LEAD.

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WAR PRICES.

When the European war began lead was selling at slightly less than 4 cents a pound. A month or so later[1] the observation was made that "The effect of the war on the lead situation is as yet uncertain. One month of war has not disturbed the already low price of lead in the United States, but it would seem that the conflict must ultimately enhance the price." In October lead sold at 3½ cents, but a little later the price began to rise slowly, and the increase continued well on into 1915, presumably owing to purchases by the allies in preparation for operations in that year. The stocks of lead at the beginning of the war may have been large, for the refined lead produced in 1914 exceeded that in 1913 by 80,000 tons. Possibly because of the exhaustion of these stocks, the price in May and June of 1915 rose to 7 cents, coincident with the high point for spelter in that year, but soon dropped to 4½ cents. Then came the accumulation of munitions in preparation for the operations of 1916, and the price of lead gradually rose until in April, 1916, it reached 8 cents. This was followed by the usual decline, the price reaching 6 cents in August, and this in turn was succeeded by a rise in anticipation of operations in 1917, bringing lead to 12 cents at the present writing (June 18, 1917).

LEAD SUPPLIES.

The effect of the high prices has been to push production to the utmost. In the accompanying table the production of lead in this country from foreign ore and bullion is shown to have decreased materially from the quantity obtained in 1912 and previous years. This reduction is due to the internal dissension in Mexico, from which most of the foreign lead ore and bullion is imported, and has thrown a heavier burden upon the lead mines of the United States. This burden was partly met by an increase of 25 per cent in domestic production in 1914 and a further increase of 10 per cent in 1916, but

[1] Smith, G. O., Our mineral reserves: U. S. Geol. Survey Bull. 599, p. 22, 1914.

that supplies are not yet adequate seems to be indicated by the constantly rising prices. If, however, we are just now on the peak of one of these periods of high prices which seem to be synchronous with the periods of activity in military operations, it may be that a decline in prices will ensue, followed by a period of lower prices, thus indicating that the supply is in reality equal to the demand. That is a matter which can be determined only by the future trend of prices. Just at present, so far as prices are an indication, lead seems to be on a par with copper, aluminum, tin, iron, and manganese, the demand for all of which seems to be in excess of the readily available supply.

The lead-smelting furnace capacity of the United States has for several years exceeded the requirements and has in part been idle. When the war demands came on, this surplus furnace capacity was renovated and blown in. Two modern smelters were constructed—the plant of the Northport Smelting & Refining Co., at Northport, Wash., started in 1916 with four blast furnaces, and the Bunker Hill & Sullivan smelter at Kellogg, Idaho, with three blast furnaces which will be blown in soon. In addition the Empire Smelting & Refining Co. has rebuilt the plant of the old Luna Lead Co. at Deming, N. Mex., and has started with two lead blast furnaces. Any lack in lead supply is apparently not due to lack of smelting capacity.

Details of smelter output and lists of the lead-smelting plants in North America, together with the statistics of imports and exports and other data relating to the lead industry, will be found in the chapter on lead in the annual volume Mineral Resources of the United States, published by the United States Geological Survey.

The greatest gains in the production of refined lead have been made from ores derived from Idaho, Utah, and Missouri. Idaho has averaged 46,000 tons more of refined lead a year during the war than in the four years preceding it; Utah has averaged over 40,000 tons more, and Missouri 38,000 tons more. It is to these States that we must look for the larger increase during the remainder of the war, although gains will undoubtedly be made by all the lead-producing States under the stimulus of the present unprecedented high prices for lead. Added incentives to production are the high prices of silver and zinc and the improved metallurgic practice by which the zinc content of complex ores can be paid for instead of being penalized. Many old silver-lead mines in the Western States, which had been abandoned on account of the decline in the price of silver or on account of an increase in the amount of zinc in the ore taken out, are being reopened. Largely for these reasons Arizona made a good increase in lead output in 1916. The very productive mines in northeastern Oklahoma increased the output of lead from that State in 1916 and promise a much larger gain in 1917.

Moreover, the prospects just now seem good for increased imports from Mexico. The smelters at Matehuala and San Luis Potosi, in the State of San Luis Potosi, are reported to have started operations, and others will do so soon if conditions continue reasonably quiet in Mexico.

The annual progress and developments in the lead-mining industry are shown in the mine reports for the several producing States published in Mineral Resources of the United States. Detailed reports on the ore deposits of many lead-producing districts have also been published by the United States Geological Survey.

EXPORTS.

Large quantities of refined lead produced in the United States from foreign ores or bullion have annually been exported from bonded smelters, but there have been no exports of domestic lead until the recent diminution of imports of lead ore and bullion from Mexico made it necessary to supplement the exports of foreign lead with exports of domestic lead. These began in March, 1914, and have grown larger each year since, more than making up the deficiency of lead of foreign origin.

The increase in the total value of lead exports has been due largely to the increased value of the pig lead exported.

Refined lead produced in the United States and lead exported, 1911–1917.

	Production.		Exports				
			Pigs and bars.		Lead used in articles exported with benefit of drawback (short tons).	Total value of lead exports.	Value of lead manufactures, domestic and foreign.
	From domestic ores (short tons).	From foreign ores (short tons).	Domestic (short tons).	Foreign (short tons).			
1911	391,995	94,984	.....	113,307	.....	.....	.....
1912	392,517	88,377	.....	76,226	.....	.....	.....
1913	411,878	50,582	.....	54,301	.....	.....	.....
1914:							
January-June	512,794	29,328	20,162	8,834	3,798	$3,071,835	$1,266,725
July-December			38,560	12,711	5,640	4,720,112	1,298,306
1915:							
January-June	507,026	43,029	57,952	17,218	3,020	6,973,877	732,906
July-December			30,354	21,400	963	6,357,348	1,578,103
1916:							
January-June	552,228	18,906	46,617	4,744	4,745	8,379,457	1,116,567
July-December			53,883	5,136	426	9,438,261	1,392,252
1917:							
January-March	.....	.....	14,970	1,733	(a)	b2,941,954	542,197

a Statistics not yet available.
b Does not include value of lead used in articles exported with benefit of drawback.