

[1] Ounces of crude gold.

[2] Ounces of fine gold.

[3] Revisions have been made in 1958 to some yearly totals for lead and zinc to bring them into agreement with the best records of recoveries of lead and zinc from slags treated at the Trail smelter.

[4] For 1905–08, inclusive, records show shipments of a combined total of 18,847 tons of zinc ore and zinc concentrates of unstated zinc content.

TABLE VIIa.—PRODUCTION, 1961 AND 1962, AND

Division	Period	Placer Gold		Principal Lode Metals	Miscellaneous Metals	Industrial Minerals	Structural Materials
		Quantity[1]	Value				
		Oz.	$	$	$	$	$
Alberni	1961	4	117	5,095			85,576
	1962	**141**	**3,853**	**48,299**	**7,296,141**		**104,685**
	To date	1,758	37,106	11,745,593	7,296,141	9,398	1,249,630
Atlin	1961	2,271	66,404				16,050
	1962	**658**	**19,938**	**102**			**4,537**
	To date	734,967	17,364,658	37,483,446	562,122	20,325	296,256
Cariboo	1961	645	18,860	720,827		16,842	733,870
	1962	**1,668**	**47,918**	**700,689**		**10,228**	**562,814**
	To date	2,604,590	53,992,669	40,327,330	23,730	198,490	6,069,182
Clinton	1961	48	1,404				
	1962						
	To date	10,141	242,238	847,454	900	162,427	110,928
Fort Steele	1961	12	351	56,145,948	1,226,495	610,950	249,246
	1962	**44**	**1,347**	**56,585,577**	**975,839**	**607,175**	**203,701**
	To date	20,531	468,450	1,657,817,757	12,261,549	6,149,772	5,112,315
Golden	1961			3,557,806	59,539	611,288	114,986
	1962			**3,352,115**	**107,450**	**500,762**	**89,178**
	To date	469	11,268	48,153,863	634,097	5,054,630	1,681,389
Greenwood	1961	18	526	3,592,712	8,822		33,876
	1962			**4,239,322**	**10,766**		**25,887**
	To date	5,074	115,662	128,941,014	108,002	2,323,897	865,207
Kamloops	1961	1	29				637,651
	1962	**15**	**486**	**1**			**702,513**
	To date	27,571	604,106	3,044,837	101,646	6,528,308	9,272,402
Liard	1961	72	2,105			9,742,161	216,995
	1962	**30**	**860**	**4**		**11,160,051**	**332,182**
	To date	50,184	1,248,151	6,316	79	65,001,948	2,087,594
Lillooet	1961	32	936	3,787,608			132,255
	1962			**3,760,290**			**165,840**
	To date	91,891	1,893,549	130,454,321	48,350	5,129	1,620,997
Nanaimo	1961			577,450	11,583,623	19,445	1,907,459
	1962			**887,213**	**10,009,514**	**32,317**	**1,817,992**
	To date	866	19,300	8,683,470	66,966,386	778,100	35,322,447
Nelson	1961	4	117	15,505,864	909,050		183,675
	1962			**14,174,936**	**942,255**	**17,512**	**203,273**
	To date	3,585	88,988	194,458,264	42,371,177	81,638	3,136,272
New Westminster	1961	16	468	417,194	3,194,037	114,437	5,086,910
	1962			**470,893**	**2,902,850**	**106,890**	**4,745,898**
	To date	11,608	243,614	1,706,186	10,570,105	894,261	74,328,643
Nicola	1961			1,855,744			37,031
	1962			**23,910,483**			**12,625**
	To date	234	4,764	26,338,944		10,050	507,765
Omineca	1961	278	8,129	34,002	1,542		346,610
	1962	**807**	**23,604**	**13,613**			**414,864**
	To date	53,739	1,426,264	17,393,123	15,633,718	11,460	3,971,656
Osoyoos	1961			119,560		309,573	51,450
	1962	**13**	**374**	**38,072**		**383,600**	**95,579**
	To date	221	5,013	51,089,477	1,020	4,117,902	1,120,235
Revelstoke	1961	3	88				35,911
	1962						**25,972**
	To date	7,582	164,477	11,053,917	185,244		1,316,121
Similkameen	1961	2	58				73,175
	1962	**3**	**75**	**1,651**	**375**		**131,550**
	To date	12,151	288,286	120,063,362	129,036	18,558	2,474,377
Skeena	1961			344,680			183,562
	1962			**190,039**	**488,057**		**256,384**
	To date	4,603	105,569	210,835,087	825,561	1,229,400	7,350,549
Slocan	1961			5,970,229	167,459		61,975
	1962			**5,340,469**	**186,541**		**106,928**
	To date	366	9,397	190,060,354	3,234,905		1,034,460
Trail Creek	1961			86,043			116,386
	1962			**34,984**			**92,088**
	To date	851	24,260	82,906,262	35,774		1,929,971
Vancouver	1961			4,634,683		101,426	4,553,416
	1962			**5,171,932**	**39,613**	**65,799**	**4,539,748**
	To date	182	5,306	213,648,383	1,008,371	6,448,314	52,089,656
Vernon	1961	10	292				48,131
	1962						**66,164**
	To date	2,705	72,282	188,345	9,500	3,978	2,718,566
Victoria	1961					60	4,972,725
	1962			**1,574,464**		**60**	**5,025,619**
	To date	628	15,680	10,350,025	35,437	188,306	119,306,687
Not assigned[5]	1961			11,870,155	2,089,321	1,401,250	
	1962	**77**	**2,095**	**11,653,713**	**4,344,142**	**1,399,060**	**1,586,244**
	To date	1,577,738	18,178,798	145,642,411	53,658,033	35,526,625	12,850,495
Totals	1961	3,416	99,884	109,225,600	19,239,888	12,927,432	19,878,921
	1962	**3,456**	**100,550**	**132,148,861**	**27,303,543**	**14,283,454**	**21,366,265**
	To date	5,224,235	96,629,855	3,343,239,541	215,700,883	134,762,916	347,823,800

[1] Crude gold—equivalent in fine gold; 1961, 2,817 oz.; 1962, 2,688 oz. The year of first recorded production for the major placer-producing mining divisions was: Atlin, 1898; Cariboo, 1858; Lillooet, 1874; Quesnel, 1858.

[2] Quantity from 1836 to 1909 is gross mine output and includes material lost in picking and washing. For Cariboo, 1942; Fort Steele, 1898; Kamloops, 1893; Liard, 1923; Nanaimo, 1836; Nicola, 1907; Omineca, 1918; Osoyoos, 1926; Similkameen, 1909; Skeena, 1912.

TOTAL TO DATE, BY MINING DIVISIONS—SUMMARY

Fuels								Division Totals
Coal		Petroleum[3]		Natural Gas (Direct to Pipe-line)		Liquid By-products[4]		
Quantity[2]	Value	Quantity	Value	Quantity	Value	Quantity	Value	
Tons	$	Bbl.	$	M S.C.F.	$	Bbl.	$	$
								90,788
								7,452,978
								20,337,868
								82,454
								24,577
								55,726,807
								1,490,399
								1,321,649
290	1,100							100,612,501
								1,404
								1,363,947
834,716	5,979,805							64,212,795
734,531	**5,255,540**							**63,629,179**
53,924,438	236,310,671							1,918,120,514
								4,343,619
								4,049,505
								55,535,247
								3,635,936
								4,275,975
								132,353,782
								637,680
								703,000
15,087	59,765							19,611,064
2,062	17,000	1,810,984	2,710,701	95,967,110	8,818,891	473,948	82,592	21,590,445
1,389	**12,501**	**[6]9,747,729**	**17,617,056**	**108,699,997**	**10,226,323**	**464,036**	**96,347**	**39,445,324**
98,237	688,357	15,889,791	26,863,664	414,891,356	33,915,721	1,821,195	307,479	130,119,309
								3,920,799
								3,926,130
								134,022,346
76,009	736,814							14,824,791
83,534	**801,294**							**13,602,330**
74,142,313	299,319,780							411,089,483
								16,598,706
								15,337,976
								240,136,339
								8,813,046
								8,226,531
								87,742,809
159	1,719							1,894,492
125	**1,375**							**23,924,483**
2,929,524	11,080,176							37,941,699
5,850	64,024							454,307
5,760	**63,276**							**515,357**
432,762	2,778,209							41,214,430
								480,583
								517,625
1,122	5,008							56,338,655
								35,999
								25,972
								12,719,759
346	2,774							76,007
								133,651
4,617,442	19,553,725							142,527,344
								528,242
								934,480
36	116							220,346,282
								6,199,663
								5,633,938
								194,339,116
								202,429
								127,072
								84,896,267
								9,289,525
								9,817,092
								273,200,030
								48,423
								66,164
								2,992,671
								4,972,785
								6,600,143
								129,896,135
								15,360,726
								18,985,254
								265,856,362
919,142	6,802,134	1,810,984	2,710,701	95,967,110	8,818,891	473,948	82,592	179,786,043
825,339	**6,133,986**	**9,747,729**	**17,617,056**	**108,699,997**	**10,226,323**	**464,036**	**96,347**	**229,276,385**
136,161,251	569,796,907	15,889,791	26,863,664	414,891,356	33,915,721	1,821,195	307,479	4,769,040,766

[3] All petroleum sales including well-head sales, refinery sales, and condensate/pentanes plus.
[4] Butane and propane.
[5] *Re* "not assigned," *see* footnotes under Tables VIIB and VIIC.
[6] *See* footnotes 5 and 6, page A 17.
NOTE.—For individual metals, industrial minerals, and structural materials, *see* Tables VIIB, VIIC, VIID, and VIIE.

TABLE VIIb.—PRODUCTION, 1961 AND 1962, AND TOTAL TO DATE, BY MINING DIVISIONS—PRINCIPAL LODE METALS

Division	Period	Lode Gold		Silver		Copper		Lead		Zinc		Division Total
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
		Oz.	$	Oz.	$	Lb.	$	Lb.	$	Lb.	$	$
Alberni	1961	139	4,929	98	91			690	75			5,095
	1962	**1,266**	**47,357**	**576**	**669**			**2,574**	**265**	**67**	**8**	**48,299**
	To date	302,509	11,317,910	163,099	78,755	2,280,699	343,518	121,201	5,402	67	8	11,745,593
Atlin	1961											
	1962			**95**	**102**							**102**
	To date	344,197	12,126,732	3,375,428	2,894,044	24,777,661	8,160,266	23,765,211	3,437,907	91,067,749	10,864,497	37,483,446
Cariboo	1961	20,243	717,817	3,213	3,010							720,827
	1962	**18,624**	**696,668**	**3,465**	**4,021**							**700,689**
	To date	1,119,802	40,235,973	130,289	86,694	2,352	920	24,560	3,724	505	19	40,327,330
Clinton	1961											
	1962											
	To date	23,390	827,328	31,564	14,214	57,548	5,905	193	7			847,454
Fort Steele	1961	367	13,014	5,199,531	4,871,753			281,169,600	30,959,585	173,592,100	20,301,596	56,145,948
	1962	**392**	**14,664**	**3,790,116**	**4,397,634**			**238,618,684**	**24,580,111**	**222,131,449**	**27,593,168**	**56,585,577**
	To date	5,673	165,742	211,853,844	125,301,718	28,592	6,193	11,784,835,285	865,793,047	8,537,128,049	666,551,057	1,657,817,757
Golden	1961			283,669	265,787	40,590	11,482	9,435,501	1,038,943	19,167,112	2,241,594	3,557,806
	1962			**224,288**	**260,240**	**74,123**	**22,588**	**8,739,952**	**900,302**	**17,460,837**	**2,168,985**	**3,352,115**
	To date	169	4,844	3,692,313	2,896,148	1,168,211	365,531	231,835,597	22,082,687	266,215,812	22,804,653	48,153,863
Greenwood	1961	17,207	610,160	943,009	883,562	6,744,419	1,907,861	782,690	86,182	897,363	104,947	3,592,712
	1962	**16,812**	**628,886**	**889,745**	**1,032,363**	**7,768,401**	**2,367,265**	**888,962**	**91,572**	**959,875**	**119,236**	**4,239,322**
	To date	1,193,485	26,503,850	34,793,402	21,842,317	466,074,548	77,719,124	17,414,354	1,421,995	18,577,005	1,453,728	128,941,014
Kamloops	1961											
	1962			**1**	**1**							**1**
	To date	47,868	1,608,328	304,513	181,985	6,411,583	1,179,668	538,097	45,030	438,023	29,826	3,044,837
Liard	1961											
	1962			**4**	**4**							**4**
	To date	114	4,120	544	450	56	22	10,102	1,724			6,316
Lillooet	1961	106,226	3,766,774	22,236	20,834							3,787,608
	1962	**99,902**	**3,737,034**	**20,043**	**23,256**							**3,760,290**
	To date	3,719,641	129,872,492	900,747	579,238	400	41	62,513	2,548	15	2	130,454,321
Nanaimo	1961	1,269	44,999	32,351	30,312	1,775,097	502,139					577,450
	1962	**829**	**31,010**	**19,082**	**22,141**	**2,737,051**	**834,062**					**887,213**
	To date	89,957	2,126,469	688,701	447,456	30,935,877	6,109,545					8,683,470
Nelson	1961	565	20,035	185,788	174,076	4,615	1,305	39,997,332	4,404,106	93,256,453	10,906,342	15,505,864
	1962	**983**	**36,771**	**141,444**	**164,117**			**31,339,691**	**3,228,302**	**86,505,761**	**10,745,746**	**14,174,936**
	To date	1,330,969	41,629,828	8,365,529	5,186,014	14,802,985	1,683,575	356,966,983	41,993,644	847,421,274	103,965,203	194,458,264
New Westminster	1961			49	46	1,474,646	417,148					417,194
	1962	**17**	**636**	**911**	**1,058**	**1,539,719**	**469,199**					**470,893**
	To date	4,466	114,164	15,114	7,720	5,573,270	1,582,702	28,425	1,119	12,755	481	1,706,186
Nicola	1961	16	567	8,063	7,555	6,528,767	1,846,858	3,696	407	3,052	357	1,855,744
	1962					**78,464,488**	**23,910,483**					**23,910,483**
	To date	8,541	235,481	275,499	134,158	85,554,397	25,867,428	2,239,124	90,923	323,735	10,954	26,338,944
Omineca	1961	15	532	11,352	10,636			111,115	12,235	90,632	10,599	34,002
	1962	**21**	**786**	**8,256**	**9,580**	**3,360**	**1,024**	**12,166**	**1,253**	**7,806**	**970**	**13,613**
	To date	25,111	775,212	9,566,135	7,603,610	6,753,562	1,546,358	28,032,247	3,554,322	31,611,532	3,913,621	17,393,123

		Oz.	$	Oz.	$	Lb.	$	Lb.	$	Lb.	$	$
Osoyoos	1961	3,332	118,153	1,233	1,155			1,227	135	1,003	117	119,560
	1962	**851**	**31,833**	**4,452**	**5,166**			**6,050**	**623**	**3,622**	**450**	**38,072**
	To date	1,648,771	50,270,775	596,970	393,947	2,843,616	417,190	135,173	6,421	13,042	1,144	51,089,477
Revelstoke	1961											
	1962											
	To date	37,300	1,069,260	4,107,618	2,766,476	153,686	51,037	36,343,774	3,853,894	27,194,200	3,313,250	11,053,917
Similkameen	1961											
	1962	**3**	**112**	**27**	**31**	**4,948**	**1,508**					**1,651**
	To date	184,015	6,327,372	4,219,466	2,582,297	601,192,869	111,136,369	382,544	13,360	72,275	3,964	120,063,362
Skeena	1961	6,471	229,462	110,593	103,621			53,109	5,848	49,154	5,749	344,680
	1962	**3,292**	**123,144**	**51,229**	**59,441**			**27,839**	**2,868**	**36,922**	**4,586**	**190,039**
	To date	2,411,166	60,862,519	68,728,968	43,996,874	689,106,270	98,025,648	59,940,735	5,428,971	17,065,144	2,521,075	210,835,087
Slocan	1961	133	4,716	450,278	421,892			22,684,369	2,497,776	26,043,994	3,045,845	5,970,229
	1962	**40**	**1,496**	**455,538**	**528,557**			**21,157,419**	**2,179,426**	**21,180,081**	**2,630,990**	**5,340,469**
	To date	15,828	457,220	70,797,510	45,702,864	229,696	43,512	897,440,361	74,004,805	714,240,156	69,851,953	190,060,354
Trail Creek	1961	518	18,368	1,359	1,273	234,734	66,402					86,043
	1962	**780**	**29,177**	**524**	**608**	**52,362**	**15,956**	**2,836**	**292**	**2,745**	**341**	**46,374**
	To date	2,951,395	62,647,084	3,624,790	2,069,825	121,630,213	18,174,741	138,590	11,296	122,366	14,706	82,917,652
Vancouver	1961	3,213	113,933	53,718	50,332	13,466,438	3,809,386	59,194	6,518	5,596,531	654,514	4,634,683
	1962	**11,152**	**417,163**	**54,854**	**63,647**	**12,683,238**	**3,864,963**	**82,927**	**8,542**	**6,582,011**	**817,617**	**5,171,932**
	To date	466,958	14,967,767	4,941,041	3,071,017	973,150,020	165,411,755	18,236,748	1,838,462	219,964,141	28,359,382	213,648,383
Vernon	1961											
	1962											
	To date	5,224	176,082	12,823	8,084	654	100	24,913	2,933	10,816	1,146	188,345
Victoria	1961											
	1962	**1,218**	**45,562**	**13,497**	**15,661**	**4,965,843**	**1,513,241**					**1,574,464**
	To date	38,881	858,292	889,717	521,916	40,994,393	8,666,046	210,097	19,848	3,568,709	283,923	10,350,025
Not assigned[1]	1961	107	3,794	67,028	62,803	1,423,106	402,568	29,986,001	3,301,759	69,253,796	8,099,231	11,870,155
	1962	**665**	**24,876**	**508,790**	**590,344**	**685,611**	**208,926**	**34,403,437**	**3,543,898**	**58,559,641**	**7,274,279**	**11,642,323**
	To date	51,426	963,746	5,271,399	3,887,216	47,616,054	9,952,572	459,532,973	36,492,194	1,091,455,392	94,335,293	145,631,021
Totals	1961	159,821	5,667,253	7,373,568	6,908,738	31,692,412	8,965,149	384,284,524	42,313,569	387,951,190	45,370,891	109,225,600
	1962	**156,847**	**5,867,175**	**26,186,937**	**27,178,641**	**108,979,144**	**33,209,215**	**335,282,537**	**34,537,454**	**413,430,817**	**51,356,376**	**132,148,861**
	To date	16,026,856	466,148,590	437,347,023	272,255,037	3,121,339,212	536,449,766	13,918,259,800	1,060,106,263	11,866,502,762	1,008,279,885	3,343,239,541

[1] Gold, silver, copper, and some lead "not assigned" were recovered at the Tacoma smelter from dross shipped from the Trail smelter. The zinc and most of the lead were recovered at the Trail smelter by fuming current and reclaimed slag.

[2] Includes 471 oz. of silver valued at $546 contained in placer gold received at the Mint during 1962.

TABLE VIIc.—PRODUCTION, 1961 AND 1962, AND TOTAL TO DATE, BY MINING DIVISIONS—MISCELLANEOUS METALS

Division	Period	Antimony		Bismuth		Cadmium		Chromite		Iron Concentrates		Manganese		Mercury	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
		Lb.	$	Lb.	$	Lb.	$	Tons	$	Tons	$	Tons	$	Lb.	$
Alberni	1961														
	1962									**702,020**	**7,296,141**				
	To date									702,020	7,296,141				
Atlin	1961														
	1962														
	To date					319,212	561,762								
Cariboo	1961														
	1962														
	To date														
Clinton	1961														
	1962														
	To date							126	900						
Fort Steele	1961									51,171[1]	498,917				
	1962									**49,416**[1]	**533,199**				
	To date					1,837	3,823			100,587	1,032,116				
Golden	1961					37,212	59,539								
	1962					**58,397**	**107,450**								
	To date	40,062	14,906			368,852	619,191								
Greenwood	1961					5,514	8,822								
	1962					**5,851**	**10,766**								
	To date					45,092	76,607	670	31,395						
Kamloops	1961														
	1962														
	To date									21,167	95,851			10,987	5,795
Liard	1961														
	1962														
	To date														
Lillooet	1961														
	1962														
	To date	13,466	4,321											1,783	3,555
Nanaimo	1961									1,283,897	11,583,623				
	1962									**988,896**	**10,009,514**				
	To date									8,843,764	66,966,386				
Nelson	1961					568,156	909,050								
	1962					**512,095**	**942,255**								
	To date					4,958,273	8,452,488								
New Westminster	1961														
	1962														
	To date														
Omineca	1961					964	1,542								
	1962														
	To date	104,489	15,217			262,114	518,118							4,150,892	10,400,259
Osoyoos	1961														
	1962														
	To date											162			
Revelstoke	1961														
	1962														
	To date	9,394	3,455			103,612	176,102								

		Lb.	$	Lb.	$	Lb.	$	Tons	$	Tons	$	Tons	$	Lb.	$
Similkameen	1961														
	1962														
	To date														
Skeena	1961														
	1962									**53,515**	**488,057**				
	To date					141,890	316,764			54,715	494,057				
Slocan	1961					104,662	167,459								
	1962					**101,381**	**186,541**								
	To date	31,865	8,133			1,800,438	3,218,612					541	8,160		
Trail Creek	1961														
	1962														
	To date					115	210			550	1,925				
Vancouver	1961														
	1962					**21,529**	**39,613**								
	To date					494,894	1,008,371								
Vernon	1961														
	1962														
	To date														
Victoria	1961														
	1962														
	To date					7,000	10,929					1,167	24,508		
Not assigned[3 4 5]	1961	1,331,297	469,948	283,363	637,567	190,924	305,479								
	1962	**1,931,397**	**748,223**	**228,601**	**507,494**	**1,387,439**	**2,552,888**								
	To date	42,492,620	11,176,295	5,638,950	9,717,413	21,020,522	28,287,246								
Totals	1961	1,331,297	469,948	283,363	637,567	907,432	1,451,891			1,335,068	12,082,540				
	1962	**1,931,397**	**748,223**	**228,601**	**507,494**	**2,086,692**	**3,839,513**			**1,793,847**	**18,326,911**				
	To date	42,691,896	11,222,327	5,638,950	9,717,413	29,523,851	43,250,223	796	32,295	9,722,803	75,886,476	1,724	32,668	4,163,662	10,409,609

[1] Sinter required to produce 32,049 tons and 31,441 tons of pig iron in 1961 and 1962 respectively.
[2] Estimated manganese content of about 40 tons of ore shipped for testing by Olalla Mines Ltd. in 1956.
[3] Antimony assigned to individual mining divisions is the reported content of concentrates exported to foreign smelters. Antimony "not assigned" is the antimony content of antimonial lead or of other antimony products at the Trail smelter.
[4] Cadmium assigned to individual mining divisions is the reported content of custom shipments to the Trail smelter and to foreign smelters. Cadmium "not assigned" is the remainder of the reported estimated recovery at the Trail smelter from British Columbia concentrates.
[5] Bismuth and indium recovered at the Trail smelter are not assigned to mining divisions and may include some metal from sources outside British Columbia.
Principal productive periods: Antimony, 1939–62; bismuth, 1929–62; cadmium, 1928–62; chromite, 1918 and 1929; indium, 1942–62; iron concentrates, 1951–62; manganese, 1918–20; mercury, 1940–44; molybdenite, 1914–18; nickel, 1958–62; palladium, 1928; platinum, 1887–1951; tin, 1941–62; tungsten, 1937–58.

TABLE VIIc.—PRODUCTION, 1961 AND 1962, AND TOTAL TO DATE, BY MINING DIVISIONS—MISCELLANEOUS METALS—*Continued*

Division	Period	Molybdenite (MoS_2)		Nickel		Palladium		Platinum		Tin		Tungsten (WO_3)		Other Value	Division Totals
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value		
		Lb.	$	Lb.	$	Oz.	$	Oz.	$	Lb.	$	Lb.	$	$	$
Alberni	1961														
	1962														**7,296,141**
	To date														7,296,141
Atlin	1961														
	1962														
	To date											292	360		562,122
Cariboo	1961														
	1962														
	To date							59	2,299			27,698	21,431		23,730
Clinton	1961														
	1962														
	To date														900
Fort Steele	1961									1,119,350	727,578				1,226,495
	1962									**650,941**	**442,640**				**975,839**
	To date									14,469,474	11,137,426			88,1846	12,261,549
Golden	1961														59,539
	1962														**107,450**
	To date														634,097
Greenwood	1961														8,822
	1962														**10,766**
	To date														108,002
Kamloops	1961														
	1962														
	To date														101,646
Liard	1961														
	1962														
	To date							2	79						79
Lillooet	1961														
	1962														
	To date	2,448	2,440					3	113			32,353	37,921		48,350
Nanaimo	1961														11,583,623
	1962														**10,009,514**
	To date														66,966,386
Nelson	1961														909,050
	1962														**942,255**
	To date	25,058	18,378									13,739,939	33,900,311		42,371,177
New Westminster	1961			4,180,677	3,194,037										3,194,037
	1962			**3,476,467**	**2,902,850**										**2,902,850**
	To date			14,188,497	10,570,105										10,570,105
Omineca	1961														1,542
	1962														
	To date	1,600	1,840					3	154			2,210,892	4,697,710	4207	15,633,718
Osoyoos	1961														
	1962														
	To date	1,020	1,020												1,020

		Lb.	$	Lb.	$	Oz.	$	Oz.	$	Lb.	$	Lb.	$	$	$
Revelstoke	1961														
	1962														
	To date											7,784	5,687		185,244
Similkameen	1961														
	1962							**5**	**375**						**375**
	To date							1,285	129,036						129,036
Skeena	1961														
	1962														**488,057**
	To date	13,022	13,020									366	331	1,3898	825,561
Slocan	1961														167,459
	1962														**186,541**
	To date														3,234,905
Trail Creek	1961														
	1962														
	To date					749	30,462	53	3,177						35,774
Vancouver	1961														
	1962														**39,613**
	To date														1,008,371
Vernon	1961														
	1962														
	To date	9,023	9,500												9,500
Victoria	1961														
	1962														
	To date														35,437
Not assigned	1961													676,327	2,089,321
	1962													**535,537**	**4,344,142**
	To date													4,477,079	53,658,033
Totals	1961			4,180,677	3,194,037					1,119,350	727,578			676,327	19,239,888
	1962			**3,476,467**	**2,902,850**			**5**	**375**	**650,941**	**442,640**			**535,537**	**27,303,543**
	To date	52,171	46,198	14,188,497	10,570,105	749	30,462	1,405	134,858	14,469,474	11,137,426	16,019,324	38,663,751	4,567,072	215,700,883

[6] Magnesium, 204,632 lb., 1941 and 1942.
[7] Cobalt, 1,730 lb., 1928.
[8] Selenium, 731 lb., 1931.

TABLE VIId.—PRODUCTION, 1961 AND 1962, AND TOTAL

Division	Period	Asbestos		Barite		Diatomite		Fluxes (Quartz and Limestone)		Granules (Quartz, Limestone, and Granite)	
		Quantity	Value[1]	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
		Tons	$	Tons	$	Tons	$	Tons	$	Tons	$
Alberni	1961										
	1962										
	To date										
Atlin	1961										
	1962										
	To date										
Cariboo	1961					214	8,817				
	1962					**211**	**10,228**				
	To date					2,014	55,010			48	168
Clinton	1961										
	1962										
	To date										
Fort Steele	1961										
	1962										
	To date			8	80						
Golden	1961			15,478	151,388						
	1962			**6,511**	**57,062**						
	To date			194,119	2,393,940						
Greenwood	1961										
	1962										
	To date							1,790,502	1,540,319		
Kamloops	1961										
	1962										
	To date										
Liard	1961	45,113	8,648,503								
	1962	**55,133**	**10,297,360**								
	To date	285,933	61,814,006								
Lillooet	1961										
	1962										
	To date										
Nanaimo	1961							12,459	19,445		
	1962							**17,386**	**32,317**		
	To date							704,819	778,100		
Nelson	1961										
	1962									**839**	**17,512**
	To date							7,601	8,174	841	17,563
New Westminster	1961									8,004	114,437
	1962									**6,612**	**106,890**
	To date									69,487	894,261
Nicola	1961										
	1962										
	To date										
Omineca	1961										
	1962										
	To date										
Osoyoos	1961							40,869	170,995	9,459	138,578
	1962							**45,350**	**196,100**	**10,800**	**187,500**
	To date							619,380	2,817,548	69,608	978,869
Similkameen	1961										
	1962										
	To date										
Skeena	1961										
	1962										
	To date							601,019	1,050,722		
Vancouver	1961										
	1962										
	To date									29,692	418,606
Vernon	1961										
	1962										
	To date										
Victoria	1961							7	60		
	1962							**7**	**60**		
	To date							76	1,000	9,605	157,080
Not assigned	1961										
	1962										
	To date										
Totals	1961	45,113	8,648,503	15,478	151,388	214	8,817	53,335	190,500	17,463	253,015
	1962	**55,133**	**10,297,360**	**6,511**	**57,062**	**211**	**10,228**	**62,743**	**228,477**	**18,251**	**311,902**
	To date	285,933	61,814,006	194,127	2,394,020	2,014	55,010	3,723,397	6,195,863	179,281	2,466,547

[1] Value f.o.b. mine, not including containers; *see also* note under "Industrial Minerals and Structural Materials," page A14.
[2] Arsenious oxide: Omineca, 1928, 16,997 lb., $340; Osoyoos, 1917–30 and 1942, 22,002,423 lb., $272,861.
[3] Bentonite: 1926–44, 791 tons.
[4] Fluorspar: Greenwood, 1918–29 and 1942, 35,309 tons, $783,578; Osoyoos, 1958, 32 tons, $1,386.
[5] Hydromagnesite: Atlin, 1915–16, 1,450 tons, $20,325; Clinton, 1921, 803 tons, $7,211.
[6] Iron oxide and ochre: Golden, 1927–39, 27 tons, $920; Nelson, 1948–50, 7,292 tons, $55,901; Vancouver, 1918–50, 10,669 tons, $97,389; Victoria, 1923, 120 tons, $840.
[7] Magnesium sulphate: Clinton, 1918–20, 1,923 tons, $39,085; Kamloops, 1918–42, 8,742 tons, $193,967; Osoyoos, 1915–19, 3,229 tons, $21,300.
[8] Natro-alunite: 1912–27, 522 tons.

TO DATE, BY MINING DIVISIONS—INDUSTRIAL MINERALS

Gypsum and Gypsite		Mica		Sulphur		Other Value	Division Totals	Period	Division
Quantity	Value	Quantity	Value	Quantity	Value				
Tons	$	Lb.	$	Tons	$	$	$		
								1961	Alberni.
								1962	
						9,3988	9,398	To date	
								1961	Atlin.
								1962	
						20,3255	20,325	To date	
		250,000	8,025				16,842	1961	Cariboo.
							10,228	**1962**	
		10,013,800	143,012			30013	198,490	To date	
								1961	Clinton.
								1962	
873	6,236					156,1915 7 11	162,427	To date	
				40,730	610,950		610,950	1961	Fort Steele.
				36,206	**607,175**		**607,175**	**1962**	
112,878	298,824			324,811	5,833,974	16,89410	6,149,772	To date	
153,300	459,900						611,288	1961	Golden.
147,900	**443,700**						**500,762**	**1962**	
931,246	2,659,414					1,2766 12	5,054,630	To date	
								1961	Greenwood.
								1962	
						783,5784	2,323,897	To date	
								1961	Kamloops.
								1962	
1,246,918	6,323,178	424,700	2,075			203,0557 11	6,528,308	To date	
				52,681	1,093,658		11,160,051	1961	Liard.
				57,787	**862,691**		**9,742,161**	**1962**	
				191,218	3,187,942		65,001,948	To date	
								1961	Lillooet.
								1962	
						5,12912	5,129	To date	
							19,445	1961	Nanaimo.
							32,317	**1962**	
							778,100	To date	
								1961	Nelson.
							17,512	**1962**	
						55,9016	81,638	To date	
							114,437	1961	New Westminster.
							106,890	**1962**	
							894,261	To date	
								1961	Nicola.
								1962	
2,407	10,050						10,050	To date	
								1961	Omineca.
								1962	
						11,4602 9	11,460	To date	
							309,573	1961	Osoyoos.
							383,600	**1962**	
		1,588,800	25,938			295,5472 4 7	4,117,902	To date	
								1961	Similkameen.
								1962	
250	1,700					16,8583	18,558	To date	
								1961	Skeena.
								1962	
				41,624	178,678		1,229,400	To date	
				8,841	101,426		101,426	1961	Vancouver.
				5,292	**65,799**		**65,799**	**1962**	
		634,250	10,815	632,689	5,921,504	97,3896	6,448,314	To date	
								1961	Vernon.
								1962	
		160,500	3,978				3,978	To date	
							60	1961	Victoria.
						612	**60**	**1962**	
						30,2266 12	188,306	To date	
				140,125	1,401,250		1,401,250	1961	Not assigned.
				139,906	**1,399,060**		**1,399,060**	**1962**	
				3,567,632	35,526,625		35,526,625	To date	
153,300	459,900	250,000	8,025	242,377	3,207,284		12,927,432	1961	Totals.
147,900	**443,700**			**239,191**	**2,934,725**		**14,283,454**	**1962**	
2,294,572	9,299,402	12,822,050	185,818	4,757,974	50,648,723	1,703,527	134,762,916	To date	

[9] Perlite: 1953, 1,112 tons, $11,120.
[10] Phosphate rock: 1927–33, 3,842 tons.
[11] Sodium carbonate: Clinton, 1921–49, 9,524 tons, $109,895; Kamloops, 1931–35, 968 tons, $9,088.
[12] Talc: Golden, 1927, 5 tons, $356; Lillooet, 1916–36, 296 tons, $5,129; Victoria, 1919–35, 1,504 tons, $29,386.
[13] Volcanic ash: Cariboo, 30 tons.

First production: Arsenious oxide, 1917; asbestos, 1952; barite, 1940; bentonite, 1926; diatomite, 1928; fluorspar, 1918; flux, 1911; granules, 1930; gypsum and gypsite, 1911; hydromagnesite, 1904; iron oxide and ochre, 1918; magnesium sulphate, 1915; mica, 1932; natro-alunite, 1912; perlite, 1953; phosphate rock, 1927; sodium carbonate, 1921; sulphur, 1916; talc, 1916.

Table VIIe.—Production, 1961 and 1962, and Total to Date, by Mining Divisions—Structural Materials

Division	Period	Cement	Lime and Limestone	Building-stone	Rubble, Riprap, and Crushed Rock	Sand and Gravel	Brick (Common)	Face, Paving, and Sewer Brick	Fire-bricks, Blocks	Clays	Structural Tile (Hollow Blocks), Roof-tile, Floor-tile	Drain-tile and Sewer-pipe	Pottery (Glazed or Unglazed)	Other Clay Products	Unclassified Material	Division Totals
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Alberni	1961				830	84,746										85,576
	1962				**5,225**	**99,460**										**104,685**
	To date				60,867	1,188,763										1,249,630
Atlin	1961					16,050										16,050
	1962				**1,000**	**3,537**										**4,537**
	To date		1,108		98,478	196,670										296,256
Cariboo	1961				1,056	730,814								2,000		733,870
	1962				**387**	**562,427**										**562,814**
	To date		7,500		960,286	5,068,319	1,193	184	4,651	15,807				11,242		6,069,182
Clinton	1961															
	1962															
	To date				1,606	109,322										110,928
Fort Steele	1961				140,499	108,747										249,246
	1962		**38,523**		**62,325**	**102,853**										**203,701**
	To date		43,873	71,941	1,236,274	3,744,309	7,800							8,118		5,112,315
Golden	1961				8,149	94,683								12,154		114,986
	1962				**15,000**	**74,178**										**89,178**
	To date		1,000	24,000	125,339	1,517,396								13,654		1,681,389
Greenwood	1961					33,876										33,876
	1962				**2,000**	**23,887**										**25,887**
	To date		102,442	30,500	170,319	440,663	114,361			6,922						865,207
Kamloops	1961				250,291	387,360										637,651
	1962				**304,717**	**397,796**										**702,513**
	To date		12,000	18,000	4,879,335	4,290,688	72,379									9,272,402
Liard	1961				2,405	214,590										216,995
	1962				**1,000**	**331,182**										**332,182**
	To date				33,665	2,053,929										2,087,594
Lillooet	1961				9,276	122,979										132,255
	1962				**86,304**	**79,536**										**165,840**
	To date		100	2,000	397,742	1,221,155										1,620,997
Nanaimo	1961		1,601,464	10,450	97,580	197,965										1,907,459
	1962		**1,342,439**		**249,253**	**280,300**										**1,871,992**
	To date		27,856,343	3,199,257	421,403	2,666,452	1,104,295	38,939		35,758						35,322,447
Nelson	1961				60,728	122,947										183,675
	1962			**2,940**	**144,435**	**55,898**										**203,273**
	To date		34,543	359,619	490,675	2,229,461	19,110	2,864								3,136,272
New Westminster	1961		209,175		351,375	2,590,022	1,320	316,331	536,902	28,396	45,753	619,396	5,091	383,149		5,086,910
	1962		**62,945**	**5,000**	**229,802**	**2,264,192**	**54,849**	**303,082**	**616,307**	**30,027**	**36,665**	**856,908**	**21,947**	**264,174**		**4,745,898**
	To date		1,422,335	14,310	8,835,891	28,232,630	1,667,448	5,119,489	12,079,403	880,479	2,847,395	11,691,811	351,337	1,186,115		74,328,643
Nicola	1961				7,350	29,681										37,031
	1962				**7,625**	**5,000**										**12,625**
	To date			8,000	123,341	376,424										507,765
Omineca	1961				33,226	313,384										346,610
	1962				**50,715**	**364,149**										**414,864**
	To date		3,077		644,430	3,318,875	5,274									3,971,656

		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Osoyoos	1961					51,450										51,450
	1962				**3,400**	**92,179**										**95,579**
	To date		32,070	14,850	148,957	924,358										1,120,235
Revelstoke	1961				3,241	32,670										35,911
	1962				**42**	**25,930**										**25,972**
	To date		1,000	5,575	325,562	983,984										1,316,121
Similkameen	1961				175	73,000										73,175
	1962				**18,625**	**112,925**										**131,550**
	To date	10,500	11,571	24,000	529,844	1,885,107				1,363				11,992		2,474,377
Skeena	1961		39,954		38,484	105,124										183,562
	1962		**53,550**		**92,846**	**109,988**										**256,384**
	To date		1,487,185	144,000	1,322,950	4,383,165				4,925				8,324		7,350,549
Slocan	1961				6,814	55,161										61,975
	1962				**1,722**	**105,206**										**106,928**
	To date		1,000	115,143	102,800	815,517										1,034,460
Trail Creek	1961			8,500	500	107,386										116,386
	1962			**2,900**	**4,143**	**85,045**										**92,088**
	To date		28,000	78,634	216,685	1,606,652										1,929,971
Vancouver	1961	3,142,150		51,350		1,316,928	10,014	10,015	22,959							4,553,416
	1962	**3,220,693**		**74,405**	**288**	**1,244,362**										**4,539,748**
	To date	13,828,080	40,885	4,010,781	7,648,644	25,472,674	142,208	241,216	580,778	12,724			23,362	88,304		52,089,656
Vernon	1961				2,747	45,384										48,131
	1962				**2,912**	**63,252**										**66,164**
	To date		46,499	81,052	197,081	2,232,680	131,467	6,202	1,011	5	18,224	4,325		20		2,718,566
Victoria	1961	3,979,896	13,722		1,360	604,763	3,475		25,108			67,602	6,799	270,000		4,972,725
	1962	**3,892,197**	**16,122**	**45**	**535**	**823,241**		**6,500**	**24,000**			**42,000**	**2,000**	**218,979**		**5,025,619**
	To date	99,958,028	808,187	45	456,413	13,566,930	1,814,647	29,552	119,930	1,050	705,821	1,072,346	136,504	637,234		119,306,687
Not assigned	1961															
	1962				**1,556,244**									**30,000**		**1,586,244**
	To date		315,498	505,018	282,455	1,556,244								3,180,8281	7,010,4522	12,850,495
Totals	1961	7,122,046	1,864,315	70,300	1,016,086	7,439,710	14,809	326,346	584,969	28,396	45,753	686,998	11,890	667,303		19,878,921
	1962	**7,112,890**	**1,513,579**	**85,290**	**1,284,301**	**8,862,767**	**54,849**	**309,582**	**640,307**	**30,027**	**36,665**	**898,908**	**23,947**	**513,153**		**21,366,265**
	To date	113,796,608	32,256,216	8,706,725	29,711,042	110,082,367	5,080,182	5,438,446	12,785,773	959,033	3,571,440	12,768,482	511,203	5,145,831	7,010,452	347,823,800

[1] Includes $3,150,828 of unclassified clay products, 1886–1910.
[2] Includes a value of $7,010,452 that cannot be allotted to a particular class of structural material.

TABLE VIIIa.—QUANTITY[1] AND VALUE OF COAL PER YEAR TO DATE

Year	Tons (2,000 Lb.)	Value	Year	Tons (2,000 Lb.)	Value
1836–59	41,871	$149,548	1912	3,211,907	$10,786,812
1860	15,956	56,988	1913	2,713,535	9,197,460
1861	15,427	55,096	1914	2,237,042	7,745,847
1862	20,292	72,472	1915	2,076,601	7,114,178
1863	23,906	85,380	1916	2,583,469	8,900,675
1864	32,068	115,528	1917	2,436,101	8,484,343
1865	36,757	131,276	1918	2,575,275	12,833,994
1866	28,129	100,460	1919	2,433,540	11,975,671
1867	34,988	124,956	1920	2,852,535	13,450,169
1868	49,286	176,020	1921	2,670,314	12,836,013
1869	40,098	143,208	1922	2,726,793	12,880,060
1870	33,424	119,372	1923	2,636,740	12,678,548
1871	55,458[2]	164,612	1924	2,027,843	9,911,935
1872	55,458[2]	164,612	1925	2,541,212	12,168,905
1873	55,459[2]	164,612	1926	2,406,094	11,650,180
1874	91,334	244,641	1927	2,553,416	12,269,135
1875	123,362	330,435	1928	2,680,608	12,633,510
1876	155,895	417,576	1929	2,375,060	11,256,260
1877	172,540	462,156	1930	1,994,493	9,435,650
1878	191,348	522,538	1931	1,765,471	7,684,155
1879	270,257	723,903	1932	1,614,629	6,523,644
1880	299,708	802,785	1933	1,377,177	5,375,171
1881	255,760	685,171	1934	1,430,042	5,725,133
1882	315,997	846,417	1935	1,278,380	5,048,864
1883	238,895	639,897	1936	1,352,301	5,722,502
1884	441,358	1,182,210	1937	1,446,243	6,139,920
1885	409,468	1,096,788	1938	1,388,507	5,565,069
1886	365,832	979,908	1939	1,561,084	6,280,956
1887	462,964	1,240,080	1940	1,662,027	7,088,265
1888	548,017	1,467,903	1941	1,844,745	7,660,000
1889	649,411	1,739,490	1942	1,996,000	8,237,172
1890	759,518	2,034,420	1943	1,854,749	7,742,030
1891	1,152,590	3,087,291	1944	1,931,950	8,217,966
1892	925,495	2,479,005	1945	1,523,021	6,454,360
1893	1,095,690	2,934,882	1946	1,439,092	6,732,470
1894	1,134,509	3,038,859	1947	1,696,350	8,680,440
1895	1,052,412	2,824,687	1948	1,604,480	9,765,395
1896	1,002,268	2,693,961	1949	1,621,268	10,549,924
1897	999,372	2,734,522	1950	1,574,006	10,119,303
1898	1,263,272	3,582,595	1951	1,573,572	10,169,617
1899	1,435,314	4,126,803	1952	1,402,313	9,729,739
1900	1,781,000	4,744,530	1953	1,384,138	9,528,279
1901	1,894,544	5,016,398	1954	1,308,284	9,154,544
1902	1,838,621	4,832,257	1955	1,332,874	8,986,501
1903	1,624,742	4,332,297	1956	1,417,209	9,346,518
1904	1,887,981	4,953,024	1957	1,085,657	7,340,339
1905	2,044,931	5,511,861	1958	796,413	5,937,860
1906	2,126,965	5,548,044	1959	690,011	5,472,064
1907	2,485,961	7,637,713	1960	788,658	5,242,223
1908	2,362,514	7,356,866	1961	919,142	6,802,134
1909	2,688,672	8,574,884	1962	825,339	6,133,986
1910	3,314,749	11,108,335			
1911	2,541,698	8,071,747	Totals	136,161,251	$569,796,907

[1] Quantity from 1836 to 1909 is gross mine output and includes material lost in picking and washing. For 1910 and subsequent years the quantity is that sold and used.

[2] A combined total for 1871, 1872, and 1873 has previously been noted in Annual Reports and the above breakdown is estimated.

TABLE VIIIB.—QUANTITY[1] AND VALUE OF COAL SOLD AND USED[2]

Mining Division and Period	Total Sales	Used under Company Boilers	Used in Making Coke	Total Sold and Used	
	Tons	Tons	Tons	Tons	$
Cariboo—					
Total to 1950	257	33		290	1,100
Total to date	257	33		290	1,100
Fort Steele—					
Total to 1950	31,287,472	2,006,789	9,704,778	42,999,039	166,468,348
1951–60	7,014,784	145,624	2,195,744	9,356,152	58,606,978
1961	619,828	14,698	200,190	834,716	5,979,805
1962	532,289	10,788	191,454	734,531	5,255,540
Total to date	39,454,373	2,177,899	12,292,166	53,924,438	236,310,671
Kamloops—					
Total to 1950	14,348	739		15,087	59,765
Total to date	14,348	739		15,087	59,765
Liard—					
Total to 1950	58,417	266		58,683	325,395
1951–60	36,083	20		36,103	333,461
1961	2,062			2,062	17,000
1962	1,389			1,389	12,501
Total to date	97,951	286		98,237	688,357
Nanaimo—					
Total to 1950	67,181,037	4,280,602	558,985	72,020,624	278,647,173
1951–60	1,951,075	11,071		1,962,146	19,134,499
1961	76,009			76,009	736,814
1962	83,534			83,534	801,294
Total to date	69,291,655	4,291,673	558,985	74,142,313	299,319,780
Nicola—					
Total to 1950	2,731,340	188,884		2,920,224	10,985,359
1951–60	9,016			9,016	91,725
1961	159			159	1,717
1962	125			125	1,375
Total to date	2,740,640	188,884		2,929,524	11,080,176
Omineca—					
Total to 1950	214,126	4,095		218,221	1,034,134
1951–60	202,931			202,931	1,616,775
1961	5,850			5,850	64,024
1962	5,760			5,760	63,276
Total to date	428,667	4,095		432,762	2,778,209
Osoyoos—					
Total to 1950	1,122			1,122	5,008
Total to date	1,122			1,122	5,008
Similkameen—					
Total to 1950	4,055,080	349,235		4,404,315	18,426,725
1951–60	212,781			212,781	1,124,226
1961	346			346	2,774
1962					
Total to date	4,268,207	349,235		4,617,442	19,553,725
Skeena—					
Total to 1950	36			36	116
Total to date	36			36	116
Provincial totals—					
Total to 1950	105,543,235	6,830,643	10,263,763	122,637,641	475,953,123
1951–60	9,426,670	156,715	2,195,744	11,779,129	80,907,664
1961	704,254	14,698	200,190	919,142	6,802,134
1962	623,097	10,788	191,454	825,339	6,133,986
Total to date	116,297,256	7,012,844	12,851,151	136,161,251	569,796,907

[1] For differences between gross mine output and coal sold refer to table "Production and Distribution by Collieries and by Districts" in section headed "Coal" or "Coal-mining" in this and preceding Annual Reports.

[2] The totals "sold and used" include:—
Sales to retail and wholesale dealers, industrial users, and company employees.
Coal used in company boilers, including steam locomotives.
Coal used in making coke.

TABLE IX.—COKE AND BY-PRODUCTS PRODUCTION FOR YEARS 1895 TO 1925 AND BY YEARS 1926 TO 1962

Year	Coal Used in Making Coke		Coke Made in Bee-hive Ovens		Coke Made in By-product Ovens		Coke Made in Gas Plants		Total Coke Made		Gas Sold and Used	Tar Produced	Other By-products[1]	Total Production Value of Coke Industry
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value				
	Tons	$	Tons	$	Tons	$	Tons	$	Tons	$	$	$	$	$
1895–1925	7,955,795	25,673,600	4,920,457	25,673,600	———	———	———	———	4,920,457	25,673,600	———	———	———	25,673,600
1926	299,839	1,338,565	105,227	795,841	42,209	244,469	42,468	221,600	189,904	1,261,910	1,009,613	50,035	45,772	2,367,330
1927	269,482	1,290,760	95,281	595,504	35,900	327,215	39,464	178,682	170,645	1,101,401	1,222,379	44,402	18,080	2,386,262
1928	210,207	940,668	68,734	429,590	32,322	263,781	41,711	187,882	142,767	881,253	1,313,407	45,313	14,036	2,254,009
1929	226,363	950,243	75,426	574,279	33,339	308,867	46,573	214,732	155,338	1,097,878	1,461,445	61,084	39,203	2,659,610
1930	225,325	1,002,684	73,708	558,801	31,904	298,004	45,751	232,917	151,363	1,089,722	1,547,092	65,770	11,935	2,714,519
1931	211,334	924,279	73,248	548,550	27,717	236,537	41,836	210,470	142,801	995,557	1,541,454	66,506	32,603	2,636,120
1932	151,750	710,432	33,090	247,615	25,436	217,221	44,645	237,174	103,171	702,010	1,589,656	54,771	14,109	2,360,546
1933	107,400	554,152	6,097	44,813	24,263	213,750	34,156	214,454	64,516	473,017	1,473,433	45,610	3,666	1,995,726
1934	141,384	571,167	24,840	154,105	23,512	213,653	51,184	198,217	99,536	565,975	1,439,287	43,939	4,756	2,053,957
1935	127,776	494,492	27,066	160,565	14,911	109,684	46,111	160,694	88,088	430,943	1,430,057	44,876	3,081	1,908,957
1936	125,810	436,595	34,009	191,843	———	———	48,859	138,787	82,868	330,630	1,422,783	38,872	———	1,792,285
1937	166,124	570,250	48,393	277,726	———	———	59,141	330,821	107,534	608,547	1,746,047	46,698	———	2,401,292
1938	176,877	623,649	54,602	315,294	———	———	58,643	345,790	113,245	661,084	1,770,839	44,324	———	2,476,247
1939	171,242	569,945	50,153	286,491	7,196	37,015	55,395	325,435	112,744	648,941	1,768,977	44,108	———	2,462,026
1940	184,160	577,706	37,845	220,211	29,124	151,931	60,726	303,421	127,695	675,563	1,810,083	54,379	3,060	2,543,085
1941	235,809	717,584	64,707	392,473	86,656	467,440	8,378	43,758	159,741	903,671	1,925,270	63,569	1,716	2,894,226
1942	255,862	866,795	66,824	439,464	96,428	608,521	6,528	54,307	169,780	1,102,292	2,165,888	86,113	22,028	3,376,321
1943	260,334	983,910	42,766	291,843	43,895	274,402	93,714	647,482	180,375	1,213,727	2,453,592	96,249	18,321	3,781,889
1944	212,883	1,439,891	36,966	301,201	47,401	347,245	88,430	565,393	172,797	1,213,839	2,562,610	56,476	19,046	3,851,971
1945	230,868	1,211,584	13,464	117,369	59,098	434,876	91,682	577,479	164,244	1,129,724	2,721,690	83,828	20,756	3,955,998
1946	251,954	1,441,415	20,542	178,556	53,525	423,025	101,094	648,297	175,161	1,249,878	3,079,009	88,947	53,097	4,470,931
1947	284,049	1,682,602	44,517	427,330	59,638	531,114	91,755	579,635	195,910	1,538,079	3,390,713	124,885	25,780	5,079,457
1948	235,297	1,440,415	47,461	559,735	57,112	630,390	57,678	455,096	162,251	1,645,221	4,520,886	153,130	19,489	6,338,726
1949	323,899	1,979,138	66,407	690,045	89,268	1,018,288	67,449	496,933	223,124	2,205,266	4,148,124	194,728	27,406	6,575,524
1950	333,955	2,027,470	23,703	269,728	127,477	997,200	92,704	686,871	243,884	1,953,799	4,298,161	277,138	27,044	6,556,142
1951	332,416	1,949,117	32,598	387,796	138,051	1,552,764	72,215	571,161	242,864	2,511,721	4,263,754	277,786	22,132	7,075,393
1952	323,922	1,972,918	35,110	440,756	142,156	1,729,924	64,906	525,384	242,172	2,696,064	4,625,747	252,070	25,639	7,599,520
1953	310,431	2,005,551	———	———	177,790	2,090,147	60,407	525,411	238,197	2,615,558	4,857,116	238,771	21,046	7,732,491
1954	302,052	2,052,641	———	———	168,982	2,032,902	67,108	566,660	236,090	2,599,562	5,113,334	226,824	20,586	7,960,306
1955	314,994	2,122,303	———	———	177,031	2,180,516	70,387	594,482	247,418	2,774,998	5,407,842	292,984	18,369	8,494,193
1956	328,805	2,277,402	———	———	180,263	2,270,167	78,185	738,292	258,448	3,008,459	5,145,851	287,437	20,961	8,462,708
1957	199,654	1,284,833	———	———	153,493	2,005,570	———	———	153,493	2,005,570	14,600	121,849	———	2,142,019
1958	224,158	1,420,328	———	———	173,920	2,253,102	———	———	173,920	2,253,102	14,600	97,803	———	2,365,505
1959	173,227	1,135,222	———	———	134,134	1,789,906	———	———	134,134	1,789,906	14,600	76,891	———	1,881,397
1960	186,960	1,124,760	———	———	139,040	1,948,370	———	———	139,040	1,948,370	———	108,360	———	2,056,730
1961	200,190	1,201,140	———	———	153,843	2,232,690	———	———	153,843	2,232,690	———	115,291	———	2,347,981
1962	191,454	1,196,588	———	———	152,885	2,171,128	———	———	152,885	2,171,128	———	116,499	———	2,287,627
Totals	16,464,041	70,762,794	6,223,241	35,571,124	2,939,919	32,611,814	1,829,283	11,777,717	10,991,540	79,960,655	83,269,939	4,188,315	553,717	167,972,626

[1] "Other by-products" total includes ammonium sulphate, $52,492; ammonia liquor, $103,850; light oils, $16,571; motor fuel, $7,009; naphthalene, $4,077; creosote, $34; benzol (thinning), $312; solvent naphtha, $644; cinders, $344,682; pitch, $5,131; sulphuric acid, $6,658; tar-paint, $2,330; and miscellaneous, $10,827.

TABLE X.—DIVIDENDS PAID BY MINING COMPANIES, 1897–1962

Dividends Paid during 1961 and 1962

	1961	1962
Bralorne Pioneer Mines Ltd.	$642,040	$642,540
Cassiar Asbestos Corporation Ltd.	2,376,000	2,376,000
Craigmont Mines Ltd.	----------	893,972
Consolidated Mining and Smelting Co. of Canada, Ltd.	16,380,368	18,018,452
Crow's Nest Pass Coal Co. Ltd.	489,326	582,781
Giant Mascot Mines Ltd.	----------	174,387
Highland-Bell Ltd.	160,750	161,200
Nimpkish Iron Mines Ltd.	----------	860,750
Reeves MacDonald Mines Ltd.	467,600	467,600
Sheep Creek Mines Ltd.	187,500	206,250
Others	16,655	10,365
Totals	$20,720,239	$24,394,297

Dividends Paid Yearly, 1917 to 1962, Inclusive

Year	Amount Paid	Year	Amount Paid
1917	$3,269,494	1941	$16,598,110
1918	2,704,469	1942	13,627,104
1919	2,494,283	1943	11,860,159
1920	1,870,296	1944	11,367,732
1921	736,629	1945	10,487,395
1922	3,174,756	1946	15,566,047
1923	2,983,570	1947	27,940,213
1924	2,977,276	1948	37,672,319
1925	5,853,419	1949	33,651,096
1926	8,011,137	1950	34,399,330
1927	8,816,681	1951	40,921,238
1928	9,572,536	1952	32,603,956
1929	11,263,118	1953	22,323,089
1930	10,543,500	1954	25,368,262
1931	4,650,857	1955	35,071,583
1932	2,786,958	1956	36,262,682
1933	2,471,735	1957	24,247,420
1934	4,745,905	1958	14,996,123
1935	7,386,070	1959	16,444,281
1936	10,513,705	1960	20,595,943
1937	15,085,293	1961	20,720,239
1938	12,068,875	1962	24,394,297
1939	11,865,698		
1940	14,595,530	Total	$667,560,408

TABLE X.—DIVIDENDS PAID BY MINING COMPANIES, 1897–1962—*Continued*

Lode-gold Mines[1]

Company or Mine	Locality	Class	Amount Paid
Arlington	Erie	Gold	$94,872
Athabasca	Nelson	Gold	25,000
Bayonne	Tye Siding	Gold	25,000
Bralorne Mines Ltd.[2]	Bridge River	Gold	17,759,500
Bralorne Pioneer Mines Ltd.[2]	Bridge River	Gold	2,527,425
Belmont-Surf Inlet	Princess Royal Island	Gold	1,437,500
Cariboo Gold Quartz Mining Co. Ltd.	Wells	Gold	1,679,976
Cariboo-McKinney Con. M. & M. Co.	Camp McKinney	Gold	565,588
Canadian Pacific Exploration (Porto Rico)	Nelson	Gold	37,500
Centre Star	Rossland	Gold-copper	472,255
Fairview Amalgamated	Oliver	Gold	5,254
Fern Gold Mining & Milling Co. Ltd.	Nelson	Gold	9,375
Gold Belt Mining Co. Ltd.	Sheep Creek	Gold	668,595[3]
Goodenough (leasers)	Ymir	Gold	13,731
Hedley Mascot Gold Mines Ltd.	Hedley	Gold	1,290,553
Island Mountain Mines Ltd.	Wells	Gold	2,491,236[3]
I.X.L.	Rossland	Gold	134,025
Jewel-Denero	Greenwood	Gold	11,751
Kelowna Exploration Co. Ltd. (Nickel Plate)	Hedley	Gold	2,040,000
Kelowna Mines Hedley Ltd.	Hedley	Gold	780,000[4]
Kootenay Belle Gold Mines Ltd.	Sheep Creek	Gold	357,856
Le Roi Mining Co.	Rossland	Gold-copper	1,475,000
Le Roi No. 2 Ltd.	Rossland	Gold-copper	1,574,640
Lorne (later Bralorne)	Bridge River	Gold	20,450
Motherlode	Sheep Creek	Gold	163,500
Mount Zeballos Gold Mines Ltd.	Zeballos	Gold	165,000
Nickel Plate (Hedley Gold Mining Co. Ltd.)	Hedley	Gold	3,423,191
Pioneer Gold Mines of B.C. Ltd.[2]	Bridge River	Gold	10,048,914
Poorman	Nelson	Gold	25,000
Premier Gold Mining Co. Ltd.	Premier	Gold	18,858,075[5]
Privateer Mine Ltd.	Zeballos	Gold	1,914,183
Queen (prior to Sheep Creek Gold Mines Ltd.)	Sheep Creek	Gold	98,674
Relief Arlington Mines Ltd. (Second Relief)	Erie	Gold	308,000[3]
Reno Gold Mines Ltd.	Sheep Creek	Gold	1,433,640[3]
Sheep Creek Gold Mines Ltd.[7]	Sheep Creek	Gold	3,796,875[6]
Silbak Premier Mines Ltd.	Premier	Gold	2,425,000[5]
Spud Valley Gold Mines Ltd.	Zeballos	Gold	168,000
Sunset No. 2	Rossland	Gold-copper	115,007
Surf Inlet Consolidated Gold Mines Ltd.	Surf Inlet	Gold	120,279
War Eagle	Rossland	Gold-copper	1,245,250
Ymir Gold	Ymir	Gold	300,000
Ymir Yankee Girl	Ymir	Gold	415,002[3]
Miscellaneous mines		Gold	108,623
Total, lode-gold mines			$80,629,295

[1] The gold-copper properties of Rossland are included in this table.

[2] Early in 1959 Bralorne Mines Ltd. and Pioneer Gold Mines of B.C. Ltd. were merged under the name of Bralorne Pioneer Mines Ltd., and dividend payments for 1959 and subsequent years are entered under the new company listing.

[3] Includes " return of capital " and " liquidating " payments.

[4] Former Kelowna Exploration Company Limited; changed in January, 1951.

[5] Up to and including 1936, dividends paid by Premier Gold Mining Company Limited were derived from operations of the company in British Columbia. Subsequent dividends paid by Premier Gold Mining Company Limited have been derived from the operations of subsidiary companies in British Columbia and elsewhere and are not included in the figure given. In 1936, Silbak Premier, a subsidiary of Premier Gold Mining Company, took over the former gold operations of that company in British Columbia. Dividends paid by Silbak Premier are given above.

[6] In several years, preceding 1953, company revenue included profits from operations of the Lucky Jim zinc-lead mine.

[7] Since March, 1956, company name is Sheep Creek Mines Ltd.

TABLE X.—DIVIDENDS PAID BY MINING COMPANIES, 1897–1962—*Continued*

Silver-Lead-Zinc Mines

Company or Mine	Locality	Class	Amount Paid
Antoine	Rambler	Silver-lead-zinc	$10,000
Base Metals Mining Corporation Ltd. (Monarch and Kicking Horse)	Field	Silver-lead-zinc	586,143[1]
Beaverdell-Wellington	Beaverdell	Silver-lead-zinc	97,200
Beaver Silver Mines Ltd.	Greenwood	Silver-lead-zinc	48,000
Bell	Beaverdell	Silver-lead-zinc	388,297
Bosun (Rosebery-Surprise)	New Denver	Silver-lead-zinc	25,000
Canadian Exploration Ltd.	Salmo	Silver-lead-zinc	11,175,400
Capella	New Denver	Silver-lead-zinc	5,500
Consolidated Mining and Smelting Co. of Canada, Ltd.	Trail	Silver-lead-zinc	532,679,822[2]
Couverapee	Field	Silver-lead-zinc	5,203
Duthie Mines Ltd.	Smithers	Silver-lead-zinc	50,000
Florence Silver	Ainsworth	Silver-lead-zinc	35,393
Giant Mascot Mines Ltd.	Spillimacheen	Silver-lead-zinc	179,263
Goodenough	Cody	Silver-lead-zinc	45,668
H.B. Mining Co.	Hall Creek	Silver-lead-zinc	8,904
Highland Lass Ltd.	Beaverdell	Silver-lead-zinc	132,464
Highland-Bell Ltd.	Beaverdell	Silver-lead-zinc	2,111,840
Horn Silver	Similkameen	Silver-lead-zinc	6,000
Idaho-Alamo	Sandon	Silver-lead-zinc	400,000
Iron Mountain (Emerald)	Salmo	Silver-lead-zinc	20,000
Jackson	Retallack	Silver-lead-zinc	20,000
Last Chance	Three Forks	Silver-lead-zinc	213,000
Lone Bachelor	Sandon	Silver-lead-zinc	50,000
Lucky Jim	Three Forks	Silver-lead-zinc	80,000
Mercury	Sandon	Silver-lead-zinc	6,000
Meteor	Slocan City	Silver-lead-zinc	10,257
Monitor and Ajax	Three Forks	Silver-lead-zinc	70,500
Mountain Con	Cody	Silver-lead-zinc	71,387
McAllister	Three Forks	Silver-lead-zinc	45,088
Noble Five	Cody	Silver-lead-zinc	72,859
North Star	Kimberley	Silver-lead-zinc	497,901
No. One	Sandon	Silver-lead-zinc	6,754
Ottawa	Slocan City	Silver-lead-zinc	110,429
Payne	Sandon	Silver-lead-zinc	1,438,000
Providence	Greenwood	Silver-lead-zinc	142,238[3]
Queen Bess	Alamo	Silver-lead-zinc	25,000
Rambler-Cariboo	Rambler	Silver-lead-zinc	467,250
Reeves MacDonald Mines Ltd.	Remac	Silver-lead-zinc	4,033,050
Reco	Cody	Silver-lead-zinc	334,992
Ruth Mines Ltd.	Sandon	Silver-lead-zinc	125,490
St. Eugene	Moyie	Silver-lead-zinc	566,000
Sheep Creek Mines Ltd.	Invermere	Silver-lead-zinc	637,500
Silversmith and Slocan Star[4]	Sandon	Silver-lead-zinc	1,267,600
Silver Standard Mines Ltd.	Hazelton	Silver-lead-zinc	1,715,333
Spokane-Trinket	Ainsworth	Silver-lead-zinc	10,365
Standard Silver Lead	Silverton	Silver-lead-zinc	2,734,688
Sunset and Trade Dollar	Retallack	Silver-lead-zinc	88,000
Sunshine Lardeau Mines Ltd.	Beaton	Silver-lead-zinc	164,000
Torbrit Silver Mines Ltd.	Alice Arm	Silver-lead-zinc	390,000
Utica	Kaslo	Silver-lead-zinc	64,000
Violamac Mines (B.C.) Ltd.	New Denver	Silver-lead-zinc	850,000
Wallace Mines Ltd. (Sally)	Beaverdell	Silver-lead-zinc	135,000
Washington	Rambler Station	Silver-lead-zinc	20,000
Western Exploration Co. Ltd.	Silverton	Silver-lead-zinc	30,867
Whitewater	Retallack	Silver-lead-zinc	592,515
Yale Lead and Zinc Mines Ltd.	Ainsworth	Silver-lead-zinc	278,620
Miscellaneous mines			70,239
Total, silver-lead-zinc mines			$565,445,019

[1] Includes $466,143 " return of capital " distribution prior to 1949.
[2] Earnings of several company mines, and custom smelter at Trail.
[3] Includes $10,504 paid in 1944 but not included in the yearly figure.
[4] These two properties were amalgamated as Silversmith Mines Limited in August, 1939.

TABLE X.—DIVIDENDS PAID BY MINING COMPANIES, 1897–1962—*Continued*

Copper Mines

Company or Mine	Locality	Class	Amount Paid
Britannia M. & S. Co.[1]	Britannia Beach	Copper	$18,803,772
Canada Copper Corporation	Greenwood	Copper	615,399
Cornell	Texada Island	Copper	8,500
Craigmont Mines Ltd.	Merritt	Copper	893,972
Granby Cons. M.S. & P. Co.[2]	Copper Mountain	Copper	29,873,226
Marble Bay	Texada Island	Copper	175,000
Hall Mines	Nelson	Copper	233,280
Miscellaneous mines		Copper	261,470
Total, copper mines			$50,864,619

[1] The Britannia Mining and Smelting Co. Limited, a wholly owned subsidiary of the Howe Sound Company (Maine), paid the dividends shown to its parent company. On June 30, 1958, consolidation between the Howe Sound Company (Maine) and Haile Mines Inc. became effective, bringing into existence Howe Sound Company (Delaware). The Britannia mine became a division of the new Howe Sound Company, and in August Britannia Mining and Smelting Co. was liquidated voluntarily.

[2] The Granby Consolidated Mining Smelting and Power Company dividends commenced in 1904 and cover all company activities in British Columbia to date. The figure includes all dividends, capital distributions, and interim liquidating payments, the latter being $4,500,000, paid, in 1936, prior to reorganization.

Coal Mines

Company or Mine	Locality	Class	Amount Paid
Wellington Collieries Ltd.	Nanaimo	Coal	$16,000,000
Bulkley Valley Collieries Ltd.	Telkwa	Coal	24,000
Crow's Nest Pass Coal Co. Ltd.	Fernie	Coal	18,536,721
Canadian Collieries Resources Ltd.	Nanaimo	Coal	828,271
Unsworth & Dunn	Nanaimo	Coal	7,065
Total, coal mines			$35,396,057

Aggregate of All Classes

Lode-gold mining	$80,629,295
Silver-lead-zinc mining and smelting	565,445,019
Copper-mining	50,864,619
Coal-mining	35,396,057
Miscellaneous, structural, and placer gold	17,851,625
Total	$750,186,615

NOTE.—The term "miscellaneous" noted in each class of dividend covers all payments of $5,000 and under, together with payments made by companies or individuals requesting that the item be not disclosed.

In compiling the foregoing table of dividends paid, the Department wishes to acknowledge the kind assistance given by companies, individuals, and trade journals in giving information on the subject.

TABLE XI.—PRINCIPAL ITEMS OF EXPENDITURE, REPORTED FOR OPERATIONS OF ALL CLASSES

Class	Salaries and Wages	Fuel and Electricity[1]	Process Supplies[1]
Lode-mining[2]	$42,912,392	$5,813,426	$8,755,480
Placer-mining	159,975	32,697	8,519
Fuel—coal, coke and gas plant	3,123,207	307,987	480,078
„ petroleum and natural gas	1,829,108	190,235	3,222,413
Industrial minerals	2,864,545	992,347	487,489
Structural-materials industry	4,632,944	2,168,867	1,070,820
Totals, 1962	**$55,522,171**	**$9,505,559**	**$14,024,799**
Totals, 1961	50,887,275	8,907,034	17,787,127
1960	52,694,818	7,834,728	21,496,912
1959	49,961,996	7,677,321	17,371,638
1958	48,933,560	8,080,989	15,053,036
1957	56,409,056	8,937,567	24,257,177
1956	57,266,026	9,762,777	22,036,839
1955	51,890,246	9,144,034	21,131,572
1954	48,702,746	7,128,669	19,654,724
1953	55,543,490	8,668,099	20,979,411
1952	62,256,631	8,557,845	27,024,500
1951	52,607,171	7,283,051	24,724,101
1950	42,738,035	6,775,998	17,500,663
1949	41,023,786	7,206,637	17,884,408
1948	38,813,506	6,139,470	11,532,121
1947	32,160,338	5,319,470	13,068,948
1946	26,190,200	5,427,458	8,367,705
1945	22,620,975	7,239,726	5,756,628
1944	23,131,874	5,788,671	6,138,084
1943	26,051,467	7,432,585	6,572,317
1942	26,913,160	7,066,109	6,863,398
1941	26,050,491	3,776,747	7,260,441
1940	23,391,330	3,474,721	6,962,162
1939	22,357,035	3,266,000	6,714,347
1938	22,765,711	3,396,106	6,544,500
1937	21,349,690	3,066,311	6,845,330
1936	17,887,619	2,724,144	4,434,501
1935	16,753,367	2,619,639	4,552,730
Grand totals, 1935–62	$1,072,873,770	$182,207,163	$382,540,119

[1] In some cases this detail is not available and is included in a total that contains expenditures on fixed assets plus cost of goods, materials, and supplies not chargeable to fixed assets.

[2] Prior to 1962 this included data related to the principal lode metals as detailed in Table I. The lode metals classed as miscellaneous metals in Table I were previously included under the heading "Miscellaneous Metals and Industrial Minerals."

NOTE.—"Process Supplies" include explosives, chemicals, drill-steel, lubricants, etc.

TABLE XII.—AVERAGE NUMBER EMPLOYED IN THE MINING INDUSTRY,[1] 1901–62

Year	Placer-mining	Lode-mining			In Concentrators	In Smelters	Coal-mining			Structural Materials		Industrial	Total[2]
		Under	Above	Total			Under	Above	Total	Quarries and Pits	Plants		
1901	.....	2,736	1,212	3,948	.....	.....	3,041	931	3,974	.....	.....	.....	7,922
1902	.....	2,219	1,126	3,345	.....	.....	3,101	910	4,011	.....	.....	.....	7,356
1903	.....	1,662	1,088	2,750	.....	.....	3,137	1,127	4,264	.....	.....	.....	7,014
1904	.....	2,143	1,163	3,306	.....	.....	3,278	1,175	4,453	.....	.....	.....	7,759
1905	.....	2,470	1,240	3,710	.....	.....	3,127	1,280	4,407	.....	.....	.....	8,117
1906	.....	2,680	1,303	3,983	.....	.....	3,415	1,390	4,805	.....	.....	.....	8,788
1907	.....	2,704	1,239	3,943	.....	.....	2,862	907	3,769	.....	.....	.....	7,712
1908	.....	2,567	1,127	3,694	.....	.....	4,432	1,641	6,073	.....	.....	.....	9,767
1909	.....	2,184	1,070	3,254	.....	.....	4,713	1,705	6,418	.....	.....	.....	9,672
1910	.....	2,472	1,237	3,709	.....	.....	5,903	1,855	7,758	.....	.....	.....	11,467
1911	.....	2,435	1,159	3,594	.....	.....	5,212	1,661	6,873	.....	.....	.....	10,467
1912	.....	2,472	1,364	3,837	.....	.....	5,275	1,855	7,130	.....	.....	.....	10,967
1913	.....	2,773	1,505	4,278	.....	.....	4,950	1,721	6,671	.....	.....	.....	10,949
1914	.....	2,741	1,433	4,174	.....	.....	4,267	1,465	5,732	.....	.....	.....	9,906
1915	.....	2,709	1,435	4,144	.....	.....	3,708	1,283	4,991	.....	.....	.....	9,135
1916	.....	3,357	2,036	5,393	.....	.....	3,694	1,366	5,060	.....	.....	.....	10,453
1917	.....	3,290	2,198	5,488	.....	.....	3,760	1,410	5,170	.....	.....	.....	10,658
1918	.....	2,626	1,764	4,390	.....	.....	3,658	1,769	5,247	.....	.....	.....	9,637
1919	.....	2,513	1,746	4,259	.....	.....	4,145	1,821	5,966	.....	.....	.....	10,225
1920	.....	2,074	1,605	3,679	.....	.....	4,191	2,158	6,349	.....	.....	.....	10,028
1921	.....	1,355	975	2,330	.....	.....	4,722	2,163	6,885	.....	.....	.....	9,215
1922	.....	1,510	1,239	2,749	.....	.....	4,712	1,932	6,644	.....	.....	.....	9,393
1923	.....	2,102	1,516	3,618	.....	.....	4,342	1,807	6,149	.....	.....	.....	9,767
1924	.....	2,353	1,680	4,033	.....	.....	3,894	1,524	5,418	.....	.....	.....	9,451
1925	.....	2,298	2,840	5,138	.....	.....	3,828	1,615	5,443	.....	.....	.....	10,581
1926	299	2,606	1,735	4,341	808	2,461	3,757	1,565	5,322	493	324	124	14,172
1927	415	2,671	1,916	4,587	854	2,842	3,646	1,579	5,225	647	138	122	14,830
1928	355	2,707	2,469	5,176	911	2,748	3,814	1,520	5,334	412	368	120	15,424
1929	341	2,926	2,052	4,978	966	2,948	3,675	1,353	5,028	492	544	268	15,565
1930	425	2,316	1,260	3,576	832	3,197	3,389	1,256	4,645	843	344	170	14,032
1931	688	1,463	834	2,297	581	3,157	2,957	1,125	4,082	460	526	380	12,171
1932	874	1,355	900	2,255	542	2,036	2,628	980	3,608	536	329	344	10,524
1933	1,134	1,786	1,335	3,121	531	2,436	2,241	853	3,094	376	269	408	11,369
1934	1,122	2,796	1,729	4,525	631	2,890	2,050	843	2,893	377	187	360	12,985
1935	1,291	2,740	1,497	4,237	907	2,771	2,145	826	2,971	536	270	754	13,737
1936	1,124	2,959	1,840	4,799	720	2,678	2,015	799	2,814	931	288	825	14,179
1937	1,371	3,603	1,818	5,421	1,168	3,027	2,286	867	3,153	724	327	938	16,129
1938	1,303	3,849	2,266	6,115	919	3,158	2,088	874	2,962	900	295	369	16,021
1939	1,252	3,905	2,050	5,955	996	3,187	2,167	809	2,976	652	311	561	15,890
1940	1,004	3,923	2,104	6,027	1,048	2,944	2,175	699	2,874	827	334	647	15,705
1941	939	3,901	1,823	5,724	1,025	3,072	2,229	494	2,723	766	413	422	15,084
1942	489	2,920	1,504	4,424	960	3,555	1,892	468	2,360	842	378	262	13,270
1943	212	2,394	1,699	4,093	891	2,835	2,240	611	2,851	673	326	567	12,448
1944	255	1,896	1,825	3,721	849	2,981	2,150	689	2,839	690	351	628	12,314
1945	209	1,933	1,750	3,683	822	2,834	1,927	503	2,430	921	335	586	11,820
1946	347	1,918	1,817	3,735	672	2,813	1,773	532	2,305	827	555	679	11,933
1947	360	3,024	2,238	5,262	960	3,461	1,694	731	2,425	977	585	869	14,899
1948	348	3,143	2,429	5,572	1,126	3,884	1,594	872	2,466	1,591	656	754	16,397
1949	303	3,034	2,724	5,758	1,203	3,763	1,761	545	2,306	2,120	542	626	16,621
1950	327	3,399	2,415	5,814	1,259	3,759	1,745	516	2,261	1,916	616	660	16,612
1951	205	3,785	3,695	7,480	1,307	4,044	1,462	463	1,925	1,783	628	491	17,863
1952	230	4,171	3,923	8,094	1,516	4,120	1,280	401	1,681	1,530	557	529	18,257
1953	132	3,145	2,589	5,734	1,371	3,901	1,154	396	1,550	1,909	559	634	15,790
1954	199	2,644	2,520	5,164	1,129	3,119	1,076	358	1,434	1,861	638	584	14,128
1955	103	2,564	2,553	5,117	1,091	3,304	1,100	378	1,478	1,646	641	722	14,102
1956	105	2,637	2,827	5,464	1,043	3,339	968	398	1,366	1,598	770	854	14,539
1957	67	2,393	2,447	4,840	838	3,328	1,020	360	1,380	1,705	625	474	13,257
1958	75	1,919	1,809	3,728	625	3,081	826	260	1,086	1,483	677	446	11,201
1959	99	1,937	**1,761**	**3,698**	618	3,008	765	291	1,056	1,357	484	459	10,779
1960	86	1,782	1,959	3,741	648	3,034	894	288	1,182	1,704	557	589	11,541
1961	74	1,785	1,582	3,367	626	3,118	705	237	942	1,828	508	571	11,034
1962	**35**	**1,684**	**2,238**	**3,922**	**950**	**3,356**	**548**	**228**	**776**	**1,523**	**481**	**517**	**11,560**

[1] Mining industry includes all branches of the mineral industry except petroleum and natural gas.

[2] The average number employed in the industry is the sum of the averages for individual companies. The average for each company is obtained by taking the sum of the numbers employed each month and dividing by 12, regardless of the number of months worked.

TABLE XIII.—LODE-METAL MINES—TONNAGE, NUMBER OF MINES, NET AND GROSS VALUE,[4] 1901–62

Year	Tonnage[1]	Number of Shipping Mines	Number of Mines Shipping over 100 Tons	Gross Value as Reported by Shipper[2]	Freight and Treatment[2]	Net Value to Shipper[3]	Gross Value of Lode Metals Produced[4]
1901	926,162	119	78	.....	.....	.....	$13,287,947
1902	1,009,016	124	75	.....	.....	.....	11,136,162
1903	1,288,466	125	74	.....	.....	.....	11,579,382
1904	1,461,609	142	76	.....	.....	.....	12,309,035
1905	1,706,679	146	79	.....	.....	.....	15,180,164
1906	1,963,872	154	77	.....	.....	.....	17,484,102
1907	1,805,614	147	72	.....	.....	.....	16,222,097
1908	2,083,606	108	59	.....	.....	.....	14,477,411
1909	2,057,713	89	52	.....	.....	.....	14,191,141
1910	2,216,428	83	50	.....	.....	.....	13,228,731
1911	1,770,755	80	45	.....	.....	.....	11,454,063
1912	2,688,532	86	51	.....	.....	.....	17,662,766
1913	2,663,809	110	58	.....	.....	.....	17,190,838
1914	2,175,971	98	56	.....	.....	.....	15,225,061
1915	2,720,669	132	59	.....	.....	.....	19,992,149
1916	3,229,942	169	81	.....	.....	.....	31,483,014
1917	2,797,368	193	87	.....	.....	.....	26,788,474
1918	2,912,516	175	80	.....	.....	.....	27,595,278
1919	2,146,920	144	74	.....	.....	.....	19,756,648
1920	2,215,445	121	60	.....	.....	.....	19,451,725
1921	1,586,428	80	35	.....	.....	.....	12,925,448
1922	1,592,163	98	33	.....	.....	.....	19,228,257
1923	2,447,672	77	28	.....	.....	.....	25,348,399
1924	3,413,912	86	37	.....	.....	.....	35,538,247
1925	3,849,269	102	40	.....	.....	.....	46,200,135
1926	4,775,327	138	55	.....	.....	$38,558,613	51,508,031
1927	5,416,411	132	52	.....	.....	27,750,364	44,977,082
1928	6,241,672	110	49	.....	.....	29,070,075	48,281,825
1929	6,977,903	106	48	.....	.....	34,713,887	51,720,436
1930	6,804,276	68	32	.....	.....	21,977,688	41,292,980
1931	5,549,622	44	22	.....	.....	10,513,931	22,900,229
1932	4,354,904	75	29	.....	.....	7,075,393	19,705,043
1933	4,063,775	109	47	.....	.....	13,976,358	25,057,007
1934	5,141,744	145	69	.....	.....	20,243,278	34,071,955
1935	4,927,204	177	72	.....	.....	25,407,914	40,662,633
1936	4,381,173	168	70	.....	.....	30,051,207	43,813,898
1937	6,145,244	185	113	$48,617,920	$4,663,843	43,954,077	62,950,536
1938	7,377,117	211	92	40,222,237	4,943,754	35,278,483	53,878,093
1939	7,212,171	217	99	45,133,788	4,416,919	40,716,869	53,554,092
1940	7,949,736	216	92	50,004,909	6,334,611	43,670,298	61,735,604
1941	8,007,937	200	96	52,354,870	5,673,048	46,681,822	62,607,882
1942	6,894,844	126	76	50,494,041	5,294,637	45,199,404	59,694,192
1943	5,786,864	48	32	37,234,070	3,940,367	33,293,703	52,651,868
1944	4,879,851	51	31	29,327,114	2,877,706	26,449,408	39,369,738
1945	4,377,722	36	27	34,154,917	2,771,292	31,383,625	48,724,001
1946	3,705,594	50	32	48,920,971	2,904,130	46,016,841	56,653,485
1947	5,011,271	75	33	81,033,093	4,722,010	76,311,087	93,124,847
1948	5,762,321	97	51	118,713,859	18,585,183	100,128,727	121,696,891
1949	6,125,460	118	54	99,426,678	19,613,185	79,814,604	107,775,413
1950	6,802,482	112	58	108,864,792	22,113,431	86,751,361	113,464,619
1951	6,972,400	119	64	142,590,427	25,096,743	117,493,684	147,646,989
1952	9,174,617	95	58	140,070,389	30,444,575	106,601,451	144,151,515
1953	9,660,281	80	48	94,555,069	27,815,152	66,739,892	123,619,837
1954	8,513,865	63	40	106,223,833	29,135,673	77,088,160	120,829,789
1955	9,126,902	53	34	119,039,285	30,696,044	88,343,241	138,145,095
1956	8,827,037	70	40	125,043,590	31,933,681	93,110,262	143,546,586
1957	7,282,436	59	40	95,644,930	30,273,900	65,370,185	119,409,764
1958	6,402,198	57	28	83,023,111	28,068,396	54,955,069	100,591,049
1959	6,990,985	60	44	92,287,277	27,079,911	65,208,728	100,549,519
1960	8,242,703	67	31	114,852,061	29,505,158	85,346,903	125,674,531
1961	8,392,161	59	39	112,488,918	30,304,050	82,184,868	123,913,897
1962	**11,212,106**	**64**	**45**	**137,759,188**	**34,274,698**	**103,484,490**	**153,378,622**

[1] Includes ores of iron, mercury, nickel, tungsten, and silica (flux).

[2] Data not collected before 1937.

[3] Previous to 1937 the shipper reported "Net Value at Shipping Point," no indication being given as to how the net value was computed. From 1937 on, the shipper has reported "Gross Value," from which deduction of freight and treatment gives "Net Value."

[4] Gross value calculated by valuing gold, silver, copper, lead, zinc, mercury (1938–44, 1955), and nickel (1936–37, 1958–62) at yearly average prices, and iron (1901–03, 1907, 1918–23, 1928, 1948–62) and tungsten (1939–45, 1947–58) at values given by operators.

TABLE XIV.—LODE-METAL PRODUCTION IN 1962

Property or Operator	Location of Mine	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Contents					
					Gold	Silver	Copper	Lead	Zinc	Cadmium
NORTHERN BRITISH COLUMBIA			Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Atlin Mining Division										
Nil										
Liard Mining Division										
Nil										
CENTRAL BRITISH COLUMBIA										
Cariboo Mining Division										
Cariboo Gold Quartz and Aurum	Wells	The Cariboo Gold Quartz Mining Co. Ltd., Vancouver	38,638	Bullion	18,624	3,274				
Clinton Mining Division										
Nil										
Omineca Mining Division										
?	Telkwa	Canadian American Mining Co., Seattle	27	Copper ore	12	371	3,630			
Silver Standard	Hazelton	P. Kindrat, Smithers	52	Crude ore	9	7,932		12,806	9,184	
COAST AND ISLANDS										
Alberni Mining Division										
Brynnor	Kennedy Lake	Brynnor Mines Ltd., Vancouver	716,054	Iron concentrates, 451,623 tons						
F.L.	Zeballos	Zeballos Iron Mines Ltd., Vancouver	369,289	Iron concentrates, 250,397 tons						
Musketeer	Tofino	Copper Town Mines, Vancouver	3,120	Concentrates, 75 tons	878	483	376	4,848		
Tofino	Tofino	W. E. McArthur, Greenwood	40	Crude ore	388	85		158	79	

			Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Nanaimo Mining Division										
Copper Road	Quadra Island	R. I. Bennett, Heriot Bay	44	Crude ore	.....	37	4,692	.....	.....	.....
Merry Widow and Kingfisher	Benson Lake	Empire Development Co. Ltd., Vancouver	148,055	Iron concentrates, 24,895 tons	.....	.....	.....	.....	.....	.....
Nimpkish	Beaver Cove	Nimpkish Iron Mines Ltd., Vancouver	672,008	Iron concentrates, 362,271 tons	.....	.....	.....	.....	.....	.....
Old Sport	Benson Lake	Coast Copper Co. Ltd., Port McNeill	66,449	Copper concentrates, 1,776 tons	.....	.....	1,081,320	.....	.....	.....
Prescott, Paxton, Yellow Kid	Texada Island	Texada Mines Ltd., Vancouver	1,103,693	Iron concentrates, 601,730 tons; copper concentrates, 5,850 tons	829	20,048	1,727,739	.....	.....	.....
New Westminster Mining Division										
Pride of Emory	Choate	Giant Mascot Mines Ltd., Vancouver	311,443	Nickel-copper concentrates, 19,900 tons	.....	.....	1,806,437	.....	.....	.....
Seneca	Agassiz	M. Poschner, North Surrey	287	Crude ore	17	959	7,118	.....	40,657	.....
Skeena Mining Division										
Jessie	Harriet Harbour	Jedway Iron Ore Ltd., Vancouver	166,430	Iron concentrates, 53,515 tons	.....	.....	.....	.....	.....	.....
Silbak Premier	Premier	Silbak Premier Mines Ltd., Vancouver	465	Crude ore	3,292	52,274	.....	29,304	43,438	.....
Vancouver Mining Division										
Britannia	Britannia Beach	Howe Sound Co. (Britannia Division), Britannia Beach	501,400	Copper concentrates and precipitates, 25,223 tons; zinc concentrates, 6,969 tons; tailings, 40,177 tons	11,152	57,577	12,935,468	165,855	7,697,051	30,755
Victoria Mining Division										
Sunro	River Jordan	Cowichan Copper Co. Ltd., Vancouver	144,009	Copper concentrates, 10,148 tons	1,218	14,207	5,067,323	.....	.....	.....
SOUTH CENTRAL BRITISH COLUMBIA										
Greenwood Mining Division										
Albion	Paulson	Albion Mining Co. Ltd., Castlegar	152	Siliceous ore	16	147	.....	309	309	.....
Cariboo-Amelia	Rock Creek	McKinney Gold Mines Ltd., Vancouver	1,836	Crude ore	1,365	1,407	.....	14,944	18,669	.....
Colby	Westbridge	A. L. Jones, Westbridge	48	Crude ore	3	52	.....	95	95	.....
Enterprise	Rhone	S. Ruzicka, Grand Forks	33	Crude ore	4	33	.....	66	66	.....

TABLE XIV.—LODE-METAL PRODUCTION IN 1962—*Continued*

Property or Operator	Location of Mine	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Contents					
					Gold	Silver	Copper	Lead	Zinc	Cadmium
SOUTH CENTRAL BRITISH COLUMBIA—*Continued*			Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Greenwood Mining Division—Continued										
Highland-Bell	Beaverdell	Mastodon-Highland Bell Mines Ltd., Vancouver	19,480	Lead concentrates, 1,886 tons; zinc concentrates, 299 tons; jig concentrates, 792 tons	581	833,153	———	908,747	1,105,153	8,359
King Midas	Greenwood	King Midas Mines Ltd., Vancouver	4	Crude ore	2	335	———	645	16	———
Mother Lode	Greenwood	Consolidated Woodgreen Mines Ltd., Vancouver	62,584	Copper concentrates, 2,177 tons	1,740	8,916	825,452	———	———	———
Paddy	Rhone	S. Ruzicka, Grand Forks	26	Siliceous ore	6	47	———	52	52	———
Phoenix	Greenwood	Phoenix Copper Co. Ltd., Grand Forks	554,699	Copper concentrates, 14,423 tons	13,087	65,265	7,108,949	———	———	———
Skomac	Rock Creek	Skomac Mines Ltd., Vancouver	166	Crude ore	8	819	———	10,890	4,903	———
Kamloops Mining Division										
Nil	———	———	———	———	———	———	———	———	———	———
Lillooet Mining Division										
Bralorne	Bridge River	Bralorne Pioneer Mines Ltd., Vancouver	149,998	Bullion; gold concentrates, 8 tons	99,121	20,043	———	———	———	———
Golden Contact	Anderson Lake	Cassiar Copperfields Ltd., Vancouver	927	Bullion	7	———	———	———	———	———
Pioneer	Bridge River	Bralorne Pioneer Mines Ltd., Vancouver	———	Mill residue	774	———	———	———	———	———
Nicola Mining Division										
Craigmont	Merritt	Craigmont Mines Ltd., Vancouver	1,850,252	Copper concentrates, 135,649 tons	———	———	79,820,978	———	———	———
Osoyoos Mining Division										
Nickel Plate	Hedley	Hedley Mining Syndicate, c/o L. J. Penney and J. Rail, Vernon	———	Mill clean-up; ore, 57 tons; tailings, 47 tons	288	111	———	———	———	———
Standard	Oliver	Continental Consolidated Mines Ltd., Vancouver	2,068	Siliceous ore	563	4,430	———	6,368	4,261	———
Similkameen Mining Division										
Copper Mountain	Princeton	H-G Mining Co. Ltd., Princeton	20	Crude ore	3	28	5,184	———	———	———

Vernon Mining Division										
Nil										
Fort Steele Mining Division										
Midway	Moyie	J. A. Farrell, Moyie	235	Siliceous ore	39	816		1,562	1,116	
Sullivan	Kimberley	The Consolidated Mining & Smelting Co. of Canada, Ltd., Trail	2,583,068	Lead concentrates, 173,946 tons; zinc concentrates, 260,344 tons; tin concentrates, 556 tons	353	3,866,645	614,200	251,176,000	261,330,000	
Golden Mining Division										
Mineral King	Toby Creek	Sheep Creek Mines Ltd., Nelson	212,412	Lead concentrates, 6,711 tons; zinc concentrates, 17,780 tons		228,865	87,203	9,199,949	20,321,992	83,424
Nelson Mining Division										
H.B.	Salmo	The Consolidated Mining & Smelting Co. of Canada, Ltd., Trail	468,979	Lead concentrates, 4,726 tons; zinc concentrates, 36,251 tons		60,003		7,255,780	40,587,340	325,331
Jersey	Salmo	Canadian Exploration Ltd., Vancouver	384,894	Lead concentrates, 10,315 tons; zinc concentrates, 26,607 tons		41,342		16,547,436	31,543,694	239,398
Kenville (White Lease)	Nelson	D. H. Norcross, Nelson	21	Crude ore	22					
Kootenay Belle	Salmo	K-Belle Enterprise Co., Linden, Alta.	8,712	Crude ore	791	833		17,583	18,188	
Lucky Strike	Nelson	L. C. de Kock, Nelson	3	Crude ore	4	59		153	38	
New Arlington	Erie	G. D. Fox, Trail	277	Crude ore	148	262		5,299	5,152	
Queen	Salmo	A. Endersby, Fruitvale	29	Crude ore	18	9		58	58	
Reeves MacDonald	Remac	Reeves MacDonald Mines Ltd., Vancouver	417,448	Lead concentrates, 7,253 tons; zinc concentrates, 26,266 tons		41,823		9,161,914	29,201,464	166,834
Revelstoke Mining Division										
Nil										
Slocan Mining Division										
Anna	Slocan	H. Marasek, Slocan	2	Crude ore		61		55	15	
Arlington	Slocan	B. I. Nesbitt, Vancouver	635	Siliceous dump material		3,334		8,600	6,888	
Bank of England	Slocan	J. K. Pearson, Calgary	4	Crude ore		47		76	68	
Bluebell	Riondel	The Consolidated Mining & Smelting Co. of Canada, Ltd., Trail	237,742	Lead concentrates, 13,721 tons; zinc concentrates, 27,407 tons		297,191	211,600	21,164,684	23,572,471	135,983
Bosun	Silverton	W. H. McLeod, Silverton	42	Lead concentrates, 7 tons; zinc concentrates, 6 tons		1,596		7,175	8,135	45
Caledonia	Retallack	Northwest Mining Partnership, Kellogg, Idaho	140	Lead concentrates, 7 tons; zinc concentrates, 14 tons		867		9,865	16,341	60
Crown	Ainsworth	D. H. Norcross, Nelson	13	Crude ore		1,253		2,445	1,025	

TABLE XIV.—LODE-METAL PRODUCTION IN 1962—*Continued*

Property or Operator	Location of Mine	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Contents					
					Gold	Silver	Copper	Lead	Zinc	Cadmium
SOUTH CENTRAL BRITISH COLUMBIA—*Continued*			Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Slocan Mining Division—Continued										
Enterprise	Silverton	J. Kelly and F. Pho, Silverton	345	Lead concentrates, 24 tons; zinc concentrates, 75 tons	1	3,174		34,340	95,657	680
Fisher Maiden	Silverton	F. Mills, Silverton	188	Lead concentrates, 8 tons; zinc concentrates, 41 tons	1	4,931		12,476	47,918	357
Freddy	Silverton	V. C. Hanson, H. Lyon, and K. Millar, Silverton	13	Crude ore	1	554		78	104	
Hewitt	Silverton	Philco Mining Partnership, New Denver	625	Lead concentrates, 41 tons; zinc concentrates, 72 tons	3	16,252		43,572	84,673	618
Idaho	Three Forks	M. Tarnowski, Silverton	7	Crude ore		954		9,901	512	
Mammoth	Silverton	Western Exploration Co. Ltd., Silverton	6,494	Lead concentrates, 495 tons; zinc concentrates, 639 tons	11	50,721		651,145	757,739	4,990
Ottawa	Slocan	Ottawa Silver Mines Ltd., Spokane, Wash.	740	Crude ore	2	46,327		1,824	2,042	
Ruth	Sandon	E. Perepolkin & Son, Hills; H. E. Singel and B. Fried, Kaslo	327	Lead concentrates, 31 tons; zinc concentrates, 51 tons; crude ore, 25 tons	4	6,587		57,950	66,954	401
Slocan Prince	Slocan	J. K. Pearson, Calgary	253	Crude ore		3,948		4,810	6,518	
Victor	Sandon	Violamac Mines Ltd., New Denver, and lessees E. Anderson, J. C. Stewart, L. Fried, E. de Rosa, New Denver, and E. Perepolkin & Son, Hills	1,168	Lead concentrates, 117 tons; zinc concentrates, 198 tons; crude ore, 74 tons	17	27,037		261,935	250,587	1,694
Trail Creek Mining Division										
Velvet	Rossland	Mid-West Copper & Uranium Mines Ltd., Vancouver; Velvet Leasers, Rossland, lessees	2,002	Concentrates, 143 tons	179	404	53,792			
W.D.	Trail	W. D. Mining Co. Ltd., Trail	1,492	Crude ore	601	142		2,985	3,230	

TABLE XV.—LODE-METAL MINES EMPLOYING AN AVERAGE OF TEN OR MORE PERSONS DURING 1962[1]

Name of Mine or Operator	Days Operating		Tons		Average Number Employed	
	Mine	Mill	Mined	Milled	Mine	Mill
Shipping Mines						
Bluebell (Cons. M. & S. Co. of Canada Ltd.)	235	323	237,742	237,742	222	15
Bralorne Pioneer Mines Ltd. (Bralorne Division)	365	365	149,998	149,998	306	17
Brynnor Mines Ltd. and Kie Mine Co. Ltd.	320	263	702,809	716,054	118	43
Cariboo Gold Quartz Mining Co. Ltd.	274	365	40,061	40,061	118	9
Coast Copper Co. Ltd.	101	125	66,449	66,449	84	3
Craigmont Mines Ltd. (including Pooley Bros.)	365	365	1,850,252	1,850,252	372	32
Cowichan Copper Co. Ltd. (Sunro mine)	365	245	144,009	144,009	114	17
Empire Development Co. Ltd. and Mannix Co. Ltd. (Iron Production Division)	171	63	82,589	148,055	35	18
Giant Mascot Mines Ltd. (Pride of Emory mine)	365	365	311,443	311,443	132	24
H.B. (Cons. M. & S. Co. of Canada Ltd.)	251	364	468,979	468,979	102	12
Howe Sound Co. (Britannia Division)	270	240	501,400	501,400	325	34
Jedway Iron Ore Ltd.	310	80	166,430	166,430	80	27
Jersey (Canadian Exploration Ltd.)	365	365	398,691	384,894	146	11
Mastodon-Highland Bell Mines Ltd.	243	288	14,480	14,480	31	6
McKinney Gold Mines Ltd.	154	.....	1,835	.....	11	.....
Mineral King (Sheep Creek Mines Ltd.)	307	359	212,412	208,670	84	12
Mother Lode (Consolidated Woodgreen Mines Ltd.)	117	117	62,584	62,584	7	7
Nimpkish Iron Mines Ltd.	313	284	672,008	672,008	36	33
Ottawa Silver Mines Ltd.	252	.....	740	.....	10	.....
Phoenix Copper Co. Ltd.	270	365	554,699	554,699	69	16
Reeves MacDonald Mines Ltd.	251	356	417,779	417,448	87	19
Sullivan (Cons. M. & S. Co. of Canada Ltd.)	252	258	2,583,068	2,583,068	851	318
Texada Mines Ltd. and Inspiration Ltd.	300	350	1,089,363	1,103,693	218	37
Zeballos Iron Mines Ltd.	365	275	369,509	369,509	24	39
Non-shipping Mines						
Bethlehem Copper Corp. Ltd.	—	—	.....	.....	39	1
Bethlehem Copper—Pooley Bros. Ltd.	—	—	.....	.....	11	.....
Bethlehem Copper—Floods Mining & Aggregate Co. Ltd.	.....	.....	.....	.....	36	.....
Dolly Varden Mines Ltd.	.....	.....	.....	.....	23	—
Granduc Mines Ltd.	.....	.....	.....	.....	39	.....
Kennco Explorations (Western) Ltd.	.....	.....	.....	.....	45	—
Noranda Exploration Co. Ltd. (Boss Mountain)	.....	.....	.....	.....	15	.....
Phelps Dodge Corp. of Canada Ltd.	.....	.....	.....	.....	13	.....
Southwest Potash Corporation	.....	.....	.....	.....	25	.....

[1] The average number employed includes wage-earners and salaried employees. The average is obtained by adding the monthly figures and dividing by 12, irrespective of the number of months worked.

Departmental Work

ADMINISTRATION BRANCH

The Administration Branch is responsible for the administration of the Provincial laws regarding the acquisition of rights to mineral and to coal, petroleum, and natural gas, and deals with other departments of the Provincial service for the Department or for any branch.

Gold Commissioners, Mining Recorders, and Sub-Mining Recorders, whose duties are laid down in the *Mineral Act* and *Placer-mining Act,* administer these Acts and other Acts relating to mining. Mining Recorders, in addition to their own functions, may also exercise the powers conferred upon Gold Commissioners with regard to mineral claims within the mining division for which they have been appointed. Similar duties may be performed by Mining Recorders with regard to placer claims but not in respect of placer-mining leases. Recording of location and of work upon a mineral claim as required by the *Mineral Act* and upon a placer claim or a placer-mining lease as required by the *Placer-mining Act* must be made at the office of the Mining Recorder for the mining division in which the claim or lease is located. Information concerning claims and leases and concerning the ownership and standing of claims and leases in any mining division may be obtained from the Mining Recorder for the mining division in which the property is situated or from the Department's offices at Victoria, and Room 101, 739 West Hastings Street, Vancouver. Officials in the offices of the Gold Commissioner at Victoria and the Gold Commissioner at Vancouver act as Sub-Mining Recorders for all mining divisions. Sub-Mining Recorders, who act as forwarding agents, are appointed at various places throughout the Province. They are authorized to accept documents and fees, and forward them to the office of the Mining Recorder for the correct mining division. Officials and their offices in various parts of the Province are listed in the table on page A53.

Central Records Offices (Victoria and Vancouver)

Transcripts of all recordings in Mining Recorders' offices throughout the Province are sent to the office of the Chief Gold Commissioner in Victoria twice each month, and include the names of lessees of reverted surveyed mineral claims. These records and maps showing the approximate positions of mineral claims held by record and of placer-mining leases may be consulted by the public during office hours at Victoria and at the office of the Gold Commissioner at Vancouver, Room 101, 739 West Hastings Street. The maps conform in geographical detail, size, and number to the reference and mineral reference maps issued by the Legal Surveys Branch of the Department of Lands, Forests, and Water Resources, and the approximate position of mineral claims held by record and of placer-mining leases are plotted from details supplied by the locators. Provision has been made to supply the general public, on request to the office of the Chief Gold Commissioner, with copies of the maps. The charge for these maps is $1.25 for each sheet.

List of Gold Commissioners and Mining Recorders in the Province

Mining Division	Location of Office	Gold Commissioner	Mining Recorder
Alberni	Alberni	T. G. O'Neill	T. G. O'Neill.
Atlin	Atlin	T. R. McKinnon	T. R. McKinnon.
Cariboo	Quesnel	F. E. P. Hughes	F. E. P. Hughes.
Clinton	Clinton	R. H. Archibald	R. H. Archibald.
Fort Steele	Cranbrook	E. L. Hedley	E. L. Hedley.
Golden	Golden	R. E. Manson	R. E. Manson.
Greenwood	Grand Forks	R. Macgregor	R. Macgregor.
Kamloops	Kamloops	D. Dalgleish	D. Dalgleish.
Liard	Victoria	R. H. McCrimmon.	
Lillooet	Lillooet	E. B. Offin	E. B. Offin.
Nanaimo	Nanaimo	W. H. Cochrane	W. H. Cochrane.
Nelson	Nelson	K. D. McRae	K. D. McRae.
New Westminster	New Westminster	J. F. McDonald	G. C. Kimberley.
Nicola	Merritt	T. S. Dobson	T. S. Dobson.
Omineca	Smithers	G. H. Beley	G. H. Beley.
Osoyoos	Penticton	T. S. Dalby	T. S. Dalby.
Revelstoke	Revelstoke	W. T. McGruder	W. T. McGruder.
Similkameen	Princeton	B. Kennelly	B. Kennelly.
Skeena	Prince Rupert	T. H. W. Harding	T. H. W. Harding.
Slocan	Kaslo	W. E. McLean	W. E. McLean.
Trail Creek	Rossland	W. L. Draper	W. L. Draper.
Vancouver	Vancouver	J. Egdell	Mrs. S. Jeannotte (Deputy).
Vernon	Vernon	G. F. Forbes	G. F. Forbes.
Victoria	Victoria	R. H. McCrimmon	E. J. Bowles.

GOLD COMMISSIONERS' AND MINING RECORDERS' OFFICE STATISTICS, 1962

Mining Division	Free Miners' Certificates		Lode-mining						Placer-mining					Revenue		
	Individual	Company	Mineral Claims Recorded	Certificates of Work	Cash in Lieu	Certificates of Improvements	Bills of Sale, etc.	Mineral Leases	Placer Claims Recorded	Placer Leases Granted	Certificates of Work	Cash in Lieu	Bills of Sale, etc.	Free Miners' Certificates	Mining Receipts	Total
Alberni	123	3	1,217	2,044	$3,500.00	26	154	7	1	----	6	----------	----	$935.00	$15,312.50	$16,247.50
Atlin	137	1	301	100	1,700.00	----	14	12	2	30	68	$2,200.00	40	785.00	10,943.75	11,728.75
Cariboo	920	13	746	610	1,900.00	----	67	1	4	72	470	1,500.00	124	5,637.00	28,369.25	34,006.25
Clinton	38	—	475	236	1,300.00	----	10	5	----	3	27	----------	6	190.00	4,183.75	4,373.75
Fort Steele	175	4	251	250	3,200.00	----	35	1	----	15	62	500.00	11	1,171.00	7,855.75	9,026.75
Golden	131	4	100	260	300.00	----	25	5	----	13	7	----------	11	960.00	2,608.50	3,568.50
Greenwood	119	4	457	563	600.00	----	45	34	----	2	5	----------	----	995.00	6,848.00	7,843.00
Kamloops	376	8	2,638	2,731	800.00	----	182	3	----	4	13	----------	----	2,690.00	18,961.50	21,651.50
Liard	293	—	963	3,779	4,100.00	----	92	----	----	7	56	1,250.00	----	1,470.00	17,831.90	19,301.90
Lillooet	198	5	526	470	800.00	----	43	2	2	7	44	500.00	11	1,440.00	7,039.50	8,479.50
Nanaimo	138	1	596	678	6,000.00	----	77	1	----	2	----	----------	----	740.00	9,810.00	10,550.00
Nelson	278	9	433	545	1,100.00	----	51	22	----	1	12	----------	1	2,190.00	5,608.00	7,798.00
New Westminster	380	10	638	650	2,400.00	----	240	1	5	5	17	500.00	3	2,653.00	7,814.50	10,467.50
Nicola	105	—	3,863	2,518	2,400.00	4	217	4	----	----	----	----------	----	525.00	21,889.50	22,414.50
Omineca	291	4	3,008	1,340	3,100.00	----	98	2	1	40	87	250.00	49	1,717.00	23,214.25	24,931.25
Osoyoos	172	1	384	1,189	800.00	----	39	3	----	----	----	----------	----	910.00	5,539.20	6,449.20
Revelstoke	77	5	155	64	1,900.00	----	15	1	----	2	28	----------	3	836.00	4,125.50	4,961.50
Similkameen	97	3	1,672	719	2,000.00	----	25	4	2	9	21	----------	23	685.00	11,288.50	11,973.50
Skeena	223	3	864	2,750	9,000.00	----	81	14	----	1	----	----------	----	1,370.00	22,030.00	23,400.00
Slocan	128	2	205	444	----------	----	42	16	----	4	4	----------	1	840.00	4,539.00	5,379.00
Trail Creek	71	1	131	34	100.00	----	8	4	----	3	1	500.00	----	455.00	1,671.75	2,126.75
Vancouver	1,918	242	563	486	1,600.00	----	39	4	----	----	1	----------	9	30,699.00	8,869.50	39,568.50
Vernon	181	1	120	289	200.00	----	116	1	2	7	16	----------	16	955.00	2,416.50	3,371.50
Victoria	399	28	296	208	1,000.00	----	15	2	1	6	6	----------	----	4,571.00	2,483.00	7,054.00
Totals for Province, 1962	6,968	352	20,602	22,957	$49,800.00	30	1,730	149	20	233	951	$7,200.00	308	$65,419.00	$256,253.60	$316,672.60
Totals for Province, 1961	7,180	308	19,064	16,665	$54,640.00	----	1,544	110	36	379	767	$9,350.00	189	$64,481.00	$231,127.88	$295,608.88

Coal, Petroleum, and Natural Gas

The Administration Branch is responsible for the administration of the *Petroleum and Natural Gas Act* and for the *Coal Act*. Information concerning applications for permits and leases issued under the *Petroleum and Natural Gas Act* and concerning the ownership and standing of them may be obtained upon application to the office of the Chief Commissioner, Department of Mines and Petroleum Resources, Victoria, B.C. Similar information may be obtained respecting licences and leases issued under the *Coal Act*. Maps showing the locations of permits and leases under the *Petroleum and Natural Gas Act* are available, and copies may be obtained upon application to the office of the Department of Mines and Petroleum Resources, Victoria, B.C. Monthly reports listing additions and revisions to permit-location maps and listing changes in title to permits, licences, and leases and related matters are available from the office of the Chief Commissioner upon application and payment of the required fee.

Coal Revenue, 1962

Licences—		
Fees	$600.00	
Rental	5,419.45	
		$6,019.45
Leases—		
Fees	*Nil*	
Rental	$94.50	
Cash in lieu	*Nil*	
		94.50
		$6,113.95

At the end of 1962, 27,665,218 acres, or approximately 43,000 square miles, of Crown petroleum and natural-gas rights, issued pursuant to the *Petroleum and Natural Gas Act,* were held in good standing. This acreage, held by operators ranging from small independent companies to major international ones, comprised:—

	Acres
297 permits	17,374,307
3 natural-gas licences	84,499
26 drilling reservations	471,487
2,821 leases (all types)	9,734,925
	27,665,218

Petroleum and Natural-gas Revenue, 1962

Rentals and fees—		
Permits	$2,138,070	
Drilling reservations	126,149	
Natural-gas licences	2,086	
Petroleum, natural-gas, and petroleum and natural-gas leases	4,916,971	
Total rentals and fees		$7,183,276

Sales of Crown reserves—		
Permits	$1,208,400	
Drilling reservations	3,067,675	
Leases	7,088,659	
Total Crown reserve sales		$11,364,734
Royalties—		
Gas	$1,260,419	
Oil	2,265,167	
Processed products	108,737	
Total royalties		3,634,323
Miscellaneous fees		31,950
Total petroleum and natural-gas revenues		$22,214,283

ANALYTICAL AND ASSAY BRANCH

By S. W. Metcalfe, Chief Analyst and Assayer

Rock Samples

During 1962 the chemical laboratory in Victoria issued reports on 2,163 samples from prospectors* and Departmental engineers. A laboratory examination of a prospector's sample generally consists of the following: (1) A spectrographic analysis to determine if any base metals are present in interesting percentages; (2) assays for precious metals and for base metals shown by the spectrographic analysis to be present in interesting percentages. The degree of radioactivity is measured on all samples submitted by prospectors and Departmental engineers; these radiometric assays are not listed in the table below.

The laboratory reports were distributed in the following manner among prospectors who were not grantees, prospectors who were grantees under the *Prospectors' Grub-stake Act,* and Departmental engineers:—

	Samples	Spectrographic Analyses	Assays
Prospectors (not grantees)	1,674	1,671	4,018
Prospectors (grantees)	233	233	538
Departmental engineers	256	91	830
Totals	2,163	1,995	5,386

Samples submitted to the laboratory for identification are examined by the Mineralogical Branch of the Department. During the year 101 such samples were examined.

Petroleum and Natural-gas Samples

Reports were issued on fifty-one samples. Of this number, forty-three were samples of formation waters from wells being drilled for gas and oil in the Province; two were samples of wet mud on which water analyses could not be performed; three were samples of oil; two were suspected oil seeps; and one was a deposit from

* A reasonable number of samples are assayed, without charge, for a prospector who makes application for free assays and who satisfies the Chief Analyst that prospecting is his principal occupation during the summer months. A form for use in applying for free assays may be obtained from the office of any Mining Recorder.

the engine of a Government vehicle. Thirty-nine spectrographic analyses were reported on samples in this category.

Coal Samples

Reports were issued on fifty-five samples of coal submitted by the Purchasing Commission for proximate analysis and calorific value.

Miscellaneous Samples

Reports were issued on ninety samples of a miscellaneous nature. One hundred and forty-four assays and thirty-seven spectrographic analyses were reported in this category.

For the British Columbia Research Council, five coals were ashed and spectrochemical determinations of germanium and gallium were made upon the ash; one deposit in a water system was examined and found to be a mixture of hydrous aluminum oxides; four different cement samples were spectrographed; and pellets of calcium chloride were spectrographed for minor elements present.

For the Purchasing Commission, two samples of anti-freeze were examined.

For the Department of Agriculture, seven samples of marl were analysed for their content of oxides of calcium and magnesium; one sample of water was analysed and the dissolved salts spectrographed.

For the British Columbia Hydro and Power Authority, a deposit in three plastic tubes was examined and found to be crystallized paraffin.

For the Department of Highways (Materials Testing Branch), six water samples were analysed; eighteen clays were spectrographed and analysed for sodium chloride and hygroscopic water, and four other clays were analysed for sodium chloride only; water-soluble salts were determined in a gravel sample; one crustation was spectrographed and found to be mainly calcium carbonate; three sediments were spectrographed—two were found to be clay and one calcium carbonate.

For the Department of Recreation and Conservation (Fish and Game Branch), the gritty material in a paste and the crankcase oil from a Department vehicle were examined and found to be corundum in each instance, and the gritty material in a valve-grinding paste was found to be a mixture of corundum and carborundum.

For the Department of Lands, Forests, and Water Resources, the Water Rights Branch submitted four water samples for determination of phosphorus pentoxide; the Forest Service submitted one gasoline sample for the determination of its lead content, and seven gravel samples for the determination of water-soluble sodium chloride and calcium chloride; the Grazing Division submitted five soil samples for the determination of arsenic, and one sample of a wood preservative for a determination of the major base metals present.

For the Victoria Metropolitan Board of Health, a residue in water was found to contain mainly iron.

For citizens of the Province, four water and two salt deposits from a saline lake were analysed; one clay was identified as illite; one natural-gas sample from the Sooke River was analysed; one sample of resin was identified; a dark-brown sediment in well water was found to contain mainly manganese; and a chip of wood stained purple was examined.

X-ray Powder Diffraction Analyses

One hundred and seventeen analyses of this type were performed for identification purposes.

Examination for Assayers

Four Provincial Government examinations for certificates of efficiency were held in Victoria during the year, when eight candidates were granted licences to practise assaying in the Province, six of them after having written supplemental examinations.

INSPECTION BRANCH

Organization and Staff

Inspectors and Resident Engineers

J. W. Peck, Chief Inspector	Victoria
Robert B. Bonar, Deputy Chief Inspector of Mines	Victoria
L. Wardman, Senior Electrical Inspector of Mines	Victoria
E. R. Hughes, Senior Inspector of Mines	Victoria
R. J. Craig, Senior Inspector of Mines, Silicosis Control	Vancouver
J. E. Merrett, Inspector and Resident Engineer	Vancouver
A. R. C. James, Inspector and Resident Engineer	Vancouver
J. D. McDonald, Inspector and Resident Engineer	Nelson
D. R. Morgan, Inspector and Resident Engineer	Fernie
David Smith, Inspector and Resident Engineer	Kamloops
W. C. Robinson, Inspector and Resident Engineer	Prince Rupert
S. Elias, Inspector, Silicosis Control	Vancouver

The Inspectors are stationed at the places listed and inspect coal mines, metalliferous mines, and quarries in their respective districts. They also examine prospects, mining properties, and roads and trails. The Silicosis Control Inspectors make dust and ventilation surveys at all mines and quarries.

E. R. Hughes supervised the Department's roads and trails programme and prospectors' grub-stakes.

Instructors, Mine-rescue Stations

Arthur Williams	Fernie Station
W. H. Childress	Nelson Station
R. H. Robertson	Kamloops Station
W. High (part time)	Cumberland Station

Board of Examiners for Coal-mine Officials

Robert B. Bonar, Chairman and Secretary	Victoria
A. R. C. James, Member	Vancouver
D. R. Morgan, Member	Fernie

R. B. Bonar, A. R. C. James, D. R. Morgan, and the mine-rescue instructors for the district in which an examination is being held form the Board for granting certificates of competency to coal-miners.

An Inspector is empowered to grant provisional certificates to coal-miners for a period not exceeding sixty days between regular examinations.

Board of Examiners for Shiftbosses (Metalliferous Mines)

Robert B. Bonar, Chairman	Victoria
A. R. C. James, Member	Vancouver
J. E. Merrett, Member	Vancouver

The Board conducts written examinations in various mining centres for applicants for underground shiftboss certificates. The Board is also empowered to grant provisional certificates without examination under such conditions as the Board considers necessary.

MINERALOGICAL BRANCH

Field work by officers of the Mineralogical Branch includes geological mapping and examinations of mineral deposits and studies related to ground-water and engineering geology. The results are published partly in the Annual Report of the Minister of Mines and Petroleum Resources and partly in a series of bulletins. The Mineralogical Branch supplies information regarding mineral deposits and the mineral industry, in response to inquiries received in great number. The activities of the Branch also include identification of rock and mineral specimens submitted directly by prospectors and others, or through the Analytical Branch.

Professional Staff

On December 31, 1962, the professional staff included the following engineers classified as geologists or mineral engineers: H. Sargent, Chief of the Mineralogical Branch; M. S. Hedley, S. S. Holland, J. W. McCammon, N. D. McKechnie, G. E. P. Eastwood, J. T. Fyles, A. Sutherland Brown, J. M. Carr, W. G. Jeffery, W. C. Jones, A. F. Shepherd, and J. E. Hughes. In November, 1961, Dr. Jeffery went on leave for a year in order to go to Ghana on a Canadian External Aid mission. R. W. Yole was employed for a month mainly on stratigraphic studies of Palæozoic limestones on southern Vancouver Island.

Technical editing of the Annual Report of the Minister of Mines and Petroleum Resources and of other publications was directed by M. S. Hedley. Copy for printing was prepared by and under the direction of Mrs. Rosalyn J. Moir. Messrs. Hedley and Holland assisted in directing and supervising field work. Most of the other members of the professional staff are assigned to mapping the geology of selected areas and of mineral deposits. Mr. McCammon is responsible for studies of industrial minerals and structural materials, and Mr. Shepherd for records and library.

Field Work

A. Sutherland Brown completed mapping the geology of the Queen Charlotte Islands at the scale of 1:50,000. The area mapped in the past five field seasons, some 3,840 square miles, excludes the considerable part of Graham Island, where unconsolidated material completely masks the bedrock.

J. M. Carr devoted the major part of the field season to studying the western contact of the Guichon batholith over a length of 11 miles, where it is within 1 to 2 miles of the Thompson River, from near Martel northward. Pyrite mineralization is widespread in the area, and several large gossans in schist are exposed along the western side of the river. Copper mineralization occurs locally, mainly at the Red Hills property and near Spatsum. Magnetite in small bodies associated with skarn is known in a few places close to batholithic rocks.

A considerable part of the season was spent within the Guichon batholith in the vicinity of Gnawed Mountain mapping part of the margin of the Bethsaida porphyry stock and the adjacent breccias and copper occurrences. The extent of the stock north of Gnawed Mountain has not been determined but was found to be less than had been anticipated.

Nine properties in the Kamloops-Highland Valley-Merritt area were visited and data for short notes were collected.

G. E. P. Eastwood spent the major part of the field season mapping the Draw Creek pit of the Brynnor mine and mapping in the mine belt. Study of the rock sequences and over-all structure supports lithologic correlation of the major volcanic sequence with the Karmutsen Group, and the limestone and tuffaceous rocks, including the exposures in Draw Creek pit, with the Quatsino Formation. Recognition of the dissimilarity of this limestone and the Palæozoic limestones contributed to this conclusion.

The remainder of the field season was spent mainly at Zeballos, where the F.L. magnetite deposit being mined by Zeballos Iron Mines Limited was studied in some detail and the Ridge and Cordova magnetite deposits were examined. Four days were devoted to visiting the Power River magnetite occurrences, studying the local geology, and logging diamond-drill core.

J. T. Fyles mapped the Duncan Lake area at 2,000 feet to the inch, and examined mineral deposits in that area, about 10 miles from east to west and 20 miles from north to south. Work in this area and in an area including Ainsworth and extending north on Kootenay Lake was started in 1960.

Replacement lead-zinc mineralization of the type developed at the Duncan Lake mine appears to be confined to the Duncan anticline, where it is localized in particular types of dolomite and siliceous dolomite at folds and shears that are subsequent to the main anticline.

Visits were made to five properties outside the area mapped, and data for short notes were collected.

S. S. Holland continued the study of jade occurrences by examining the occurrences of bedrock and alluvial jade (nephrite) on Ama Creek, a tributary of Bridge River.

Placer-mining was investigated along Bridge River, and in the Likely-Keithley Creek, Wells, Beggs Gulch, and Germansen Creek areas.

Lode-mineral property examinations included the Golden Contact on McGillivray Creek, the Stella (Endako Mines Limited) south of Endako, the Cariboo Gold Quartz mine, the Skarn group at Copper Creek, and the Three Hills group at Skeena Crossing.

A geological reconnaissance was made north of Stewart in the Salmon River-Cascade Creek area. The conclusion was reached that the volcanic rocks have undergone more severe deformation and that the structure is probably more complex than indicated in the published reports. This is an area of great interest for mineral exploration and prospecting (to the end of 1961 it had produced 11.7 per cent of the lode gold and 9.6 per cent of the silver produced in British Columbia). Geological work, prospecting, and production are seriously hampered by the state of the roads. Early in 1962 a flood on the Salmon River, within Alaska, washed out some 3 miles of the road by which the area is connected with Stewart. The road northward from the Silbak Premier mine has been washed out at a point 3 miles south of the Big Missouri mine.

J. E. Hughes carried the studies* begun in 1961 in the eastern part of the Stone Range westward into the Sentinel Range of the Rocky Mountains and into the Liard plain. The exposures in a strip along the highway were mapped at 4 miles to the inch from Mile 390 to Mile 520; that is, from Summit Lake near

* A mimeographed summary report on this work may be obtained from the Chief of the Mineralogical Branch for the sum of 35 cents (plus tax).

Mount St. Paul to the Smith River. Within this length, six separate sections of Devonian and adjacent Palæozoic strata were examined.

W. C. Jones made detailed examinations and mapped two sites for dams proposed on the lower reaches of Clearwater River.

A start was made in the study of 220 miles of dykes in the lower Fraser Valley, concerning the stability of the dykes under specified flood conditions.

Both projects are for the Fraser River Board; Mr. Jones acts in an advisory capacity in the dyke study.

A beginning was made in the study of rock stability in open-pit and underground mines. Most of the open-pit mines now operating and one underground mine were visited. A study is being made of the use of certain geophysical equipment as a means of evaluating the stability or predicting failure of rock slopes.

J. W. McCammon investigated the following industrial-mineral and structural-material deposits: Talc south of Cawston; stone and marble quarries, Nelson area; magnesite at Perry Creek and Brisco; dolomite at Bull River; asbestos at Sidmouth; limestone near Terrace and near Kennedy Lake. Short visits were made to barite deposits, Windermere area; asbestos deposits, Cassiar; fluorite-barite showings along the Alaska Highway; molybdenite deposits at Glacier Gulch, Endako, and Boss Mountain.

N. D. McKechnie examined numerous mining and exploration operations in southern British Columbia, including Vancouver and Quadra Islands, and collected data for reports on fourteen of the properties.

R. W. Yole, a Ph.D. candidate at the University of British Columbia, whose thesis is on Palæozoic limestones on southern Vancouver Island, spent a month for the Mineralogical Branch amplifying data on recognized Palæzoic limestones. He contributed to correlating the limestone in the Kennedy Lake area, with the Quatsino Formation considered to be of Upper Triassic age.

An airborne magnetometer survey was made of northern Vancouver Island, lying west of 127 degrees west longitude. The southern boundary was in part 50 degrees 15 minutes north latitude, and continued southeasterly to include Brooks Peninsula on the west coast. Our Department shared the flying cost of this project with the Geological Survey of Canada. The magnetic data are being compiled by the Geological Survey. This project was undertaken in part to assist in developing the application of airborne magnetometer surveys in areas of moderate to high relief. A nuclear precession magnetometer was used, mounted in a Beaver aircraft.*

PETROLEUM AND NATURAL GAS BRANCH

The Petroleum and Natural Gas Branch is responsible for the administration of the "Regulation Governing the Drilling of Wells and the Production and Conservation of Oil and Natural Gas," made pursuant to the *Petroleum and Natural Gas Act*. The regulation provides for the use of efficient and safe practices in the drilling, completion, and abandonment of wells; for the orderly development of fields discovered within the Province; and for the conservation and prevention of waste of oil and natural gas within the reservoir and during production operations.

Estimates of reserves of oil and natural gas are made twice a year, at the end of June and the end of December. Crown reserves for oil and natural gas, disposed of by public tender, are evaluated prior to sale. Comprehensive records of all drilling and producing operations are maintained and made available for

*Eight map-sheets based on this work have been produced and are obtainable from the Department of Mines and Petroleum Resources, Victoria, or the Geological Survey of Canada, 739 West Hastings Street, Vancouver, for 25 cents a sheet.

study, or are published, for the use and benefit of those interested in the development of the oil and natural-gas industry in British Columbia.

Investigations are made of complaints of property damage resulting from drilling and producing operations and from geophysical-work programmes.

Staff

J. D. Lineham, Chief of the Branch	Victoria
R. R. McLeod, Senior Reservoir Engineer and member of the Board of Arbitration	Victoria
W. L. Ingram, Senior Development Engineer	Victoria
S. S. Cosburn, Senior Petroleum Geologist	Victoria
K. C. Gilbart, Reservoir Engineer	Victoria
G. V. Rehwald, Reservoir Engineer	Victoria
P. K. Huus, Reservoir Assistant	Victoria
M. B. Hamersley, Development Assistant	Victoria
D. L. Griffin, Petroleum Geologist	Victoria
D. M. Callan, Petroleum Geologist	Victoria
J. F. Tomczak, Statistician	Victoria
L. A. Inman, Production Clerk	Victoria
G. E. Blue, District Engineer	Charlie Lake
H. B. Fulton, Field Geologist	Charlie Lake
D. L. Johnson, Field Engineer	Charlie Lake
H. A. Sharp, Field Technician	Charlie Lake
M. A. Churchill, Field Technician	Charlie Lake
D. A. Selby, Field Technician	Charlie Lake

The total Branch staff numbered twenty-five at the end of the year, excluding two unfilled positions, of whom sixteen were employed at headquarters and nine in the field office at Charlie Lake. Four other persons were employed, in various capacities, on a casual basis.

Staff Changes

In 1961 there was one resignation from the professional staff and one from the technical staff.

A. N. Lucie-Smith, former supervisor of the Reserves and Evaluation Section, resigned on October 15th to move to Australia.

T. A. Mackenzie, former supervisor of the Statistics and Well Records Section, resigned on August 15th.

J. F. Tomczak joined headquarters staff as statistician on November 21st.

L. A. Inman joined headquarters staff as production clerk on August 20th.

D. A. Selby joined the field staff as field technician on January 16th.

Administration

The Petroleum and Natural Gas Branch was reorganized in 1962 to decrease the number of sections from five to three. The Reservoir Engineering Section assumed the responsibilities of the Reserves and Evaluation Section, and those of the Statistics and Well Records Section were transferred to the Development Engineering Section. The Branch now is subdivided for administrative purposes into three sections, each of which is headed by a supervisor who is responsible for a specific phase of Branch work. These sections and respective section heads are as follows: Reservoir Engineering, R. R. McLeod; Development Engineering, W. L. Ingram; and Geology, S. S. Cosburn.

The field office at Charlie Lake, which includes sample-washing and core-storage facilities, is under the supervision of G. E. Blue.

Board of Arbitration

Chairman: A. W. Hobbs, solicitor, Department of the Attorney-General. Members: R. R. McLeod, engineer, Department of Mines and Petroleum Resources; S. G. Preston, agrologist, Department of Agriculture.

The Board of Arbitration, responsible to the Minister of Mines and Petroleum Resources, held no hearings in 1962.

Five applications pending at the end of 1962 were adjourned until 1963 at the request of the solicitor for the owner. Of four applications concerning right of entry made in 1962, three were pending at the end of the year, and one was settled by agreement between parties.

Conservation Committee

Chairman: Vacant. Members: N. D. McKechnie, mineral engineer, Department of Mines and Petroleum Resources; M. H. A. Glover, economist, Department of Industrial Development, Trade, and Commerce.

A. N. Lucie-Smith was chairman until October 15th, the effective date of his resignation from the service.

No official business was referred to the Conservation Committee during the year.

GRUB-STAKING PROSPECTORS

Under authority of the *Prospectors' Grub-stake Act* the Department has provided grub-stakes each year since 1943 to a limited number of applicants able to qualify. The normal maximum grub-stake is $300, with an additional amount up to $200 for travelling expenses. A limited number of experienced prospectors of proven ability may be granted top priority grub-stakes of as much as $400, plus a maximum of $300 for travelling expenses, where prospecting is to be done in approved areas where air transportation is necessary. Items such as guns, fishing-gear, stoves, boats, and outboard motors are not a legitimate charge against the grant and must be provided by the applicant. Costly items such as geophysical survey equipment, mineralights, Geiger counters, berylometers, packsack diamond drills, two-way radios, horses, and packsaddles are not expendable in any one season and cannot be accepted at full cost against the grant, but a reasonable rental charge may be considered.

To qualify at the present time, the Department requires that the applicant shall be a bona fide prospector holding a free miner's certificate. He must be a British subject, between the ages of 18 and 70 years, and must have resided in British Columbia during the year preceding the date of application. He must be able to identify common rocks and minerals. He should have bush experience and be physically and mentally fit. He must agree to abide by the regulations which the Department may make. The grub-staked prospector is provided with maps, a current list of prices of metals and ores, and the latest Departmental information circulars on prospecting and related matters.

It is required that in order to obtain the maximum grub-stake he agree to spend at least sixty days actually prospecting in the area of his choice in British Columbia considered favourably by officers of the Department. If he prospects a lesser time, the grant will be reduced proportionately. The grub-stakes are not intended for week-end prospecting or for short trips from a home base. The grant is usually made in two payments: the first at the beginning of the season, and the second after he has completed sixty days in the field and has submitted a diary. In the past,

rebates have been recovered from grantees to whom payments have exceeded the proper amount for the time and effort devoted to prospecting. A field engineer is employed, who contacts as many prospectors as he is able during the field season and gives advice and direction to those who need it. Grantees are permitted a reasonable number of free assays.

The grub-stakes are granted with the object of maintaining the search for mineral occurrences with mine-making possibilities. Any discoveries made, staked, and recorded are exclusively the grantee's own property. The grants are not intended for the purpose of exploring and developing occurrences already found, but one year is allowed to prospect ground that has been staked by a grantee while on a grub-stake. The grantee must not accept pay from other sources for services rendered during the period credited to the grub-stake.

It is recognized that competent and experienced prospectors are capable of looking after themselves in wilderness areas. Nevertheless, experience has shown that less hazard may result when prospecting is done by two or three men in a team. A man working alone may be injured or be taken seriously ill and, if alone, he may have to endure extreme hardship and pain.

Grub-stake grantees are not working for the Government but are self-employed and are not covered under the provisions of the *Workmen's Compensation Act.* Therefore, it is recommended that prospectors make their own arrangements concerning insurance coverage to provide for medical and other expenditures that may be incurred in the event of an accident.

The grants are intended only to assist grantees to go out and prospect and are not intended for the support of dependents. Therefore, applicants who are married and have dependents are required to give assurance that their dependents will be adequately provided for during the time the applicant is absent in the field.

Statistical information covering the grub-stake programme since its inception is given in the following table:—

GRUB-STAKE STATISTICS

Field Season	Approximate Expenditure	Men Grub-staked	Samples and Specimens Received at Department Laboratory	Mineral Claims Recorded
1943	$18,500	90	773	87
1944	27,215	105	606	135
1945	27,310	84	448	181
1946	35,200	95	419	162
1947	36,230	91	469	142
1948	35,975	92	443	138
1949	31,175	98	567	103
1950	26,800	78	226	95
1951	19,385	63	255	137
1952	19,083	50	251	95
1953	17,850	41	201	141
1954	19,989	48	336	123
1955	21,169	47	288	183
1956	20,270	47	163	217
1957	22,000	46	174	101
1958	24,850	47	287	211
1959	21,575	38	195	202
1960	28,115	50	358	241
1961	29,175	47	309	325
1962	26,730	52	233	189

Samples and specimens received from grub-staked prospectors are spectrographed, assayed, and tested for radioactivity. Mineralogical identifications are made on request.

Seventy-six applications were received in 1962, and fifty-two grub-stakes were authorized. Three of the grantees were unable to go out, and they returned their initial payments. Grantees who were unable to complete the terms and conditions of the grant received only partial payment. Thirteen prospectors were given grants for the first time, and five proved unsatisfactory. A few grantees used aircraft for transportation to their prospecting areas. Three grantees received injuries in the field but were able to complete the season. One grantee was taken seriously ill and was unable to continue prospecting; fortunately he was accompanied by a partner who took care of him and brought him out to receive medical attention.

D. H. Rae again gave able service in interviewing applicants and was able to contact twenty-eight grantees in the field. The following notes have been largely compiled from Mr. Rae's observations while the in the field and from information provided in the diaries of the grantees.

Alberni Mining Division.—In the Nahmint River area a chalcopyrite-magnetite occurrence was prospected close to a granodiorite-limestone contact; at the headwaters of Handy Creek a granite-limestone contact received some attention. In the Sarita River valley near Bamfield many mineralized shear zones were observed. At Mount Blenheim a granite-limestone contact was examined; at the headwaters of the south Sarita River a large pyritized shear zone was seen and a quartz vein containing stibnite, in granite. In upper Corrigan Creek valley, near Mount Olsen, a large shear zone showing a network of tiny quartz stringers mineralized with pyrrhotite was uncovered, and along south Corrigan Creek to the headwaters of Nitinat River a wide sheared quartz porphyry dyke was seen mineralized with quartz, chalcopyrite, and pyrrhotite. Some work was done off Dewney and Coleman Creeks near Alberni Canal, where quartzite containing finely disseminated pyrite and minor amounts of pyrrhotite and chalcopyrite was prospected.

Atlin Mining Division.—Ten miles west of mile 118 on the Haynes road, mineralization of bornite, chalcopyrite, and minor amounts of hematite was found in an area underlain by greenstone and quartzite; serpentine containing narrow veinlets of asbestos fibre was investigated. In the Squaw Creek valley, and near its headwaters, malachite was found in granodiorite; and along a limestone-serpentine contact, good-grade asbestos fibre. Near the head of the main branch of Squaw Creek a copper deposit was discovered, prospected, and staked. Near mile 87 on the Haynes road another strong zone, well mineralized with chalcopyrite, was reported, as well as a large gossan area containing some galena. Near Stuhini Creek several gossans and heavily pyritized volcanics were prospected. Near Sittakanay Mountain, stibnite float was found and considerable quartz containing scattered pyrite and limonite. Some work was done close to Mount Manville and at the base of Mount Strong. At the south end of Teslin Lake, parallel quartz veins in grey granite showed mineralization of chalcopyrite, cuprite, and native copper, with malachite and minor bornite. Crystalline limestone in the area showed some free gold. Near Hall Lake, and close to Dawson Peaks, copper and silver mineralization was found across good average widths. Some claims were staked on these showings.

Cariboo Mining Division.—Some work was done on Spanish Mountain, where quartz veins in alaskite were mineralized with pyrite, galena, and some free gold. Some work was done in the Willow River area east of Strathnaver, near Barry and Alces Creeks, and at Stony and Stevens Lakes. Prospecting was carried on at Dragon Mountain and in the Slough Creek area. Some work was done in the vicinity of Ahbau Lake. Some work was also done along the Parsnip River, 10 miles southeast of the Hart highway, and around Scovil Flats, Modeste Lake, and Snowshoe Lake. In the southern Groundhog area a wide quartz vein carrying fair gold values

was uncovered. Considerable work was done in the valley of Bounding Creek, which flows northwest into Goat River, and within a 3-mile radius of the junction of Milk and Goat Rivers. Nothing of economic interest was found.

Clinton Mining Division.—Some work was done southwest of Kleena Kleene, in the Bluff Lake area, where gold values were reported, on the west fork of Homathko River, and adjacent to Tatlayoko Lake. Some work was done in the Poison Mountain area on rock exposures showing some cinnabar, and cinnabar was panned from Churn Creek. Considerable work was done between Yalakom River and Churn Creek. Work was done at Dog Creek, China Gulch, French Bar Creek, Red Mountain, near Quartz Mountain, and Quartz Mountain Creek.

Fort Steele Mining Division.—A little work was done near Wasa Creek.

Greenwood Mining Division.—Some inconclusive work was done near Wilkinson Creek, Sterling Creek, Campbell Creek, and northeast of Baldy Mountain.

Kamloops Mining Division.—At Copper Creek, on the north side of Kamloops Lake, a considerable amount of work was done on a wide shear zone in which bornite and native copper were visible. Five miles east of Savona a great deal of work was done in an area in which disseminated bornite was found in basalt and copper values in a syenite dyke. Three miles northwest of Walhachin work was done on a low-grade copper deposit. Narrow quartz stringers containing minor amounts of galena were reported east of Black Pool. At Miledge Creek, 17 miles north of Blue River, some vermiculite was found in mica schist. In the upper Thunder River valley, quartz veins were found associated with a garnet-skarn rock. At the south end of Adams Lake heavy sulphides were uncovered in schists. A magnetite deposit near White Lake was investigated.

Liard Mining Division.—Some work was done in the vicinity of Tatsho Creek and on the upper Tanzilla River. Southeast of Dease Lake heavily pyritized granodiorite and some shear zones were investigated. Between Tanzilla and McBride Rivers some magnetite float was picked up—search failed to find it in situ. Much work was accomplished from a base camp on Tucho Lake, at the headwaters of Denetiah Creek, near the Pitman River divide, and east of Lamarque Pass. Nothing of commercial importance was reported. Some work was done near Poorman Lake, up the Blue River where a large sulphide body was uncovered, and some asbestos float picked up. Careful prospecting within a 10-mile radius of the Cassiar asbestos mine came up with two finds, one molybdenite and the other asbestos, both of which are currently under option and being developed. Some work was done close to Juniper Mountain and Mount Pendleton. Work was also done between the south end of Dease Lake and Telegraph Creek, around Grass Mountain, Glenora Creek, and Winter Creek. The headwaters of Racing River was prospected. At the head of the Iskut River field work was continued near Ealue and Kluea Lakes, and near Todagin Lake a zone containing considerable malachite stain and disseminated copper sulphides was prospected.

Lillooet Mining Division.—Some work was done on Peridotite Creek up the Yalakom River. On Ama Creek on the lower Bridge River, semi-jade was found along a serpentine-granite contact, and in La Rochelle Creek valley a jade-like material was found in serpentine. Some short-fibre chrysotile asbestos was found one-half mile west of Moha and disseminated chalcopyrite in quartz on McKay Creek on a granite-serpentine contact. On the east side of the Fraser River, 15 miles north of Lytton, some tetrahedrite was reported along a fault zone. Southeast of Birkenhead Lake a large sulphide zone was found, and in the Gates River valley interesting values were found in zinc and copper. A shear zone was prospected in the Phair Creek valley off lower Cayoosh Creek.

Nanaimo Mining Division.—A little work was done up French Creek, where narrow quartz veins were found in sedimentary rock.

Nelson Mining Division.—Some work was done in the Priest River area, near Monk Creek, Ripple Mountain, North Star Creek, and Corn Creek.

New Westminster Mining Division.—In the Coquihalla River area some work was done up Sowaqua Creek. On the east side of Ladner Creek narrow quartz veins were reported to carry values in silver. Nine Mile Creek valley received some attention, and near Lear narrow gold-quartz veins were prospected. Some work was also done near Silverdaisy Creek, near Boston Bar Creek, and in the Anderson River valley. Some work was done on a sulphide zone on Norrish Creek near Hatzic. Near Falls Lake off the upper Coquihalla Valley a showing containing minor amounts of chalcopyrite and molybdenite was found in gneissic granite. More work is planned on this showing. Molybdenite float was reportedly found in the region of Jones and Lorenzetta Creeks.

Nicola Mining Division.—West of Stump Lake a mineralized outcrop showing chalcopyrite, bornite, and tetrahedrite in quartz-carbonate rock was prospected and staked. Similar showings northeast of Stump Lake were also investigated and work done northeast of Peterhope Lake. Narrow quartz veins containing minor copper and molybdenite were uncovered east and south of Nicola Lake.

Omineca Mining Division.—On Huckleberry Mountain (Tahtsa reach) a stock of monzonite porphyry and its contact rocks were found to contain disseminated chalcopyrite. This ground will be further investigated. From a base camp on Chikamin Creek 2½ miles from Eutsuk Lake a considerable amount of work was done. One mineralized contact zone contained pyrite with minor amounts of chalcopyrite, arsenopyrite, and magnetite. At the east end of Surel Lake minor amounts of molybdenite were observed along a contact zone. Some work was also done on Martin Creek, Musclow Lake, and the south fork of Chikamin Creek. Considerable detailed information was obtained from a group of young prospectors working from McDonnell Lake to Coal Creek at the head of the Zymoetz River, south to Burnie Lake, where large boulders containing pyrite and chalcopyrite were found, and in the Seven Sisters area. Encouraging signs of mineralization were scarce. At Sinkut Mountain granite and white limestone were observed. North of Hulatt grey limestone and volcanics were observed; northeast of Endako and in the Stern Lake area granite and volcanics.

Some work was done near Granite Creek (Manson area), in Skeleton Gulch, along the Wolverine Range, and on the south side of Germansen Lake. Some work was also done at Mount Milligan, where quartz veins along a contact were prospected, and in an area east of the Nation River bridge on the Manson Creek road.

Claims were staked on the north slope of Mount Sidney Williams, northwest of Trembleur Lake, on narrow to fairly wide veins of asbestos fibre in serpentine. Float of similar mineralization was found a mile from the main showings. More work will be done in this area.

Considerable work was done west of Smithers, and a low-grade copper deposit was staked and prospected on the southwest flank of Hudson Bay Mountain.

Osoyoos Mining Division.—Some work was done west of Osoyoos and south of Richter Pass. Work was done on Mount Kobau, and claims were located near Apex Mountain in an area where there were numerous outcrops of massive pyrrhotite. From a base camp 20 miles west of Peachland, work was done north of Mount Kathleen, along Trout Creek, and north of Crescent and Whitehead Lakes. On Trepanier Creek several massive sulphide bodies of interest were discovered.

Revelstoke Mining Division.—An occurrence of molybdenite was reported 30 miles north of Revelstoke, on the Big Bend highway.

Similkameen Mining Division.—On Railroad Creek mineralized sediments were prospected, and a narrow copper-bearing vein was uncovered. On upper Sutter Creek pyritized sediments containing narrow veins mineralized with galena and a wide well-mineralized fracture zone were prospected. Further work in this area is merited. Some inconclusive work was done west of Otter Creek and near Hedley.

Skeena Mining Division.—Prospecting was done along the northern coastline at Porcher Island (Edye Pass), Larcom Island, and Observatory Inlet. On Strohn Creek, flowing into Meziadin Lake, narrow veins mineralized with molybdenite, galena, and tetrahedrite were found. Near Mercer Lake, at Athlow Bay, on the west coast of Graham Island, an attempt was made to locate the source of copper-iron float. On Kahylskt (Burnt Bridge) Creek east of Bella Coola encouraging mineralization of molybdenum, lead, and copper was found.

Slocan Mining Division.—Some work was done in the Lardeau district, mainly at the headwaters of Poplar, Cascade, and Tenderfoot Creeks.

Vancouver Mining Division.—In Jervis Inlet, at the head of Queens Reach, prospecting was done on Mount Alfred.

Vernon Mining Division.—In Creighton Valley gneissic rock containing minor amounts of pyrrhotite and pyrite was prospected, and a small amount of work was done in the Monashee Creek valley. In Whiteman Creek valley search was made for better-grade deposits of fluorite. Near Sugar Lake work was done in the basins of Kate, Sugar, Schunter, Specht, and Currie Creeks.

MINING ROADS AND TRAILS

Provision is made in the *Department of Mines and Petroleum Resources Act* whereby the Minister may, with the approval of the Lieutenant-Governor in Council, authorize the expenditure of public funds for the construction or repair of roads and trails into mining areas. Assistance on a half-cost basis may also be provided on roads and trails to individual properties.

Requests for road and trail assistance must be made to the Department before the commencement of work. The type of access upon which assistance may be given depends upon the value of the property, the stage of development, and the amount of work to be done. A trail is sometimes sufficient for initial exploration, and a tractor-road may be adequate for preliminary work. Subsequent development might warrant assistance on the construction of a trunk-road. A carefully drawn sketch or plan of the location of the road is required to be submitted and, where warranted by the amount of assistance requested, a report on the property by a professional geological or mining engineer may be required. An engineer from the Department may be required to report on the property before a grant is made and to inspect the road after the work has been done.

Total mileages and disbursements under " Grants in Aid of Mining Roads and Trails " during the fiscal year ended March 31, 1963, were as follows:—

	Miles	Cost
Mining roads and trails—		
Construction and reconstruction	54	$102,866.93
Maintenance	167	20,227.22
Bridges—		
Construction and reconstruction	-----	53,500.00
Maintenance	-----	16,944.45
Total	-----	$193,538.60

In addition to the above, work was continued on the Stewart–Cassiar road. This road is being constructed under the " Roads to Resources " agreement between Canada and British Columbia. The construction is supervised by the Department of Highways on behalf of the Department of Mines and Petroleum Resources. At the north end of the road, construction of the 26.6-mile section from the Tanzilla River to the Stikine River was completed and a ferry crossing was installed on the Stikine. The 24.76-mile section from the Stikine River to Eddontenagon Lake was completed in September, and the 40.12-mile section from Eddontenagon Lake to Burrage River was 40 per cent completed when work was suspended for the winter at the end of October. At the south end of the road the Bear Pass contract was extended to include 3 miles northeasterly from Bitter Creek. At the end of the season this work was 97 per cent completed. The 31.87-mile section between Strohn Lake and the lower crossing of the Bell Irving River was 46 per cent completed.

MUSEUMS

The Department has a large exhibit of mineral and rock specimens in the Douglas Building, Victoria; collections are also displayed in the joint office in Vancouver and in the offices of the Inspectors of Mines in Nelson and Prince Rupert.

Specimens from the collection in Victoria, accumulated in a period of more than sixty years, are displayed in cases on the fourth floor of the Douglas Building. The collection includes specimens from many of the mines and prospects in the Province, and also specimens of type rocks and special minerals from British Columbia and elsewhere.

British Columbia material includes specimens collected by officers of the Department of Mines and Petroleum Resources and specimens donated by property-owners. The collection also includes type specimens purchased from distributors. Other valued specimens or groups of specimens have been donated or loaned to the museum.

ROCK AND MINERAL SPECIMENS

Information regarding collections of specimens of rocks and minerals available to prospectors and schools in British Columbia may be obtained from the Chief of the Mineralogical Branch.

PUBLICATIONS

Annual Reports of the Minister of Mines and Petroleum Resources, bulletins, and other publications of the Department, with prices charged for them, are listed in the Department of Mines and Petroleum Resources List of Publications available from the Chief of the Mineralogical Branch.

Publications may be obtained from the offices of the Department in Victoria and elsewhere in the Province. They are also available for reference use in the Department's library (Mineralogical Branch) at Victoria, in the joint office in Vancouver, and in the offices of the Inspectors of Mines in Nelson and Prince Rupert, as well as in public libraries.

MAPS SHOWING MINERAL CLAIMS, PLACER CLAIMS, AND PLACER-MINING LEASES

From the details supplied by the locators, the approximate positions of mineral claims held by record and of placer-mining leases are shown on maps that may be inspected in the central records offices of the Department of Mines and Petroleum

Resources in Victoria and in Vancouver. Copies of these maps may be obtained on request. The boundaries of surveyed claims and leases are shown on the reference maps and other maps of the British Columbia Department of Lands, Forests, and Water Resources.

JOINT OFFICES OF THE BRITISH COLUMBIA DEPARTMENT OF MINES AND PETROLEUM RESOURCES AND THE DEPARTMENT OF MINES AND TECHNICAL SURVEYS, CANADA.

The Provincial Department's Inspector and Resident Engineer, the Gold Commissioner and Mining Recorder for the Vancouver Mining Division, and the officers of the Federal Geological Survey occupy one suite of offices. All official information relating to mining is available to the public in the one suite of offices at 739 West Hastings Street, Vancouver 1.

The services offered to the public include technical information on mining, the identification of mineral specimens, distribution of Federal and Provincial mining publications, a reference library, a display of rocks and minerals, and a central records office.

Topographic Mapping and Air Photography

Under the direction of the Surveyor-General, the Surveys and Mapping Branch of the Department of Lands, Forests, and Water Resources is responsible for official maps and Crown land surveys. The following paragraphs outline a few achievements of the Legal Surveys, Topographic, Geographic, and Air Divisions of the Surveys and Mapping Branch during 1962.

The Legal Surveys Division received field notes covering twenty-three lots surveyed under the *Mineral Act* and 598 lots surveyed under the *Land Act*. New large-scale (mostly 1 inch to 500 feet) composite maps showing subdivision surveys were prepared for the Gulf Islands (forty-six sheets), Revelstoke (four sheets), Smithers (four sheets), Burns Lake (three sheets), and Hazelton and Clinton (one sheet each). Field work recorded by Legal Surveys Division included town lot surveys of six lots at Savona, six at Sointula, one at Westbank, and eight at the University of British Columbia. Rural lot surveys were undertaken at Ootishenia, Nelson, Pemberton, Tulameen, Howser, 100 Mile House, Cheakamus, and Isle Pierre.

One field crew of the Topographic Division established survey control for fifteen standard National Topographic map-sheets in the vicinity of Babine, Takla, Nation, and Germansen Lakes, while another crew operating from the motor-vessel " B.C. Surveyor " completed photo identification of 236 triangulation stations from Jervis Inlet to Douglas Channel. Also twenty-three new second-order control stations were established in the lower Fraser Valley between Chilliwack and Vancouver. Among the large-scale mapping projects completed were Liard River (sixty-eight sheets at scale of 1 inch to 1,000 feet), Stuart Lake Pondage (nine sheets at 1 inch to 1,320 feet), McGregor River Pondage (six sheets at 1 inch to 1,000 feet), and Skeena River (eleven sheets at 1 inch to 500 feet).

New maps reproduced and printed by the Geographic Division numbered eight in 1962. Northwest British Columbia, the sixth and final sheet of the 1-inch-to-10-miles regional series, was published in three editions. These were: Map 1B (planimetric), 1BL (landforms in grey or light sand), and 1BLS (special brown landforms). New seven-colour National Topographic sheets showing up-to-date land-status detail and contours were printed at 1:250,000 scale for Victoria (92 B-C), Alberni (92 F), and Vancouver (92 G), and at 1-inch-to-2-miles scale for Creston (82 F/SE), and Slocan (82 F/NW).

Federal Government mapping agencies reproduced seven Provincial topographic manuscripts; sixty black, blue, and white provisional sheets; and sixty-three full-colour National Topographic maps, all at 1:50,000 scale.

A modest increase in the price of maps was made in November. However, further adjustments were anticipated in 1963 to conform with price changes to become effective January 1, 1963, for maps printed by the Federal Government.

Slightly under 20,000 aerial photographs were exposed by the Air Division. Among the special projects completed were eighty-one photographs of Strathcona Provincial Park for the Department of Mines and Petroleum Resources. Mining and oil and natural-gas companies accounted for 12,052 aerial photographs borrowed or purchased from the Air Division in 1962. This represents nearly one-third of the total volume of loans and reprints to the general public.

The mapping and compilation sections of the Air Division continued to produce interim sheets at 1-inch-to-20-chains scale for the Surveys and Inventory Division

of the Forest Service. Sixty final tracings, covering 2,875 square miles of cadastral detail, were completed for public distribution.

Indexes 1 to 18 showing published maps, air-photo cover, Departmental reference maps, and manuscripts are contained in the envelope attached to the back cover of the 1962 Annual Report of the Lands Service and Water Resources Service. Further inquiries may be made to the Director, Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Victoria, B.C.

Department of Mines and Technical Surveys

The Canadian Government Department of Mines and Technical Surveys performs many functions related to mining and the mineral industry in general. The Mines Branch, Geological Survey of Canada, Surveys and Mapping Branch, and Mineral Resources Division are services of the Department of direct interest to the mineral industry. Brief reference to the work of the Surveys and Mapping Branch in British Columbia is made in the preceding note headed "Topographic Mapping and Air Photography." A note on the Geological Survey of Canada follows this paragraph and is followed by notes on the Mines Branch and the Mineral Resources Division.

GEOLOGICAL SURVEY OF CANADA

By an arrangement made at the time the Province of British Columbia entered Confederation, geological investigations and mapping in the Province are carried on by the Geological Survey of Canada. Several geological parties are in the field each year. Many excellent reports and maps covering areas of British Columbia have been issued by the Geological Survey of Canada, and they have made available a great amount of information that has been of much benefit to the mining and prospecting activities in British Columbia.

A branch office of the Geological Survey of Canada is maintained in Vancouver. Maps and reports on British Columbia can be obtained there. J. E. Armstrong is in charge of this office at 739 West Hastings Street, Vancouver 1.

Field Work by Geological Survey of Canada in British Columbia, 1962

A. J. Baer commenced field work in the Bella Coola (93 D) map-area.

R. B. Campbell completed field work in the Quesnel Lake East Half (93 A, E. ½) map-area, and began work in the Adams Lake West Half (83 M, W. ½) map-area.

R. J. Fulton completed his study of the surficial geology of the Nicola (92 I, E. ½) map-area.

E. C. Halstead continued the study and mapping of the surficial geology of the Nanaimo and Gulf Islands map-areas (92 F/1, E. ½, G/4, C/16, B/13, B/14).

W. W. Hutchison worked in Prince Rupert East Half (103 J, E. ½) and Port Essington West Half (103 I, W. ½) map-areas to obtain information to aid in a forthcoming systematic study of the Coast Mountains.

D. W. Hyndman completed his study of sedimentary and metamorphic rocks in the Nakusp (82 K/4) map-area.

E. J. W. Irish completed field work in the Halfway River (94 B) map-area.

S. F. Leaming completed field work in a study of sand and gravel deposits of the Strait of Georgia area.

H. W. Little completed mapping of the Rossland-Trail (82 F/4) map-area.

B. R. Pelletier continued his Triassic stratigraphic and sedimentation studies in the Halfway River (94 B) and Trutch (94 G) map-areas.

P. B. Read began a study of the eastern contact of the Kuskanax batholith in the Poplar Creek (82 K/6) map-area.

J. E. Reesor for part of a season continued his studies of granite and associated metamorphism in southern British Columbia.

D. F. Sangster completed a study of magnetic iron-ore deposits in coastal British Columbia.

D. F. Stott continued his study of Lower Cretaceous stratigraphy in northeastern British Columbia.

H. W. Tipper continued mapping the Taseko Lakes (92 O) map-area.

S. Washkurak and others, in co-operation with the Department of Mines and Petroleum Resources, made an aeromagnetic survey of northern Vancouver Island north of 50 degrees and west of 126 degrees 30 minutes.

J. O. Wheeler began mapping the Big Bend East Half (82 M, E. ½) map-area.

W. J. Wolfe made a study of metamorphism of the Blue River ultramafic intrusion in the Cassiar district (parts of 104 O and 104 D quadrangles).

Publications of the Geological Survey

A total of thirty-two publications of the Geological Survey of Canada relating to British Columbia was received by the British Columbia Department of Mines and Petroleum Resources in 1962.

MINES BRANCH

The Mines Branch has branches dealing with mineral dressing and process metallurgy, physical metallurgy, radioactivity, and fuels and explosives. A total of nineteen publications of the Mines Branch pertaining to British Columbia was received in 1962 by the British Columbia Department of Mines and Petroleum Resources. They included tabular pamphlets dealing with coal mines, gold mines, stone quarries, petroleum refineries, and milling plants in Canada.

MINERAL RESOURCES DIVISION

The Mineral Resources Division, which was a division of the Mines Branch, has now been transferred from the Mines Branch to the office of the Deputy Minister of Mines and Technical Surveys.

The Mineral Resources Division publishes studies on mineral resources, mineral economics, mineral legislation, mineral taxation, mining technology, and other miscellaneous mineral-industry subjects. A total of three publications published by this Division was received by the library.