

BRITISH COLUMBIA DEPARTMENT OF MINES

HON. R. E. SOMMERS, *Minister*

JOHN F. WALKER, *Deputy Minister*

MINING IN BRITISH COLUMBIA

An Outline of the Development
of the Industry

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VICTORIA, B.C.

Printed by DON McDIARMID, Printer to the Queen's Most Excellent Majesty
1954

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Reinstating in 1963 on the Cameron and Warrick Colliery's claims. Williams Creek, Caribou. "Caribou" Colliery is mining with gold pay in 1963.

BRITISH COLUMBIA DEPARTMENT OF MINES

JOHN F. WEAVER, Deputy Minister

HON. R. B. SARGENT, Minister

MINING IN BRITISH COLUMBIA

This pamphlet deals principally with the history of mining activity in British Columbia to the end of the year 1953. The written account is supplemented by a selection of photographs.



VICTORIA, B.C.
Printed by the Government Printer at the Government Press, Esplanade, Victoria
1954



Placer-mining in 1863 on the Cameron and Wattie Company's claims, Williams Creek, Cariboo. "Cariboo" Cameron is sitting with gold-pan in his lap.

MINING IN BRITISH COLUMBIA

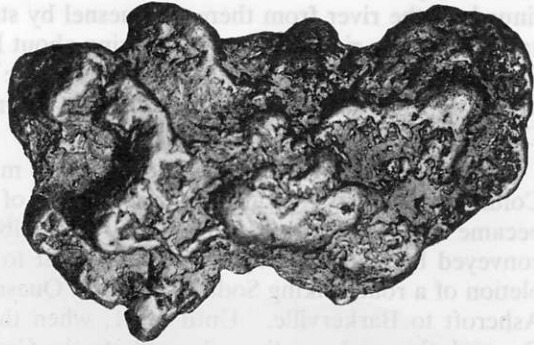
It is a curious fact that, although what is now British Columbia possessed a vast wealth of visible resources, little attention was paid to them in the eighty years following Captain Cook's visit to the west coast of Vancouver Island in 1778. Such interest as was aroused was mainly in furs. It was interest in fur that led John Meares to establish his short-lived post at Nootka, and interest in fur that spurred Alexander Mackenzie, Simon Fraser, and David Thompson to undertake their arduous expeditions into British Columbia from the eastern side of the Rocky Mountains. In the period from 1805 to 1849 fifteen posts were established along the routes of the fur brigades, and here and there the Oblate Fathers had planted churches among the tribes. But, apart from those few scattered outposts and their tiny local activities, the whole country lay dormant and almost unexplored, its real significance and the importance of its hidden wealth still unappreciated.

However, even before fear of being forced out of Oregon led the Hudson's Bay Company to establish Victoria in 1843, the Company had shown its interest in coal which was recovered from the beach at Suquash on the northern part of the east coast of Vancouver Island as early as 1836. The Suquash seams were disappointing and by 1852 were abandoned for more favourable ones at Nanaimo. In the same year small quartz veins containing visible gold were discovered at Mitchell Harbour, Queen Charlotte Islands. In 1857 the discovery of coarse placer gold at the mouth of the Nicoamen River initiated the gold-rush that led to the discovery of gold on bars in the Fraser River at Yale and at up-stream points in 1858.

In the next forty years the lure of placer gold, and later of ores containing gold, silver, copper, and lead, drew thousands of eager pioneers into areas that, until 1858, had been virtually or actually uninhabited. At the beginning of the gold-rush the white population numbered only six to seven hundred, but within two years more than 30,000 had entered the area that now forms the Province of British Columbia.

Keeping pace with the extremely rapid opening-up of the country, Governor Douglas and the colonial authorities took steps that were successful in maintaining law and order. Legal authority for government was provided when the Mainland was made a colony in 1858. In 1866 the Vancouver Island and Mainland Colonies were united and in 1871 entered Confederation as the Province of British Columbia.

By the end of 1858 the gold-rush had brought 8,000 men across the boundary from Washington and Oregon, and another 23,000 came from California via Victoria. These miners pushed their way up the Fraser River, and settlements at Fort Langley, Hope, Yale, Lytton, and Boston Bar sprang up in the path of the increasing number of gold-seekers. In the Cariboo rich placer-ground was discovered on the Quesnel River, Keithley, Antler, Lightning, Lowhee, and Williams Creeks in 1861 and 1862. Gold was obtained so readily by the thousands of individual miners working the shallow gravels of these streams that the greatest placer production was achieved in 1863. A small fraction of the production came from Wild Horse River and from other streams in the southern part of the Province.



Gold nugget weighing 52 oz. 15 dwt., found in 1937 on Vern Shea claim on a tributary of Boulder Creek in the Turnagain River area east of Dease Lake. (Illustration one-half natural size.)

To meet the needs of the gold-seekers, efforts were soon made to provide transportation routes from the Coast to the goldfields. The Cariboo Trail, leading to the Cariboo, the Dewdney Trail, from Fort Hope across the Southern Interior to Wild Horse River in the Kootenay District, and subsequently the Cariboo Road were the principal projects in the early period. To these projects, three detachments of the Royal Engineers, numbering 165 men, made important contributions. The Cariboo Trail was built with great urgency because of the obvious danger that winter would find thousands of ill-equipped miners cut off from the Coast except for the almost impassable route through the Fraser Canyon. Governor Douglas arranged free transportation to Fort Douglas, at the northern end of Harrison Lake, for the miners who volunteered to work on the road in return for their food. The site of Lillooet was reached late in 1858 by a lake and portage route that followed Lillooet River, Lillooet Lake, Anderson Lake, and Seton Lake.

Two years later Governor Douglas, realizing the need for roads to the Interior in order to prevent the Americans from controlling the trade, started his road-building policy. The Harrison-Lillooet Trail was made into a wagon-road which was continued over the mile-high summit of Pavilion Mountain and down to the Interior Plateau at Clinton, and a road was built from Yale to Clinton. The latter road followed the Fraser through the tortuous canyons, sometimes touching the bank and sometimes clinging to the cliffs. It crossed the river at Spuzzum, where a suspension bridge—the first in British Columbia—was built in 1863. From Spuzzum the road followed the east bank of the Fraser to Lytton, where it turned eastward and struggled along the Thompson, crossing to the north bank at Cook's Ferry (now Spences Bridge) and continuing to Ashcroft. From this point it went through the valley of the Bonaparte to Clinton. From Clinton the road was pushed northward to the bank of the Fraser at Soda Creek. Travellers continued up the river from there to Quesnel by steamboat, and from Quesnel by road built eastward to the rich placer area centring about Barkerville on Williams Creek. From the Fraser at Quesnel the road climbed the divide and descended to Cottonwood then continued up Lightning Creek, a tributary of Cottonwood River, and finally reached Williams Creek, a tributary of Willow River.

The completion of this road in 1864 marked an important milestone in British Columbia's history. Following completion of the Canadian Pacific Railway, Ashcroft became the point of departure for "The Cariboo." Travellers, mail, and supplies were conveyed by stage or wagon from Ashcroft to destinations in the Cariboo area. Completion of a road linking Soda Creek with Quesnel made it possible to travel by road from Ashcroft to Barkerville. Until 1921, when the Pacific Great Eastern Railway reached Quesnel, the road was the only route to the Cariboo. Although relocated in many parts, the present Cariboo highway follows essentially the same route as the road planned by Governor Douglas in 1860.

By 1885 the placer-streams of the Cariboo, Omineca, Cassiar, and of many parts of Southern British Columbia had yielded most of their easily won wealth, but gravel rich enough to be worked by hand or as small hydraulic operations was still to be found. Important discoveries were made in 1898 near Atlin by miners on their way to the Klondike. Cedar Creek was discovered in 1921, Squaw Creek in 1927, and Wheaton Creek in 1932.

As early as 1880 some of the shallow diggings and some deeper "drift-mining" ground in the Cariboo had been worked out. Rather than leave the district, individual miners pooled their resources to buy hydraulic machinery, and worked deeper gravels chiefly by hydraulicking. Hydraulicking still continues on a few streams in the Cariboo and elsewhere. Lowhee Gulch, discovered in 1861, first worked in shallow hand diggings and later by drifting, was hydraulicked on a large scale from 1900 to 1947 and to 1953 as a small clean-up operation.



Washing gravel with a rocker, Spruce Creek, Atlin.



Dragline dredge, consisting of a dragline shovel and floating washing plant,
Pine Creek, Cariboo.



Hydraulic mining on Wright Creek, Atlin.



The Lowhee hydraulic placer pit, Lowhee Creek, Cariboo.



Outcrop of a quartz vein.



Vein of high-grade asbestos at open-pit mine of Cassiar Asbestos Corporation Limited, McDame Creek.



Portal of a prospect adit.



Truck entering portal of Dodger 14- by 15-foot trackless adit.

In 1941 the first California-type dragline dredge, with floating washing plant, was installed on the Similkameen River upstream from Princeton, and later the same year another dredge was installed at Alexandria Ferry on the Fraser River. From 1944 to 1948 much of the placer-gold output was recovered by dragline dredges operated in widely separated parts of the Province.

Production from the Atlin camp has come principally from Pine Creek and its tributary Spruce Creek. A substantial part of the total has been recovered by drift-mining, the gold-bearing gravel being mined underground and hoisted to the surface, where the gold is recovered by washing the gravel in sluice-boxes. In 1950 more than half the placer gold recovered in the Province came from the Noland underground placer mine on Spruce Creek.

Placer operations have been carried on in many parts of British Columbia, mainly for gold, but the Tulameen River and its tributaries and some streams in the Cariboo area have also yielded placer platinum, and Boulder Creek near Atlin has yielded placer concentrates containing tungsten and some tin. There was little demand for the platinum in the early gold-rush days, the miner receiving less than a dollar an ounce for it, compared with the present price of about \$90 an ounce.

Interest in lode deposits developed in the 1880's, and lode-mining soon became established. Search for lode deposits was encouraged by the building of main-line railways, and the discovery and mining of ores containing gold, silver, copper, and lead encouraged the construction of feeder railway-lines.

Undoubtedly some of the earliest white travellers in the Kootenays learned of the existence of lead ore. The Bluebell mine at Riondel is popularly reported to have been known before 1850. However, the deposit was not staked until 1873. Possibly the first production from a lode mine on the Mainland of British Columbia was silver ore shipped from the Eureka-Victoria property, 6 miles south of Hope, between 1871 and 1874. Many silver-lead-zinc lodes, then valued only for silver and lead, were discovered between 1883 and 1893. In this period the Ainsworth and Slocan camps in West Kootenay, and the St. Eugene, North Star, and Sullivan mines in the East Kootenay were found. Production of silver and lead was undertaken in 1887, and recovery of zinc dates from 1909, but production of lode gold recorded first in 1893 and of copper in 1894 overshadowed silver, lead, and zinc until the early 1920's. Since then the relative importance has changed from time to time, but since 1942 lead and zinc have been the leading items in British Columbia's mineral production.

High prices for silver, lead, and zinc encouraged a great deal of exploration in the years 1946 to 1952, and new mines or revived old mines in many parts of the Province were equipped for production. In this period, zinc production became very important at Britannia, and the Silbak Premier mine at Portland Canal found lead and zinc to offset its declining gold production. The Big Bull and Tulsequah Chief mines on the Taku River, the Torbrit at Alice Arm, the Silver Standard near Hazelton, and the Sil-Van near Smithers began production. Developments in the Kootenays included reopening of mines in the Slocan district, greatly increased activity at Ainsworth, the revival of the Bluebell mine at Riondel, the establishment of the area from Salmo to the International Boundary as an important lead-zinc area, and the opening of several properties in the East Kootenay District. Reduced prices for lead and zinc have caused the shut-down of several properties; however, the period of expansion has added important continuing producers in the silver-lead-zinc field. These include the Big Bull, Tulsequah Chief, Torbrit, and Bluebell mines already mentioned, and also two other substantial producers of lead and zinc, the Jersey mine near Salmo and the Silver Giant at Spillamacheen. The Sullivan mine at Kimberley remains British Columbia's principal producer of silver, lead, and zinc, and one of the world's important sources of these metals.

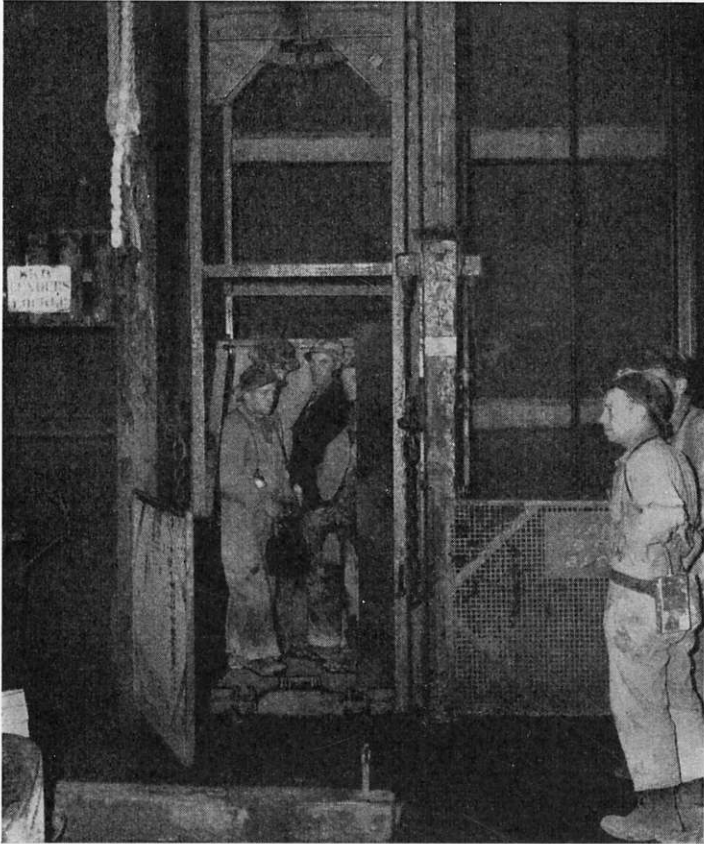
The smelter at Trail, originally built to treat gold-copper ores from Rossland, is now one of the leading lead and zinc smelters in the world. It treats lead and zinc concentrates and ore from the Sullivan and from other mines in British Columbia. It also treats ores and concentrates from Yukon Territory, the Province of Quebec, and, in recent years, has been receiving shipments from many distant parts of the world. The principal natural advantages enjoyed by the smelter are hydro-electric power developed near by on the Kootenay and Pend d'Oreille Rivers, and the abundance of water available from the Columbia River. In addition to the large quantities of metal refined at Trail, plants there utilize sulphur obtained from the ores to manufacture fertilizers that find ready markets in the Pacific Basin, on the Canadian Prairies, and overseas, as well as in British Columbia.

Copper and gold have bulked large in lode-metal mining. The Silver King mine, discovered at Nelson in 1886, was an early producer of silver and copper, the ore being smelted at the Hall Mines smelter at Nelson. The Rossland camp, discovered in 1889, soon became an important producer of gold-copper ore. By 1896 the necessary railway connections had been built, and the smelter at Trail began treating Rossland ore. Production from the main Rossland camp was maintained at a high rate until about 1917 and was suspended in 1928, but revived again for a few years in the middle 1930's. More gold has been produced from the Rossland camp than any other lode-gold deposit in British Columbia. Bridge River, Portland Canal, Wells, Hedley, Sheep Creek, and Ymir have also been large producers of lode gold, and the Boundary camp produced more than 1,000,000 ounces of gold as a by-product from its large production of copper. Copper production in the Boundary camp began in 1900 and stopped in 1919, but by then Anyox had become an important producer and continued large-scale production until 1935. In 1937 the mine at Copper Mountain began operating again after a period of inactivity. The Britannia mine on Howe Sound has been producing copper ore since 1905 and has yielded gold, silver, lead, and zinc, in addition to copper.

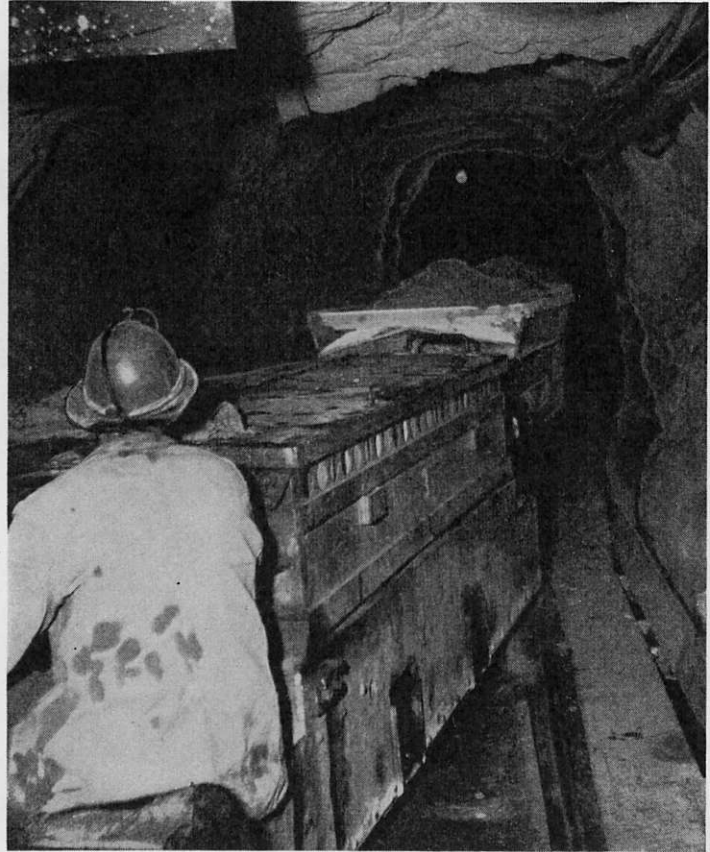
Large copper smelters have been operated at Trail, Greenwood, Grand Forks, and Anyox, and smaller ones at Nelson, Boundary Falls, Crofton, Ladysmith, and Vananda. The smelter at Anyox, closed in 1935, was the last to smelt copper in British Columbia. Since then all British Columbia copper has been exported for smelting and refining.

The Copper Mountain and Britannia mines continue to be the principal British Columbia producers of copper. In some years Britannia has produced more zinc than copper. Britannia also produces pyrite, sold as a source of sulphur. The Big Bull and Tulsequah Chief mines on Taku River began production in 1951 and contribute important quantities of copper as well as gold, silver, lead, and zinc.

Gold-mining declined during World War I. The output increased gradually in the 1920's, the Premier mine at Portland Canal making a large contribution. In its early years the Premier yielded ore rich both in silver and in gold. In the late 1920's the Bridge River camp became a substantial producer from the Pioneer mine, and interest in gold was being shown again. With the onset of the depression, interest in gold was intensified. Bralorne mine soon joined the Pioneer amongst the producers, and in 1933 and 1934 the Cariboo Gold Quartz and Island Mountain mines at Wells came into production. The Hedley camp was revived with the reopening of the Nickel Plate mine, which was soon joined by the Hedley Mascot, and in the area south of Nelson, including Sheep Creek, Erie Creek, and Ymir, old mines were reopened and some new ones also began production. In the coastal area Surf Inlet was revived; the Zeballos camp on Vancouver Island and the Polaris-Taku mine on Tulsequah River far to the north began production. World War II soon made it difficult for gold mines to hold their working forces and obtain necessary supplies. Consequently, many of them shut down, to reopen after the war. However, although it then became possible to obtain men, equipment, and supplies, the costs continued to increase. Many of the gold mines have shut down, and conditions now make it difficult for any but very rich gold mines to operate.



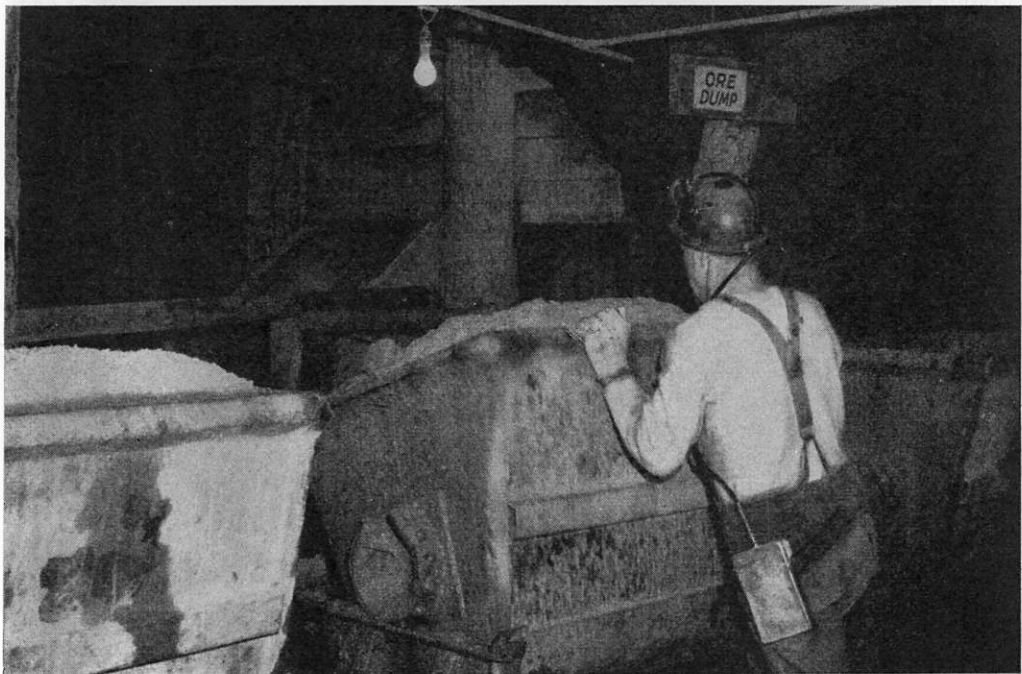
Men in skip at shaft station underground at Bralorne mine.



Battery locomotive and train of ore-cars underground.



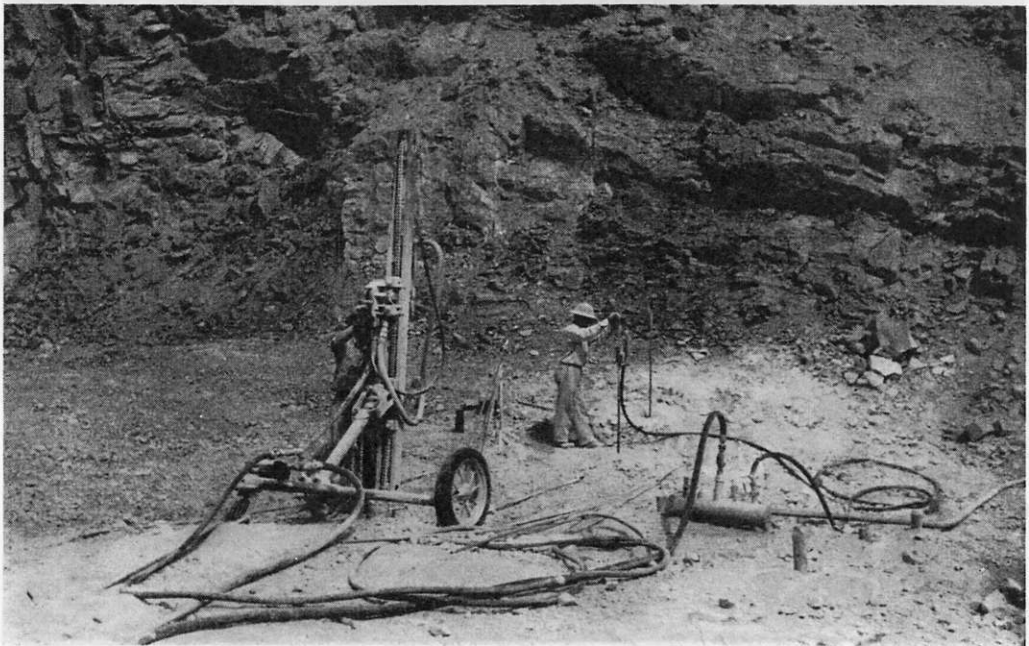
Hand-tramming ore underground in a small mine.



Dumping ore from a side-dump mine car at Bralorne mine.



Jack-leg drilling in glory-hole at Reeves MacDonald silver-lead-zinc mine.



Drilling in the Columbia Gypsum quarry, Windermere.



Entrance to main-slope portal, Tsable River coal mine.



Loading coal at open-pit mine, Corbin.

During the war years, mines at Hazelton and south of Nelson produced substantial quantities of tungsten concentrates, while other properties produced tungsten in lesser quantity. In the same period a substantial quantity of mercury was produced, principally from the mine at Pinchi Lake north of Vanderhoof. Those operations were shut down in 1943; however, the Red Rose mine at Hazelton and the Emerald mine at Salmo began producing tungsten concentrates again in 1952.

Production of iron ore for export has become important since World War II. Mines at Quinsam Lake on Vancouver Island, and on Texada Island are now shipping iron ore worth several million dollars each year.

The first mining activity recorded in British Columbia was coal-mining, which is still one of the major branches of the mining industry. The first extensive underground operations were at Nanaimo, where mining began in 1852. Nanaimo and near-by Wellington have declined as sources of coal, and the Comox-Tsable River field is now the principal coal-producing area on Vancouver Island. The Crownsnest Pass area, with mining centred near Fernie and Michel, has for some years been the most productive area in British Columbia, and for a long time has enjoyed a good market for coke and for steam-coal. For several years strip-mining near Michel has accounted for an appreciable part of the output. Lesser quantities of coal, principally for local use, are mined at Princeton, Telkwa, and in the Peace River District. An important part of the coal produced in the Crownsnest Pass area has been made into coke for sale to metallurgical and other industrial plants. Coke-manufacture is concentrated at Michel, and by-product ovens have replaced the bee-hive ovens formerly used. In addition to the coke produced, the by-product plant recovers tar for sale and gas for use in heating the ovens and the colliery steam boilers. Gas plants at Victoria and Vancouver produce some coke but are operated mainly for the production of gas. At Michel, at Coal Creek near Fernie, and at Union Bay, preparation plants size and clean coal and prepare it for the particular market requirements. A briquetting plant recently completed at Michel is designed to make fine coal into briquettes for sale to railroads as steam-coal.

In the past few years a great deal has been done in exploring for petroleum and natural gas. The work has included geological and geophysical investigations and the drilling of many wells. Work has been done in many parts of the Province, but the northeastern part, on the eastern side of the Rocky Mountains has received most attention, and important reserves of natural gas have been proven in the Peace River area, notably near Fort St. John.

In recent years structural materials, including cement, lime and limestone, rubble, riprap and crushed rock, brick, tile, and other clay products, sand, gravel, and some other materials, have had a combined value ranging from \$6,000,000 to \$13,000,000. Brick was made and lime was burned in some rather remote areas in the very early days. Brick-making and the manufacture of other clay products is now concentrated near Victoria and in the Fraser Valley, close to Vancouver and the near-by area of concentrated population. Refractory clay mined on Sumas Mountain has for many years been manufactured into firebrick and special shapes. The same area produces tile and flue-lining. Limestone and lime are now produced mainly on Texada Island, but some limestone is quarried at other points for use in pulp-mills and as smelter flux. Manufacture of cement was begun in 1905 at Tod Inlet. All the cement manufactured in British Columbia is now made at Bamberton on Saanich Inlet, where the capacity of the plant has been expanded to 2,200,000 barrels a year (approximately 1,300 tons a day).

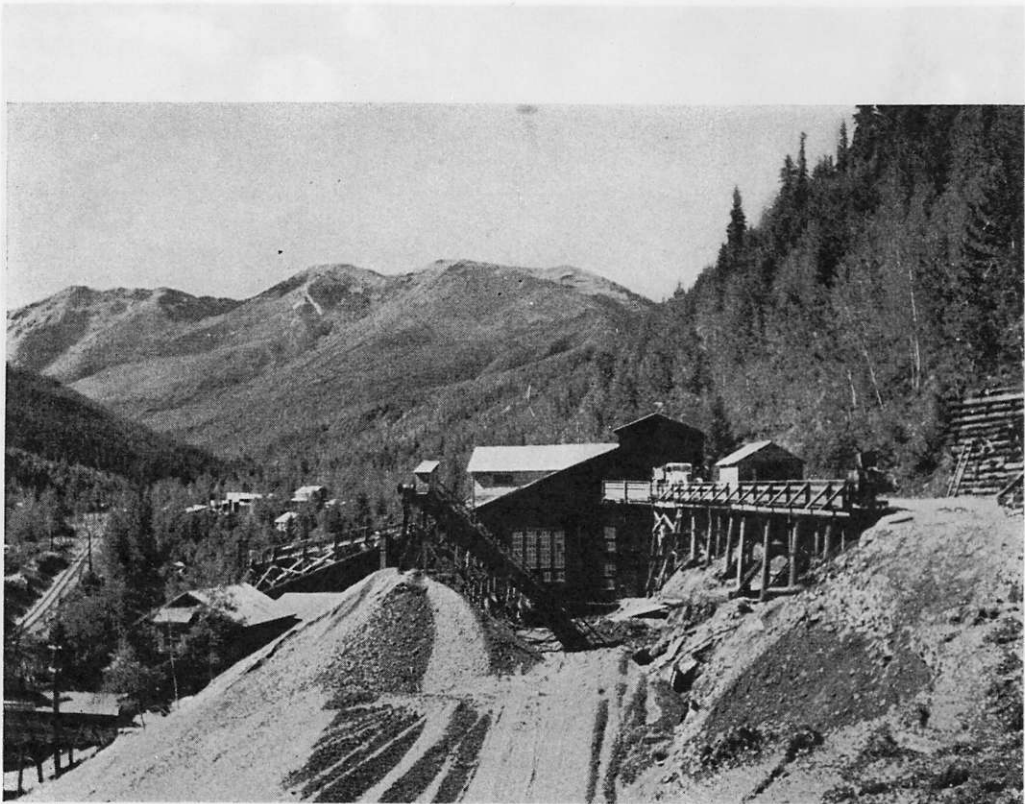
Gypsum, sulphur, and asbestos are our principal industrial mineral products. Gypsum is used in the manufacture of plaster, wallboard, gypsum lath, and other building products, and also in the manufacture of Portland cement. Quarries at Falkland have supplied most of the gypsum used in making plaster and other gypsum products in British Columbia. Quarries near Windermere and Mayook in the East Kootenay District now ship substantial quantities of gypsum to cement plants in British Columbia, Alberta, and

the Northwestern States. The sulphur contained in some metallic ores is converted into sulphuric acid or other chemicals for industrial use. Sulphur recovered from roaster gases at the Trail smelter has been used in the production of chemical fertilizers since 1931. The use of sulphur and production of fertilizer have been increased by the completion of a new chemical plant adjacent to the Sullivan concentrator near Kimberley. This plant uses sulphur from iron sulphide concentrates, phosphate rock imported from Montana, and ammonia imported from Alberta to make ammonium phosphate fertilizer. Iron sulphide concentrates produced at Britannia supply sulphur for sulphuric-acid manufacture at Barnet and for the plant of the Columbia Cellulose Company near Prince Rupert. Asbestos production began late in 1952, and in 1953 added a million dollars to the value of our mineral output. The long-fibre asbestos produced at the mine of the Cassiar Asbestos Corporation on McDame Creek commands prices high enough to stand the cost of trucking it 350 miles to Whitehorse and of shipping it from Whitehorse to Vancouver. Most of it is being sold to manufacturers in the Eastern United States.

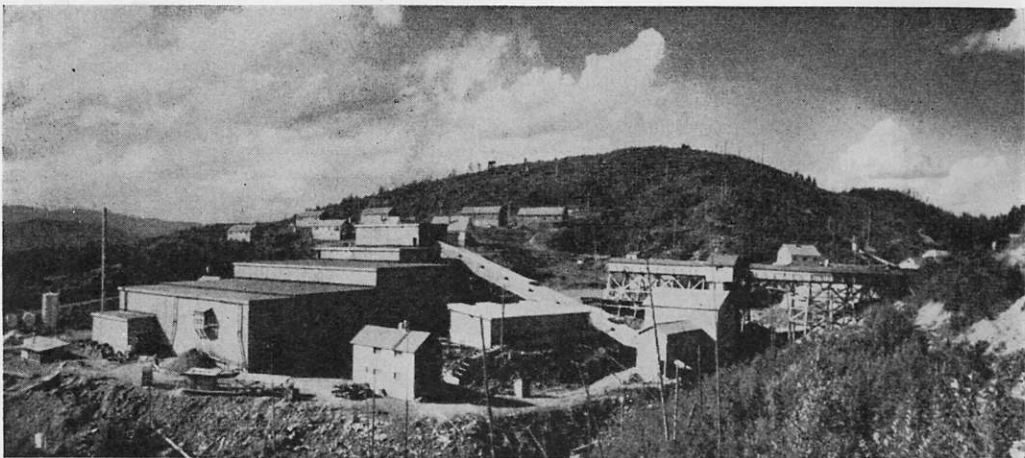
Mineral production in British Columbia has been recorded each year since 1851. To the end of 1953, a period of 102 years, the total value of mineral production has amounted to more than three billion two hundred million dollars. In the five-year period ending with 1953 the average annual value has been approximately \$156,000,000.

For the years 1949 to 1953, inclusive, the average annual values of the principal mineral products have been: Placer gold, \$550,000; lode gold, \$9,600,000; silver, \$7,050,000; copper, \$12,000,000; lead, \$44,200,000; zinc, \$50,500,000; antimony, bismuth, cadmium, and tin (combined), \$3,200,000; industrial minerals (mainly sulphur, gypsum, and asbestos), \$2,600,000; structural materials, including brick and other clay products, cement, lime, limestone, rock, sand and gravel, and building-stone, have averaged \$11,200,000; and coal, \$10,200,000. Iron ore and tungsten concentrates were not produced for the full five-year period; their combined value in 1952 and 1953 was more than \$22,000,000, that is more than \$11,000,000 a year. In the five-year period the mineral industry of British Columbia employed more than 17,000 workers, whose earnings amounted to more than \$50,000,000 a year. The industry spent about \$8,000,000 each year for fuel and electricity, and \$25,000,000 for process supplies, and paid \$23,000,000 for freight and treatment charges on ores and concentrates. Taxes paid to the Governments of Canada and British Columbia and to municipalities and school districts averaged \$22,000,000 a year, levies for workmen's compensation and unemployment insurance averaged \$1,800,000, and dividends paid to shareholders averaged \$34,000,000.

Statistics of mineral production, employment, etc., are published annually in the Report of the Minister of Mines. A reprint of the statistics to the end of the latest year may be obtained from the Department of Mines, Victoria, B.C.

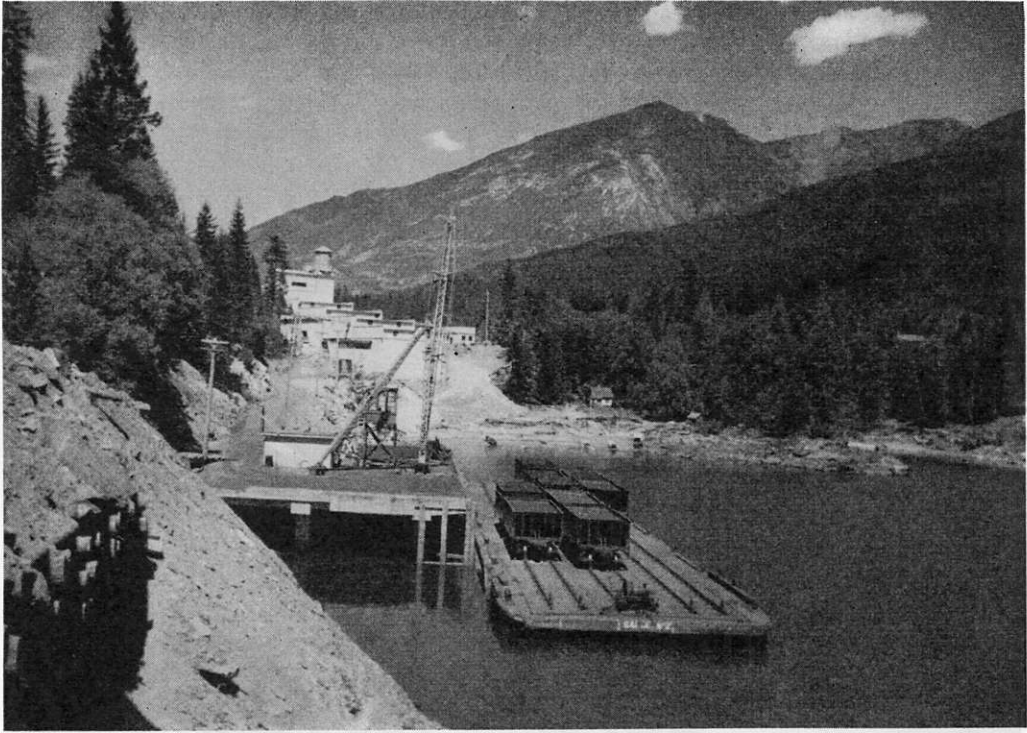


Whitewater mill at Retallack; sink-float plant in foreground, flotation plant in background.

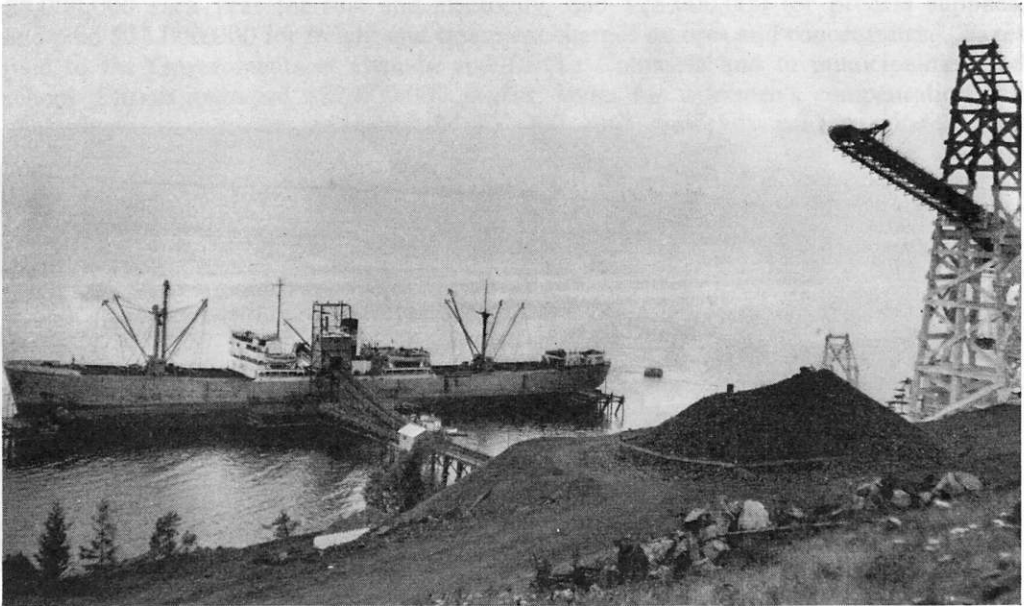


Emerald Tungsten mill near Salmo.

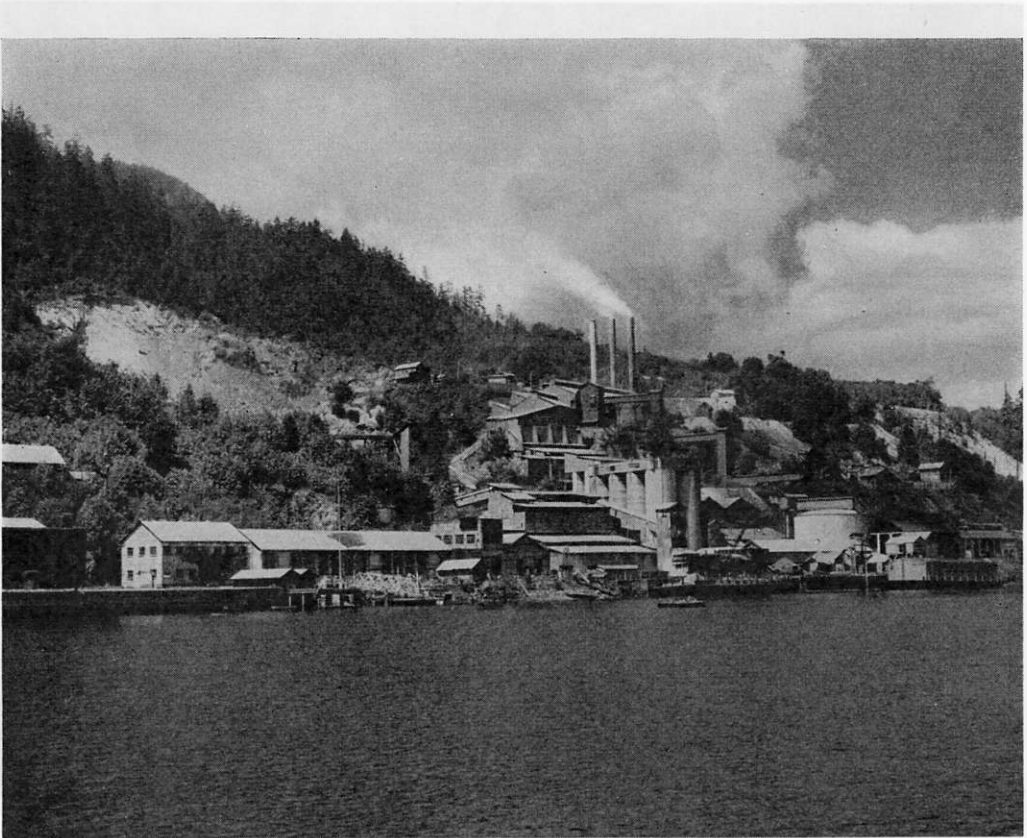
Plant of Charlton Company Limited at Kibara. The company makes asbestos, talc, mica, and other clay products.



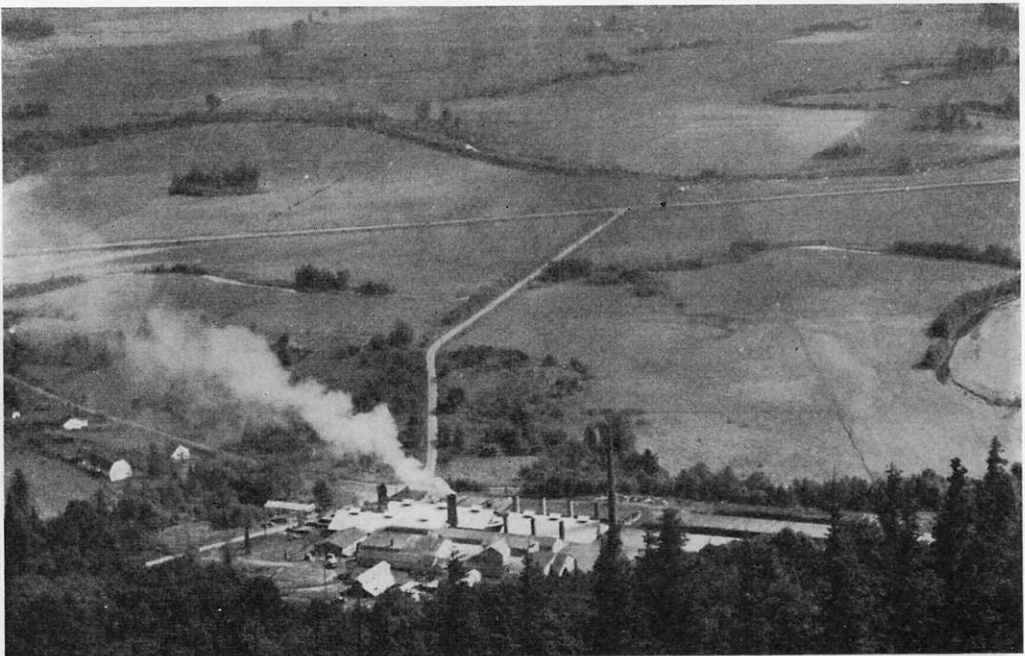
Bluebell mill and dock, Galena Bay, Kootenay Lake.



Loading iron ore, Texada Island.



Cement plant of British Columbia Cement Company Limited, Bamberton.



Plant of Clayburn Company Limited at Kilgard. The company makes firebrick, flue-lining, and other clay products.



(Courtesy Consolidated Mining and Smelting Co. Ltd.)

Smelting and refining plants at Trail for the treatment of silver, lead, and zinc ores and concentrates.



Buckinghorse No. 1 well on Buckingham River, east of Alaska Highway in northeastern British Columbia.

VICTORIA, B.C.
Printed by DON MCDIARMID, Printer to the Queen's Most Excellent Majesty
1954