

LEAD INDUSTRIES ASSOCIATION

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LEAD PRODUCTION IN PERU

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I imagine not a few of you were surprised to discover that the lead production of Peru is important enough to be worthy of a place on this program. This is probably due to the fact that Peru's lead production is relatively new. It was born and has grown to a pretty husky young man all in the short space of about twenty-five years and, as a matter of fact, is still growing.

As the Cerro de Pasco Corporation has played a leading role in this development and today operates the only lead smelter and refinery in Peru, I should like to devote a few minutes to the history of that development before getting down to the subject in which you are interested—that is, pounds of lead production from Peru.

About as good a starting date as any would be the construction of the Corporation's present copper smelter at Oroya, Peru, which was blown in during the early twenties. When that smelter was constructed, there were no facilities provided for the smelting of lead-bearing material, nor were any such facilities even contemplated at that time.

Last year the Oroya plant turned out just under one hundred million pounds of refined lead. Now, the factors which prompted that change are quite interesting because they differ somewhat from the usual.

When Cerro acquired the Backus and Johnson interests in Peru, Backus and Johnson were operating a smelter to treat the ore from the Casapalca mine.

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George P. Sawyer

- 2 -

These ores were treated for their silver and copper values alone, and no attempt was made to recover lead and zinc.

When the B. & J. smelter was shut down, these ores were diverted to Oroya and the advance in the art of selective flotation made it possible to separate these ores into three products, namely a copper concentrate, a zinc concentrate and a lead concentrate.

As a result of copper smelting operations at Oroya, there was being produced an ever mounting pile of lead-bearing flue dust, so Cerro was faced with the problem of disposing of the lead concentrates from Casapalca and the accumulating flue dust at Oroya.

Initially, these products were exported and sold, but a lead smelter was put together from revamped copper blast furnaces and sintering equipment no longer in use in copper smelting operations, and Cerro produced its first lead bullion in 1928, a date which coincides with the founding of this association.

From a refining standpoint, the product was not a very attractive one. It ran about 95 percent lead, 1 percent bismuth, 3 percent antimony and about 1/2 percent arsenic. As a result of work done by two members of the Corporation's staff, G. Reinberg and T. Harper, a method was developed by which this bullion could be refined economically by the electrolytic process without any pretreatment or softening ahead of the refinery.

From a small pilot plant placed in operation in 1934, Cerro's refining facilities have expanded and today are housed in a modern, well equipped plant having a capacity of around 70,000 to 75,000 tons annually. That plant is turning out some of the purest lead produced in the world today, running nearer five nines lead than four with a bismuth content of less than .001 percent.

Before that figure of 70,000 tons becomes too firmly fixed in your minds, let me emphasize that this represents the capacity of the refinery. The bullion production of the smelter is, of course, dependent to some extent on the charge,

George P. Sawyer

- 3 -

but the facilities as they now exist limit bullion production to a figure somewhat below the capacity of the refinery. Cerro is now starting to correct this imbalance by improving the present sintering facilities. When these improvements are completed (1954), the capacity of the plant—receiving bins to refined lead—will be about 70,000 to 75,000 tons. Incorporated in these changes are provisions for further expansion.

Now, as to what may be expected from Peru in the way of lead productions

In presenting any estimates of production, certain assumptions must be made and I have assumed first, that there will be a market for that production at about the present price/cost relationship and second, that there will be no major catastrophe such as actual war or extensive strikes. Based on these assumptions, it is estimated that during 1952 the mine production of Peru in tons of recoverable lead will be about 80,000 tons. Of this amount, Cerro will produce about 22,000 tons from its own mines, leaving 58,000 tons as representing the production of a number of other producers scattered throughout Peru. On account of geographical location, not all of the latter production is available to Cerro's smelter, but the bulk comes from the central region and can be treated at Oroya. Over half of Cerro's production of 22,000 tons will come from the Cerro de Pasco zinc-lead ore body, active mining of which was inaugurated in 1947. The figures could be recast another way:

80,000 tons Total Peru mine production recoverable lead

50,000 tons of which produced as refined lead

30,000 tons of which produced as concentrates

It is not expected that these figures will change to any great extent over the next two years. Certain expansions planned or already under way will bring Peru's 1955 production up to an expected figure of about 85,000 tons. By that time, changes in Cerro's smelting plant will have been completed, making it possible to produce 70,000 to 75,000 tons of this production in the form of refined lead.

George P. Sawyer

- 4 -

However, there is a development now under way which will have a marked effect on Peru's lead production in the period subsequent to 1955. I refer to Cerro de Pasco's zinc program.

At the present time a small fraction of the zinc concentrates resulting from the milling of ore from the Cerro zinc-lead ore body is being treated at Oroya. Expansion of these refining facilities requires additional electric power, and a power plant to furnish that additional power is now under construction. As additional power becomes available, zinc refining facilities will be expanded to an ultimate capacity of about 200 tons per day. That means the milling of additional ore from the Cerro zinc-lead ore body and hence, increased lead production.

So, when this zinc program is completed, Cerro's annual mine production in terms of recoverable lead will be in the neighborhood of 37,000 tons and that of Peru around 100,000 tons.