

LEAD INDUSTRIES ASSOCIATION

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LEAD PRODUCTION AND RESOURCES OF CANADA*

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According to the Dominion Bureau of Statistics, during 1951 the production of new lead from Canadian ores, i. e. primary lead in base bullion produced plus the recoverable lead in ores exported, at approximately 158,000 tons, was the smallest recorded since 1944. This output was 4.8% below that for 1950 and about 38% under the record production of 256,000 tons in 1942. The silver-lead-zinc mines of British Columbia produce the major portion of Canada's lead. This Province, together with the Yukon Territory, account for approximately 84% of the nation's annual new lead production. Of the balance, Newfoundland accounts for approximately 11% and the remaining 5% is attributed to the zinc-lead mines in the Province of Quebec. While there may be slight variations in the aforementioned proportions from year to year no major fluctuations are anticipated in the near future.

Although actual mine output of lead was below that for 1950 the total value increased, reflecting the higher average price for lead during 1951. Further, the tonnage mined was up but grade was lower, undoubtedly due to operators taking advantage of high metal prices to mine lower grade ores. In the long run this will prove beneficial as it undoubtedly has tended to increase that overall lead ore reserves of our mines and thus extend their productive life.

At this point it will perhaps be of interest to examine more closely each of the lead producing areas of the country. Spurred on by demand and resulting higher prices, prospecting and mining activity with respect to base metals has been at a high level throughout the length and breadth of

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the country. While no major discovery of a new lead deposit has been made, much work has been done on lead-zinc deposits both new and old. In most cases zinc is the predominant metal and many new silver-lead-zinc and zinc-lead mines are being brought into production. In addition, many old properties previously thought to be worked out and abandoned are being rehabilitated and brought into production again.

In British Columbia the Sullivan Mine of The Consolidated Mining and Smelting Company of Canada Limited Situated near Kimberley in the East Kootenay District, is the major factor contributing to the supremacy of that Province as Canada's leading lead producing area. In 1951 the Sullivan Mine produced 2,533,000 tons of lead-zinc ore, down slightly from the tonnage extracted during the previous year. The grade was also somewhat lower than in 1950 due to the mining of more low grade ore and to dilution resulting from the mining of more pillar ore. The introduction of a Sink Float plant in recent years has enabled the Sullivan Concentrator to treat considerably greater tonnages of lower grade material without increasing the flotation section of the mill. Preparation for open cut mining of a portion of the Sullivan ore body near the surface was completed in 1951 and mining from that area commenced in December last.

In addition, Cominco will bring into production two more B. C. properties during 1952. Production of lead and zinc concentrates from a 500 ton mill on the Bluebell property commenced this week. The Bluebell is situated at Riondel on the east side of Kootenay Lake about 90 miles from Trail. Before the end of this year Cominco also expects to commence mining and milling operations with a 1,000 ton mill at the H.B. zinc-lead mine near Salmo, B. C., about 35 miles from Trail. While the latter is primarily a zinc property it will also produce a lead concentrate as well as zinc. Further, production at the Tulsequah Chief and Big Bull Mines of Cominco commenced in the latter part of 1951. The complex gold-silver-copper-zinc-lead ores from these two mines are being treated in a 250 ton mill situated on the Tulsequah River in northern British Columbia. As these mines are situated in the extreme northern part of British Columbia transportation of the production out and supplies and materials in is a major problem.

During the past several years there has been considerable activity throughout the Salmo-Pond d'Oreille area of British Columbia. This district is immediately north of the United States-Canadian border from the Metlaine district of Washington. Vigorous exploration has occurred in this section and within the past three years two new zinc-lead properties have been brought into production. These are the Jersey Mine of the Canadian Exploration Company, Limited, with a mill capacity of 750 tons and the Reeves-MacDonald with a mill currently treating between 600 and 900 tons per day. Because of favourable results from development work the former company is considering increasing their mill capacity to 2,000 tons per day.

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In the Slocan and Pellyworth districts a number of old silver-lead-zinc mines have been re-opened and brought into production once again. While most of these are small, in the aggregate the additional tonnage of ore being mined and milled is quite substantial. As in most other sections the predominant metal is zinc although silver and lead values are present in varying degrees at all of the properties.

In the East Kootenay the Sullivan is no longer the only operating mine. Towards the end of 1951 Estrella Mines Limited commenced mining and milling operations at a mill with a capacity of 150 tons. Here again zinc is the predominant mineral but the lead content of the ore is appreciable. Kootenay Base Metals Limited have just become the third producer of lead and zinc concentrates in this field. Further north at Spillimacheen, Giant Mascot a new lead producer in 1951 is preparing for expansion. In contrast to most of the other operations, lead is the predominant metal at this mine.

Following considerable activity during the past year or two throughout the Revelstoke and north central areas of the Province, production of zinc-lead ore is expected during 1952 from several properties in these areas. In most cases zinc is once again the main constituent with lead and silver contributing substantially to the total value of the ores.

From the foregoing it is evident that progress in mining activity in British Columbia during 1951 was chiefly notable for the broadening of the activity to new areas. Relatively this was of more importance than the increase in the value of the production because this increase was due to the sharply higher average prices for lead and zinc rather than to the increase in the quantities of metals produced. To some extent this activity will undoubtedly be reflected in increased production in 1952, but more particularly over the next four or five years. Toward the end of 1952 or early 1953 it is expected that the daily capacity of mills within the Province to treat silver-lead-zinc ore alone will have been increased by 2,000 tons or more. As previously stated zinc is the predominant mineral present in most of these new British Columbia ores but lead is also an important constituent, with the result that the 1952 production of lead from British Columbia ores may well be higher than during any of the last seven or eight years.

To the north of British Columbia in the Yukon Territory the United Keno Hill Mines Limited near Mayo continues to be the major producer although small shipments of high grade silver-lead ore were made from other properties. The lead-zinc ratio of the ore from United Keno's Mine, the Hector, is approximately 2 to 1 with high silver values. Indications are that other mines in this group may show a somewhat higher zinc content. Because of its geographical location transportation and labour are, of course, the major problems.

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The next largest lead producing province in Canada is Newfoundland with its Buchans Mine. Production during 1951 was about 28,000 tons of lead concentrates together with substantial tonnages of both copper and zinc concentrates. Particularly favourable results from development work during the past several years have added considerably to the expected life of this old producer. Production from the new ore bodies is expected to commence in 1952 and it is anticipated that production of ore from all sources will be increased to approximately 30,000 tons per month. In which case the annual production of recoverable lead from Newfoundland ores may be increased somewhat above the 18,000-19,000 ton average for the past several years.

In the Province of Quebec, the fourth largest producer, lead is comparatively minor quantities is almost always associated with zinc or copper or both. Production at about 7,600 tons of recoverable lead was far below the tonnage of zinc and copper produced from Quebec mines. The two largest producers of lead are the Anacon Lead Mines Limited, which Company is working the old Tetraault Mine about 70 miles west of Quebec City, and the McW Calumet Mines Limited which operates on Calumet Island in the Ottawa River about 70 miles west of Ottawa. While some further quantities of lead are found in conjunction with copper and zinc, present indications are that the production of lead in Quebec will remain between 7,500 and 8,000 tons of recoverable metal annually. As lead may be considered a by-product of the Quebec mines its continued production depends on the continued extraction of copper and zinc ores rather than lead alone.

Active exploration for base metals is continuing at an accelerated pace in that vast untracked wilderness, the Northwest Territories. Prior to the last several years exploration in this area was almost entirely confined to searching for occurrences of gold. In the last several years several interesting base metal properties have been uncovered. One of the more important discoveries is that made by Cominco on the Pine Point Concession situated on the south shore of Great Slave Lake. To date diamond drilling has indicated the promise of a large deposit of zinc-lead ore. Because of its location, however, major expenditures will be required to continue the development and possibly equip the property for production.

Before leaving mine production perhaps some reference should be made to Canada's lead ore reserves. Based on the present rate of mine production, present and prospective ore reserves of Canada indicate a life of 35 to 40 years. However, no one in the mining industry seriously believes that this represents the ultimate extent of Canada's lead resources. However, it is worthwhile noting that despite the greatly increased activity in the search for base metals throughout the country during the past few years, the additions to our lead ore reserves have not quite replaced the lead extracted during the same period. All of the Canadian lead producing mines have a distinct advantage in the fact that lead is always associated

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with other minerals. Zinc, and to a lesser extent copper, and varying amounts of precious metals, are the commonly associated minerals. As a result of these other metal values, lead does not have to bear all of the cost of mining and processing. This is of particular benefit to our lead mining industry during periods of lower metal prices.

Turning now to the production of refined lead, we find that the Trail Smelter of The Consolidated Mining and Smelting Company of Canada Limited is the only producer of refined lead in Canada. The 1951 production from this Company's smelter and electrolytic lead refinery, including that recovered from the treatment of imported lead ores, totalled 162,700 tons, a drop of 4-1/2% from that reached for 1950. Practically all of the lead-silver ores and concentrates from British Columbia and the Yukon, together with part of the lead concentrates produced in Eastern Canada, are smelted and refined at Trail. The balance of our total mine production, or some 19,600 tons of recoverable lead, was exported as concentrates to the United States and Europe. At present considerable revision is taking place at the Trail Lead Smelter. The new blast furnace baghouse came into operation in 1951 and construction of the new sintering plant is expected to be completed by the end of this year. Construction of a new receiving and storage plant will follow.

While consumption of lead in Canada is practically double that prior to World War II, it still only accounts for about 1/3rd of the total refined lead produced. The balance is exported in approximately equal quantities to the United States and the United Kingdom with comparatively minor amounts to other countries.

The main uses of lead in Canada are in the manufacture of storage batteries, cable coverings, solders and alloys and pigments with minor quantities being used in the manufacture of foil, collapsible tubes, ammunition and other miscellaneous products.

Now before closing, what about the future outlook of lead production in Canada? At this stage it appears that the mine production of lead will continue at about the same or perhaps slightly higher level of the past few years. Present indications are that the 1952 production will be in the neighbourhood of 175,000 to 180,000 tons of recoverable lead or somewhat higher than that for the year 1950. This will represent a gain of about 10% over the 1951 production. Since all of the lead mined in Canada is associated to a greater or lesser degree with other metals, chiefly zinc, at least part of the future mine production will depend on a continuing demand and prosperity for the white metal. With respect to refined lead, the present outlook indicates a Canadian production of approximately 170,000 for 1952. This will be about the same as that in 1950 and about 5% over that for last year. Continued production of refined lead at this or greater rate will depend to some extent on the availability of foreign lead ores and concentrates.

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Fortunately, in Canada, producers of non-ferrous metals have escaped the bulk of the chaotic and confusing regulations which have plagued producers in most other countries. During 1951 the distribution of lead in Canada, as well as other metals, was officially placed under Government control to ensure an adequate supply for the manufacture of munitions and for use by other essential industries. However, no actual price controls were imposed and having fulfilled domestic requirements, licences for the export of lead ores and concentrates and metal to other markets were not unduly withheld.

In the field of taxation the Canadian mining industry has been quite fairly treated and favourable allowances have been granted in order to promote and maintain a healthy growth of the industry. All new base metal mines are exempt from Dominion income tax for the first 3 years of operation. In addition, all base metal producers receive a generous depletion allowance based on profits. They are also allowed to deduct total expenditures on exploration and development incurred in Canada during the taxation year. Thus, compared with the chaotic and confusing restrictions and the sometime onerous taxation policies imposed on the mining industry in other countries, we in Canada feel fortunate that to date we have even faced only with the minimum amount of restriction and interference.