

## LEAD INDUSTRIES ASSOCIATION

480 LEXINGTON AVENUE

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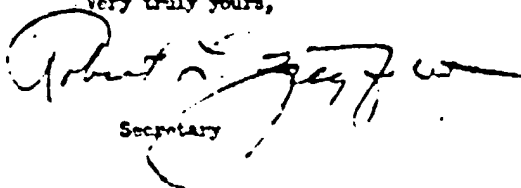
To Members of the Lead Industries Association:

SUBJECT: HYGIENE AND MARKET CONFERENCE

I am pleased to enclose mimeographed copies of all the papers delivered at the Hygiene and Market Conference sponsored by the Metallic Lead Products Division of the Association at the Biltmore Hotel, New York City, on March 16, 1948, with the exception of the three papers on lead hygiene delivered by Drs. William C. Wilents and Lloyd E. Hamlin, and Mr. Herbert J. Weber. Because of the permanent value of these three papers they are being printed and copies will be provided members as soon as they are off the press.

A list of those who attended the Conference is also enclosed.

Very truly yours,



Secretary



SECONDARY METAL MARKETS

by

PAUL MERZOG

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PROCESSED METALS DIVISION

AMERICAN SMELTING AND REFINING CO.

Presented at the

HYGIENE AND MARKET CONFERENCE

Sponsored by

METAL AND LEAD PRODUCTS DIVISIONLEAD INDUSTRIES ASSOCIATIONNew York, March 16, 1948

Before discussing the subject of my talk, permit me to assure you that I am neither a professional nor amateur economist or statistician, but simply a scrap metal buyer who has been affiliated with the secondary industry for the past twenty years. Nevertheless, I am glad that I accepted your Secretary's request to talk to you on the subject of secondary metals. While you may be the sufferers, I derived a great deal of satisfaction in preparing this talk and checking some of my own pet theories on the relationship of secondary to primary metals.

Let me first present to you a picture of some recent developments in the field of secondary lead and some of the contributions made to our industry by the scrap dealers and the secondary smelters. More than 90% of the scrap lead supplies come to the smelter from the scrap dealer and less than 10% directly from industry, and more than one-half of all scrap lead consists of battery plates. In fact, according to U. S. Bureau of Mines statistics, in 1947 battery plates accounted for 60% of all scrap supplies. This was an all-time high but previous years still show this source was 50% to 55% of the total.

There are today some 4,200 dealers throughout the U.S.A. engaged in collecting and breaking up battery plates and of these, some 1,200 dealers are regular truck or carload shippers to the smelter. To the dealers as a whole, battery plates represent tonnage-wise the No. 1 scrap item on the list, outranking by far any other non-ferrous grade of scrap. For 1947, smelters report total receipts of 362,000 tons of battery plates, while the next item in dealers' tonnage is copper scrap, which probably did not amount to more than 120,000 tons, or 1/3 of the tonnage of battery plates. There are individual dealers who actually derive their entire livelihood from handling batteries and who ship annually thousands of tons of plates to the smelter. On the other hand, because of the huge tonnage involved, battery plates are also the most competitive item among dealers and turned over in normal times at low margins of profit. I have heard many times dealers complain that they average no more than \$2.00 per ton gross profit on handling battery plates. Nevertheless, it is considered by many as a kind of "loss leader," just as a department store will sell a popular article at little or no profit to attract customers.

- 2 -

Aside from battery plates, the balance of 40% to 50% of the scrap lead supply comes to the smelter in various forms such as cable sheath, chemical sheet lead, plumbers lead, lead drosses, and lead contents in various percentage metals.

Now, let's look at the secondary smelting industry. There are about 200 to 250 small and large lead and lead base alloy smelters spread over all parts of the U. S. A. Of these, about 20 individual plants produce an average of over 1,000 tons of lead products per month. From 40 to 50 average between 250 to 1,000 tons and the rest probably average between 50 to 250 tons monthly. These are my own estimates, which I believe are not too far off.

In 1947, our industry produced between 475,000 and 500,000 tons of products, which is an all-time high and is probably also rather close to the industry's present full producing capacity.

There is no break-down published yet as to the distribution of this huge secondary production, but my own guess would be that since the demand for antimonial lead was pretty steady during last year, most battery plates went into the production of grid metal. Probably 300,000 to 325,000 tons of antimonial lead were produced, about 30,000 to 40,000 tons of lead in solder, about 50,000 tons in percentage metal such as babbitts, bearing metals, type and terne metal, and about 50,000 tons in the form of soft lead, sheet lead, and extruded lead.

The outstanding quality of our industry is its ability to switch from one product to another as market conditions may require and to utilize scrap alloys of all kinds by taking advantage of all or most of its ingredients. What may be an inquiry to a primary producer in treating scrap and dross, may be an asset to the secondary smelter. I was gratified to read in one of the recent year books published by the U. S. Bureau of Mines some interesting and complimentary remarks about the skilled metallurgical work done by our industry and the general lack of recognition of the ingenuity of a secondary smelter who must find his sources of supply from the lowest cost scrap available and yet be able to switch his production, sometimes from month to month, depending upon what his market requires and where he can make the most profit.

However, I am not here to tell you of the importance of our industry. You are apparently aware of it since you have invited several secondary smelters to this meeting and myself to give this talk. But I would just like to add that very likely, the total manpower occupied in collecting, sorting, shipping, and smelting scrap is far in excess of that employed in this country in mining, concentrating, and smelting lead ore. Whether the same is true as to capital invested, I am not able to state.

With these preliminary remarks, I now come to the main topic: The Relation of Secondary Production to the Total Lead Picture.

In order to study this interesting development, I have prepared some tables covering a period of twenty years. I shall not threaten you with the reading of these tables here -- by the time I had finished, you would be either sound asleep or would have withdrawn to the nearest bar... However, for those of you who enjoy looking at statistics, I have copies of this table available, which I shall be glad to hand or mail you. But I would like at least to tell you what these comparisons show and what conclusions we may draw from them.

- 3 -

For comparative purposes, these figures cover lead -- copper -- zinc -- for the period from 1928 to 1947. Some of the 1947 figures are estimates; all the rest are taken from U. S. Bureau of Mines and American Bureau of Metal Statistics sources.

While domestic lead mine production declined from 627,000 tons in 1928 to 375,000 tons last year, secondary lead increased from 300,000 tons to 475,000 tons, 1947 showing the highest recorded secondary production. Measuring scrap in percentage of total U. S. production over the past twenty years, our table shows a fairly constant increase since 1928 from 32% to 56% last year. Yes, believe it or not, in the past year 56% of our domestic lead production came from secondary sources. This is quite a record, but we should realize that while true, it is not truly comparable with the historical relation between primary and secondary sources. This is so because since 1913 we have become a lead importing nation and it is not entirely fair to compare domestic scrap against domestic mine production when we produce now some of our scrap from the lead which we import. Therefore, we should rightly compare scrap tonnages against U. S. lead consumption and on this basis, our table shows that we have made no striking advance over the past twenty years. The twenty-year average is 37.5%, which is exactly the same percentage as the average for the five year period from 1928 to 1932. The past two years, however, showed 42%, but as we shall point out later, we believe that 1946 and 1947 were, in such respects, abnormal years in scrap production.

As I've said, over twenty years secondary lead gave us 37.5% of our U. S. lead requirements. In copper, however, the equivalent figures show only 27%, figuring tonnages for old scrap only. I have eliminated the Broken Mill "run-around" scrap from the picture because I believe that to add this scrap only confuses the comparison. But in copper, the variations in percentages from year to year are much greater than in lead and show a low of 15% in one year against a high of 52% in other years. As far as zinc is concerned, the twenty year average is 14.2% with very slight variations from year to year. Most zinc consumed is irretrievably lost to the scrap market as it goes into the production of galvanized steel and brass alloys.

To summarize, our table shows that of the three base metals, lead secondary supplies 37.5%, copper secondary 27.2%, and zinc secondary 14.2%. But we have also seen in lead secondary production, a constant rising compared with total U. S. production, which, to the same extent, is neither true for copper nor for zinc. As far as domestic lead is concerned, secondaries have become the big sister and mine production the smaller one.

What conclusions can we draw from these figures and what does the future hold in store for us? Before speculating about the future, permit me to quote you the famous answer which, according to the Bible, Amos gave when he was asked to prophesy coming events, "Neither am I a prophet, nor the son of a prophet, but rather a shepherd from the hills." I don't profess to be a prophet, or even a shepherd from the hills. There are no hills to my knowledge around lower Broadway, although there may be sheep in Wall Street. So, in all modesty, I submit the following:

1) The first inquiry is: What secondary production may we expect for 1948?

It seems to me that 1947 production was somewhat unusual and is not likely to be repeated soon again. We had two important factors which contributed to the record tonnage. On one hand, the steady increase in lead prices

- 4 -

up to March brought out a huge tonnage of hoarded scrap from dealers, smelters, and industry. I venture to say that of the 475,000 tons produced, some 75,000 to 100,000 tons did not represent current production. Furthermore, considerable tonnages of WAA surplus came to the smelters, consisting mainly of submarine battery plates, lead forming dies, and some cables. Some of these were already smelted in 1946, but the 1947 figure may amount to as much as 35/40,000 tons. Today, the dealers' scrap yards are back to a normal inventory and we cannot expect in 1948 any surplus from previous years. Likewise, little WAA surplus is coming on the market. On the credit side, however, we have the constantly increasing automobile registration, which means more battery plate scrap. According to the A.M.A., we had on December 31, 1947, some 37,000,000 motor vehicles (passenger and truck) registered, which means 7,000,000 more cars on the road than before the war. Taking all these factors into consideration, I would suggest that we expect for 1948, a total secondary supply of between 350,000 and 375,000 tons.

2) What is the distribution of the secondary lead production in 1948 likely to be?

I have pointed out previously some of the unusual features of 1947 as to tonnages. Another unusual feature of the past year has been that the demand for antiradial lead and other lead base alloys was so persistent that practically all available secondary lead has been used for alloy purposes. In fact, considerable tonnages of Virgin lead are required by secondary smelters for the production of tin and lead base alloys.

I am inclined to believe that the demand for all kinds of alloys this year will be considerably less than last year. The first few months of this year have already shown a declining demand for lead base alloys, while soft lead is still on the critical list. Under normal conditions before the war, there was always an excess of scrap supply over alloy demand. As we go back to normal times, this condition should return again and with it, an increasing tonnage of scrap may be available to primary or secondary refineries for the production of soft lead.

Although, as pointed out before, the total scrap production this year may drop to some 350,000 to 375,000 tons, I believe that out of this tonnage, a larger amount of soft lead will be available to the market than during the past year. It is just impossible to make any guess at this early date about the tonnage which may become available, but I believe that you can certainly look forward to some help in your soft lead requirements from secondary sources.

3) Is secondary lead likely to influence the price of lead in 1948?

I am asking this question because in my own experience, I have twice seen a condition arising where secondary influenced the price of primary metal. In 1930, with copper at 13¢, it was the appearance of large tonnages of scrap which, after some months, caused the decline to 14.00¢. A similar development took place in 1937, although not quite as drastic. Now since scrap lead contributes percentage-wise more to the lead picture than copper and since we have now reached an all-time high of 15.00¢, could scrap lead force a price reduction? It is an admitted fact that secondaries are much more sensitive to market developments than primaries. Nevertheless, we have today a condition where we have become a lead importing nation and if the alloy industry cannot

- 5 -

absorb all the scrap which comes on the market, and more soft lead becomes available from secondary sources, it will only replace some of the lead which is now imported without necessarily having a depressing effect price-wise.

There is one basic difference, as I see it, between the lead and copper scrap picture. The cycle in lead from product to scrap is far shorter than in copper. Between 50% and 60% of our scrap lead tonnage comes to us in the form of battery plates and since the life of the average battery is estimated today at sixteen months, it means that it takes more than one-half of our secondary tonnage less than two years to return to the scrap pile. As for the rest of the tonnage, some 10% comes to the smelter in the form of dross within three to six months after it is produced and the balance, consisting of cables and sheet lead, may require a cycle of from ten to twenty-five years. This means that our national reserve in lead which will return to us eventually in scrap form, is potentially much less than in copper, because in copper the cycle for all grades of copper and copper alloys is not less than fifteen to twenty-five years. Figuring the yearly consumption on a cumulative basis, it seems clear that our national reserve in copper is many times larger than in lead. From this we can draw the conclusion that the scrap dealer, with his well developed sixth sense about markets, can draw, in an over-extended and declining market, a far bigger supply from the huge copper reserve than from the smaller lead reserve.

But let me assure you that the secondary smelters and scrap dealers prefer to operate at all times in low priced markets. They dread nothing so much as inventory losses. Since they cannot hedge their inventories or sell futures except at considerable discounts, they have every reason to feel safer when lead prices return to normal.

Before closing, permit me to make just a few remarks on recent events. We have heard lately of lead being sold at "grey" market prices by secondary sources and of huge profits made on such deals. Such sales there may be and some big profits may have been made, but by and large, the dealer or smelter who sells at a premium passes on to his supplier most of the benefit which he derives. Likewise, during the third quarter of last year when lead was getting hard to sell and the market looked like a sure drop, many of our friends sold their lead at prices far below the 15¢ level, but I doubt that they received anyone's sympathy, nor were they entitled to it because as soon as they sold below the market, they reduced their purchase price accordingly.

It is a most welcome sign that your Association is inviting the cooperation of the secondary industry for your worthwhile aims. Until now, it has seemed many times as if the two — primary and secondary — were very distant cousins and barely on speaking terms. I believe by getting together, both groups have only to gain and if I may be permitted, I would like to make two practical suggestions for a program right now.

- 1) One of the most serious problems in our industry arises from the diversity of sampling methods on battery plates. It seems to me as if every smelter has his own method and more time is wasted discussing settlements on battery plates with scrap shippers than on any other problem. I would certainly welcome it, if under the guidance of this Association, all the metallurgical brains of this industry got together and recommended some acceptable

- 6 -

uniform method for the entire industry which would be fair to seller and buyer.

2) Although we are today a lead importing nation, we still have to pay an import duty on lead. The import duty on scrap lead is temporarily suspended by Public Law 497, which dates back to the beginning of World War II, but expires on June 30, 1948.

Although tonnages of imported lead scrap are not large, many smelters have bought such lead and I hope that Public Law 497 will be extended for at least another year in order to enable smelters to continue importing scrap lead while the lead shortage in this country continues.

In conclusion, I wish to thank your Secretary again for the opportunity given me and I sincerely hope that the secondary smelting industry will join with you in all constructive measures for the common benefit and prosperity of our lead industry.

COMPARISON OF PRIMARY AND SECONDARY SUPPLY IN U. S. OF LEAD-COPPER-ZINC\*  
1928-1947

|             | LEAD             |           |             |                   |             | COPPER           |           |       |                         |                   | ZINC             |           |       |                         |                   |
|-------------|------------------|-----------|-------------|-------------------|-------------|------------------|-----------|-------|-------------------------|-------------------|------------------|-----------|-------|-------------------------|-------------------|
|             | U. S. PRODUCTION |           |             |                   |             | U. S. PRODUCTION |           |       |                         |                   | U. S. PRODUCTION |           |       |                         |                   |
|             | MINES            | SCRAP     | CONSUMPTION | W. S. CONSUMPTION | W. S. SCRAP | MINES            | OLD SCRAP | SCRAP | TOTAL U. S. CONSUMPTION | W. S. CONSUMPTION | MINES            | SCRAP     | SCRAP | TOTAL U. S. CONSUMPTION | W. S. CONSUMPTION |
| 1928        | 627,200          | 306,000   | 933,200     | 933,200           | 33.1        | 913,000          | 200,500   | 18.1  | 990,300                 | 20.3              | 891,500          | 76,000    | 11.3  | 978,100                 | 13.3              |
| 1929        | 640,000          | 311,000   | 951,000     | 951,000           | 31.9        | 1,001,400        | 282,000   | 21.9  | 1,284,900               | 22.6              | 912,100          | 72,000    | 10.6  | 979,000                 | 12.7              |
| 1930        | 686,900          | 255,000   | 941,900     | 941,900           | 33.2        | 697,200          | 242,000   | 25.0  | 1,039,300               | 23.3              | 849,400          | 56,000    | 10.2  | 912,900                 | 13.4              |
| 1931        | 606,600          | 234,000   | 840,600     | 840,600           | 31.3        | 521,400          | 146,200   | 22.3  | 798,300                 | 20.7              | 292,000          | 42,000    | 12.7  | 315,000                 | 13.4              |
| 1932        | 293,000          | 190,000   | 483,000     | 483,000           | 27.6        | 272,000          | 110,400   | 30.1  | 384,400                 | 30.3              | 207,100          | 29,000    | 12.4  | 216,400                 | 13.2              |
| 1933        | 172,700          | 276,100   | 448,800     | 448,800           | 29.9        | 225,000          | 140,500   | 36.8  | 326,000                 | 32.8              | 306,000          | 59,500    | 16.2  | 325,700                 | 34.2              |
| 1934        | 217,400          | 208,400   | 425,800     | 425,800           | 32.7        | 244,000          | 152,600   | 36.3  | 290,100                 | 32.6              | 335,400          | 40,200    | 10.2  | 348,900                 | 11.6              |
| 1935        | 331,100          | 270,400   | 601,500     | 601,500           | 30.1        | 341,000          | 210,300   | 35.6  | 525,800                 | 39.9              | 412,200          | 77,000    | 15.7  | 487,700                 | 16.0              |
| 1936        | 372,000          | 202,500   | 574,500     | 574,500           | 31.3        | 641,800          | 264,700   | 29.2  | 935,800                 | 31.0              | 491,900          | 93,000    | 16.0  | 538,600                 | 17.6              |
| 1937        | 444,900          | 275,000   | 719,900     | 719,900           | 30.5        | 634,700          | 307,900   | 26.9  | 1,097,400               | 28.0              | 551,200          | 90,000    | 14.2  | 570,300                 | 15.0              |
| 1938        | 349,700          | 274,000   | 623,700     | 623,700           | 31.1        | 542,300          | 183,300   | 24.6  | 641,400                 | 28.6              | 436,000          | 60,300    | 12.2  | 375,000                 | 16.1              |
| 1939        | 416,000          | 244,500   | 660,500     | 660,500           | 34.2        | 712,700          | 249,100   | 25.9  | 852,300                 | 29.2              | 491,100          | 70,000    | 12.3  | 607,500                 | 11.3              |
| 1940        | 457,400          | 240,000   | 697,400     | 697,400           | 33.2        | 904,100          | 289,300   | 24.1  | 1,215,300               | 27.6              | 592,000          | 69,600    | 13.2  | 677,200                 | 13.2              |
| 1941        | 441,400          | 357,400   | 798,800     | 798,800           | 37.8        | 914,100          | 297,900   | 23.6  | 1,327,300               | 19.3              | 632,600          | 116,700   | 15.2  | 768,000                 | 15.2              |
| 1942        | 494,700          | 323,000   | 817,700     | 817,700           | 32.3        | 1,088,500        | 416,700   | 27.8  | 1,706,300               | 24.3              | 630,000          | 112,900   | 13.2  | 736,900                 | 13.6              |
| 1943        | 453,500          | 342,100   | 795,600     | 795,600           | 31.1        | 1,093,000        | 521,600   | 22.3  | 1,764,600               | 29.2              | 594,300          | 109,700   | 11.6  | 806,300                 | 13.6              |
| 1944        | 416,900          | 331,400   | 748,300     | 748,300           | 30.8        | 1,003,800        | 506,700   | 33.6  | 1,727,700               | 29.4              | 574,500          | 112,800   | 10.4  | 845,000                 | 13.3              |
| 1945        | 390,800          | 343,000   | 733,800     | 733,800           | 34.3        | 773,000          | 397,700   | 34.0  | 1,400,700               | 28.4              | 467,100          | 114,300   | 19.9  | 621,600                 | 14.1              |
| 1946        | 332,500          | 392,000   | 724,500     | 724,500           | 42.4        | 594,000          | 343,500   | 38.0  | 1,195,600               | 30.4              | 450,000          | 110,000   | 16.6  | 613,400                 | 12.3              |
| 1947        | 375,000          | 475,000   | 850,000     | 850,000           | 41.6        | 871,000          | 427,300   | 32.0  | 1,473,900               | 34.5              | 525,000          | 125,000   | 19.3  | 956,000                 | 13.0              |
| TOTAL       |                  |           |             |                   |             |                  |           |       |                         |                   |                  |           |       |                         |                   |
| 1928 - 1947 | 8,427,300        | 5,900,000 | 14,327,300  | 14,327,300        | 37.5        | 14,059,000       | 5,721,200 | 26.9  | 21,008,100              | 27.2              | 9,719,000        | 1,641,300 | 14.6  | 11,734,200              | 14.2              |

\* All figures refer to net tone metal contents and were obtained from American Bureau of Metal Statistics and U. S. Bureau of Mines.

THE ANTIMONY MARKET

by

E. R. DONDORFMANAGER, METAL PURCHASES, NATIONAL LEAD CO.

Presented at the

HYGIENE AND MARKET CONFERENCE

Sponsored by

METALLIC LEAD PRODUCTS DIVISIONLEAD INDUSTRIES ASSOCIATIONNew York, March 16, 1948

When I was asked to speak on antimony, I wondered whether I should tackle the subject from the consumers or producers point of view. A consumer, of course, could relate a sad tale of woe, of the difficulties he has in getting the type antimony he needs, and getting as much as he needs when he wants it most. A producer also has his sad tale to relate, but from an entirely different angle. He has a very limited supply to sell, and is frequently faced with what looks like an unlimited demand. Consequently, he has to say "no" to many customers who ask for more metal than he can give them, and do so in a pleasant manner, in spite of all their pleadings.

Our company being the largest producer of antimony in the United States, also happens to be one of the very large consumers of the metal. Consequently, we get it going and coming. In view of this situation, I shall merely try to point up some of the highlights of the situation, as though I was neither a buyer nor seller of antimony.

As you probably know, the Government has just extended the control over antimony and tin until May 30, 1948. Under the present control act, (General Preference Order 4-112) the distribution and consumption of antimony is regulated by the Office of Materials Distribution, Department of Commerce. While there are no end use restrictions on antimony, the controls correlate the individual demands for antimony with a type that is best suitable, and the supply of which is available. In other words, even though we ourselves are large consumers of the metal, and even though we are the largest producers in the United States, nevertheless, we must file our requirements for the metal with the Office of Materials Distribution, the same as any other consumer.

Although the shooting war came to an end about 2½ years ago, the supply of antimony is still far below what the consumptive requirements are in the United States. As a matter of fact, the situation seems to be getting progressively worse instead of better. The reason, of course, is quite obvious, namely, that while the United States is the world's largest consumer of the metal, our domestic production of primary metal is distinctly limited.

The storage battery industry has been going great guns in trying to keep up with the consuming demand in that industry, and as you know, antimony is a very important alloying element in the manufacture of storage battery plates. The metal is also needed in the manufacture of type metal, bearings, and in the hardening of lead alloys generally. In addition, it is used in paints, ceramics and for fireproofing - and each of these industries has been asking for a great deal more antimony than is available.

- 2 -

The Office of Materials Distribution recently compiled a table showing the supply of antimony, its uses, and the stocks that are held by the Government and industry. While the figures for 1948 are only estimates, I think the table gives a pretty clear picture of what faces the industry.

ANTIMONY, UNITED STATES SUPPLIES, CONSUMPTION, AND STOCKS

| <u>Supply:</u>                           | <u>Year</u><br><u>1947 (A)</u> | <u>Year</u><br><u>1948 (B)</u> |
|------------------------------------------|--------------------------------|--------------------------------|
| Domestic mine production                 | 4,912                          | 4,800                          |
| Imports of ore                           | 8,761                          | 6,000                          |
| Imports of metal                         | 4,462                          | 4,000                          |
| Scrap                                    | <u>20,424</u>                  | <u>18,000</u>                  |
| <b>TOTAL</b>                             | <b>38,559</b>                  | <b>32,800</b>                  |
| <u>Domestic consumption and exports:</u> |                                |                                |
| Alloys                                   | 30,836                         | 28,000                         |
| Paint and lacquer                        | 1,402                          | 1,400                          |
| Frits and ceramic enamels                | 1,747                          | 1,700                          |
| Flameproof compounds                     | 157                            | 400                            |
| Other                                    | 3,224                          | 3,500                          |
| Processing loss                          | <u>2,338</u>                   | <u>2,400</u>                   |
| <b>Total domestic consumption</b>        | <b>37,704</b>                  | <b>37,400</b>                  |
| <b>Exports</b>                           | <b><u>1,512</u></b>            | <b><u>2,000</u></b>            |
| <b>Total consumption and exports</b>     | <b>41,216</b>                  | <b>39,400</b>                  |
| <u>Stocks (end of period):</u>           |                                |                                |
| Government                               | 6,700                          | 100                            |
| Industrial:                              |                                |                                |
| Primary forms                            | 6,700                          | 6,700                          |
| Scrap                                    | <u>2,500</u>                   | <u>2,500</u>                   |
| <b>TOTAL</b>                             | <b>15,900</b>                  | <b>9,300</b>                   |

(A) - Preliminary

(B) - Estimated

You will note from this table that the available supply for the current year is estimated at 32,800 short tons, as compared with 38,559 tons in 1947, a decrease of about 15%.

I am not too sure that we will reach the estimated supply of 32,800 tons for this year, because in this total are included 4,000 tons of metal that are expected to come into the United States from China. There is no doubt in my mind that 4,000 tons could be scraped up in China, but, whether under present disorganized conditions in China, collections can be effected, and whether shipment can be made to the United States, are entirely problematical.

- 3 -

Aside from our own production of about 4,800 tons this year, the chief source of supply is Mexico. The United States had been receiving fair tonnages from Bolivia, but I doubt whether we can expect to get as much from that country this year as we did in 1947, because a large part of Bolivia's production for the first half of 1948 has already been sold to consumers abroad. The amount to be recovered in the form of scrap is estimated at 18,000 tons, but there is no assurance that it will reach this total, and at the rate that scrap has been coming in lately, the total is likely to be much smaller. Consequently, the 32,800 tons estimated supply may be reduced materially before this year is over.

Added to all this shortage is the fact that the Government is most seriously concerned over its dwindling stockpile. As you know, antimony is regarded by the Army and Navy Munitions Board as one of the very important strategic materials that are to be stockpiled. How large that stockpile is to be, is a strict military secret. At the end of 1947 the Reconstruction Finance Corporation carried a reserve of about 6,546 tons. As of February 1, 1948, this reserve stood at 6,244 tons. The indications are that this reserve will have to be dipped into still further as the year progresses, in order to take care of those consumers who simply must have the metal. I can see very little chance of the Government being able to build up any appreciable stockpile of antimony this year.

It is for these various reasons that the Government is seeking to retain control over antimony and, in the light of the facts that I have outlined, I do not believe that industry can build up a good case in opposition to such control. If controls were removed, I very much fear that there would be a mad scramble for the metal and, even though such competition among buyers might force the price to still higher levels, my own conviction is that a higher price would in no case serve to increase the available supply. Consequently, I cannot help but feel that the antimony industry faces a continuation of control, as does the tin industry, and for the very same reason.

PUBLIC RELATIONS PROBLEMS OF PLUMBISM

by

MANFRED BOWDITCH

DIRECTOR OF HEALTH AND SAFETYLEAD INDUSTRIES ASSOCIATION

Presented at the

HYGIENE AND MARKET CONFERENCE

Sponsored by

METALLIC LEAD PRODUCTS DIVISIONLEAD INDUSTRIES ASSOCIATIONNew York, March 16, 1948

As a newcomer in the lead industries, I should perhaps explain what I am and what I am not. Having devoted the last twenty-three years of my life to rather generalized work in industrial or occupational hygiene, lead poisoning has been only one of a great many health problems with which I have had to deal, and I cannot make it too clear that I am no specialist or authority in this specific field. I was for six years in the employ of the General Electric Company, mainly as an industrial hygienist in their Medical Department, so I have seen industry from the inside. I was for fourteen years in charge of the industrial health work of the State of Massachusetts, so I can qualify as an ex-bureaucrat. Our state laboratory carried on a considerable amount of research, and my last two years have been as part of a very well-known industrial research organization, the Saranac Laboratory, so, though no scientist myself, I have been pretty intimately exposed to the methods and thinking of one sector of science. But a month and a half with the Lead Industries Association is hardly the basis for any great erudition on the subject of Public Relations Problems of Plumbism, so I hope you will bear with me in the few words I have to say.

My work for your industry, as I visualize it, will fall mainly within two categories, the promotion of hygiene in the production and industrial use of lead, and the dissemination of factual information with regard to lead's real and alleged hazards. The first of these is not primarily a matter of public relations, and I have thus far visited only one plant of our member companies, so I will confine myself to reading an excerpt from a letter of one of our most noted medical authorities on lead poisoning, written on learning of my new connection.

"For a goodly number of years, I have been deeply interested in bringing about more effective control of lead exposure, both in the community at large, but more particularly in the lead trades. My impression is that these industries, by and large, have not taken full advantage of the available information that now enables satisfactory control to be achieved. I should like to see the lead trades generally brought into such a state that we could say and demonstrate that this hygienic problem had largely been solved. It is entirely possible to do this, and I hope that the lead industries will not wait until the state of society and the attitude of organized labor compel them to do what they could have done with great profit to themselves and to the community, at a much earlier time."

- 2 -

My second category, the dissemination of factual information, obviously goes hand in hand with the correction of non-factual beliefs, that body of persuasion with regard to lead, both medical and lay, for which Dr. Wilents has coined the word "plumbophobia." Having had a hand in them myself, I know that legislation and governmental regulation will bear watching, and I know that lead has acquired an unsavory reputation in the fields of public and industrial health, by no means all of it deserved. In getting at the facts and sifting out the fallacies, one could hardly ask two better guides than the lead poisoning statistics and ancillary papers of the late Dr. Frederick Hoffman, compiled by him from 1901 through 1943 and entrusted by him to our Association, and the painstaking work of Mr. Wormser which bore such fine fruit in the conference on lead poisoning arranged by him with the American Medical Association in 1946. It is my hope that the former may be brought up to date and carried forward, and that the quality of the latter may at least be approached.

Some breakdown of the matters which have thus far come to my desk may perhaps best serve to illustrate what I have just said. Rather arbitrarily, I classify them as occupational, research, public health and regulatory problems. There have been but two in the last-named group, certain provisions of the New York State painting code and an apparently quite drastic lead law recently enacted in Queensland, Australia. The painting code will be the subject of a conference with Dr. Greenburg of the New York State Labor Department and, as a first step, a copy of the Australian statute is being sought through a colleague at Broken Hill. The public health questions, also only two, involve the importation of lead-painted toys, in which the interest of the Public Health Service has been enlisted, and a request for assistance in a problem of lead in the water supply of the city of Halifax, Nova Scotia. This is assumed to be similar to the few England experience and will be taken up in Boston later this month.

Seven research matters are currently claiming attention. Three concern lead poisoning therapy, two of them involving BAL, the British anti-Lewisite as to which there is marked difference of opinion in scientific circles. One is with regard to a newly established toxicological service, another is a roentgenological publication on skeletal changes in childhood caused by lead, and the two remaining relate to plumbism in cattle and in ducks, both subjects quite new to my ken. Johns-Hopkins and the Universities of Colorado, Illinois, Minnesota and Virginia are involved, and correspondence is quite active with several of these seats of learning.

Of the occupational questions, also seven to date, five have had to do with plant control methods and could be quite simply handled. Another was generated by four apparently genuine cases of lead poisoning occurring in shooting gallery attendants in Baltimore, as to which both the findings and the proposed preventive means have been ascertained.

The most amusingly interesting occupational item came to us through a telephone call from a member company, asking that we look into an alleged lead poisoning case at the plant of a concern to whom wire solder was sold. A call to the company nurse brought information that the patient was a girl of twenty who had for four years been engaged in the light assembly soldering common to radio plants, that she had not previously been employed, and that the claim was based on the diagnosis of her personal physician. An inspection of the department where the girl had worked uncovered nothing not usual in this type of

- 3 -

employment and nothing in the least likely to cause plumbism, as indeed there had been none reported among the forty workers similarly engaged. It was said, however, that the insurance carrier had indicated that the claim would probably be allowed. Some days were permitted to elapse before an appointment was made with the girl's physician, who remarked that he had heard that we were investigating the case. On calling on the doctor, again some days later, he told me that lead poisoning was somewhat out of his usual line, that he had now made some tests which he had not previously undertaken, that he had withdrawn his diagnosis of lead poisoning, and that he would so notify the state authorities.

In a paucity of words commensurate with the brevity of my experience in my present work, I have tried to outline its anticipated nature and what has transpired thus far. In closing, though I do not doubt that most of you are familiar with what we call the "green and blue reports," I would like to make sure that you know that single copies are available without charge from the Lead Industries Association. The titles are "Occupational Lead Exposure and Lead Poisoning" and "Methods for Determining Lead in air and in Biological Materials," and both are reports of the Committee on Lead Poisoning of the American Public Health Association. They are authoritative and concise, and particularly the first one, the "green report," should in my opinion be at hand wherever plumbism is a problem.

LUNCHEON ADDRESS  
by  
ANDREW FLETCHER  
PRESIDENT, ST. JOSEPH LEAD COMPANY  
Presented at the  
HYGIENE AND MARKET CONFERENCE  
Sponsored by  
METALLIC LEAD PRODUCTS DIVISION

LEAD INDUSTRIES ASSOCIATION

New York, March 16, 1968

I am pleased to attend this important conference on hygienic and economic subjects of paramount importance to the manufacturers of various metallic products. I am sorry that Mr. Crane could not be with us, but he has asked me to convey to you his best wishes for a most successful meeting. He has always felt that the strength of the Lead Industries Association lay in the fact that it was a vertical business organization, representing nearly all elements in the lead industry from mine to finished product. He has believed that the lead miners have much to learn from studying the problems of their customers, and similarly, the manufacturers have much to gain from examining the mining industry's difficulties. He has gone on the assumption that all parts of the industry must be prosperous, if the entire industry is to be prosperous, and that what benefits producers must benefit the consumers, and vice versa, or it is not sound. I think Mr. Crane's judgment, which was shared by all of those who founded the Lead Industries Association, has been thoroughly vindicated over the last 15 years or so, for I do not know of any one industry that cooperates so closely in their own, and the public interest, as the lead industry. For one thing, there is no antagonism between buyer and seller, which so often plagues other industries. Everyone in our Association knows that, in the last analysis, we make our living from the efficient competitive use of lead, and that we must do all we can to improve our productive efficiency and to cultivate our markets intensively.

The manufacturers of metallic lead products comprise an extremely important part of the lead industry, and as such, the Lead Industries Association should happily extend to them every facility for the consideration of their problems. The conference which we are holding today typifies some of the benefits, as, this morning, the question of lead toxicity and improving the health standards were discussed - this afternoon, the papers will cover the economic phase of the situation.

I should not be surprised to find that those of you who are helping to make this conference a success will conclude that you will want others to follow. The Lead Industries Association belongs to us all, and there is no reason why it cannot provide more meetings of this nature, if you want them. I know that Headquarters, and the Executive Committee, will be glad to hear from you in that connection.

- 2 -

In comparison with the problems facing our nation, we are apt to belittle our own immediate problems. However, we in the lead industry are vitally affected by international events, because it will be necessary to import at least 175,000 tons of lead if we are to have, in 1948, the same amount of lead as in 1947. Therefore, the foreign exchange situation, the effect of the Marshall Plan, and the peace of the world, have a great bearing on our industry. Another matter of solely domestic importance is the question of stockpiling - it is most unfortunate that stockpiles cannot be built up in times of surplus production. If it is necessary to have a stockpile of lead, then the lead can only be obtained by reducing the amount of lead going to you and other consumers of lead throughout the world. You have probably heard considerable discussion about the advisability of subsidizing lead, zinc and copper production in the United States. It is my personal view that less lead will be produced if a government subsidy plan, like the wartime Premium Price Plan, is adopted. The reason I have this feeling is because more lead has been produced since the Premium Price Plan was terminated. The ultimate end of any government subsidy plan will be controls of profits, wages, salaries, metal allocations and decreased efficiency. No nation has yet succeeded in regimenting an economy without eventually regimenting the individuals and the companies whom the economy was supposed to benefit. Our country has been built up by encouraging the individual to build for himself, and so to create wealth. We have built a society that is unique in the world. For the first time in history, hundreds of thousands of enterprises, big and small, competitively operated and individually managed, are effectively creating wealth in terms of a better living standard for all. Yet we seem to have lost ground in our effort to make this basic idea of our society understood. The philosophy that man and his affairs must be managed by the Government is certainly a reactionary doctrine - you can therefore understand why I, and the other members of the St. Joe Organization, are opposed to a government subsidy plan. In our opinion, we must do our part to defeat the belief of the advisability of government management, because only as long as the means of livelihood of a people remain unrestricted, can they as individuals remain free.

The simplest method to build up a stockpile, if one is needed, is to decide as to the tonnage of each metal to be placed each year in the stockpile, and to secure this tonnage by having a high price for the particular metal screen its consumption, and at the same time stimulate its production. The free enterprise system, free markets, and competition, are the best means of deciding what mines shall operate, and which shall close down. Government intervention through subsidization would be the first step toward the nationalization of the mineral industry of the United States, a point which may be overlooked under the conditions of high prices and demand now being experienced, but which will become vividly apparent in times of declining business.

LIA23167

TIN DURING 1947 AND OUTLOOK FOR 1948

by

ERWIN VOGELSANGCHIEF, TIN AND ANTIMONY SECTIONOFFICE OF MATERIALS DISTRIBUTION, DEPARTMENT OF COMMERCE

Presented at the

HYGIENE AND MARKET CONFERENCE

Sponsored by

METALLIC LEAD PRODUCTS DIVISIONLEAD INDUSTRIES ASSOCIATIONNew York, March 16, 1948

The present shortage of tin is the direct outgrowth of the wartime devastation of Far Eastern producing areas. The United States which normally consumes almost one-half of the world's output is entirely dependent for new supplies on other parts of the world. During the war, the United States, like most of the other tin-consuming countries, was completely cut off from the major sources of supply. Although increasing quantities of tin are now becoming available from Far Eastern sources, this encouraging development is partially offset by lower production in other areas such as Bolivia.

At the April 1947 meeting of the Tin Study Group in Brussels, Belgium, world production during 1947 was estimated at 117,000 tons. Final returns are not yet available for the year but it now appears that production did not exceed 110,000 tons. This compares with production of 87,000 tons in 1946. In general, the Far Eastern areas showed the greatest improvement while those areas upon which the United States was dependent during the war did not fare so well. Production in Malaya rose from about 8,500 tons in 1945 to 27,000 tons in 1947 and production in the Netherlands East Indies increased from approximately 6,500 tons in 1946 to 15,910 tons in 1947. On the other hand Bolivian output probably declined at least 4,000 tons from the 37,500 tons produced in 1946. Production in Nigeria and the Belgian Congo was slightly higher.

Good progress is now being made in Malaya although much rehabilitation remains to be done. The number of dredges operating had risen from 17 in January 1947 to 49 in September. This compares with 104 in prewar use. Even better progress is being made in the Netherlands East Indies. After the war eight new dredges were ordered. Six were built in the Netherlands and two in the United States; all have arrived at their destination and four are already in operation. The other four were expected to start production at the beginning of the year. As a result a substantial increase in production can be expected from the Netherlands East Indies during 1948.

Available supplies of tin to the United States during 1947 were 90,677 tons consisting of 30,503 tons of tin in concentrates, 33,692 tons of pig tin and 26,482 tons reclaimed from secondary sources. Consumption, exclusive of smelting losses and restricted by government control, was 87,598 tons, indicating a small surplus for the year. Government stocks of pig tin rose 8,200 tons but this gain was counterbalanced by a sharp decline in stocks of concentrates. Stocks of concentrates at the government smelter are at a minimum working level and production during 1948 will undoubtedly be limited to new receipts.

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- 2 -

The year 1947 also saw a sharp rise in the price of tin. With the ending of price control in November 1946 the Reconstruction Finance Corporation, the distributor for almost all the tin in the United States, set the price at 70¢, thereby stabilizing the market at this level. This action was based upon the price of £372 per ton ex Singapore or Penang established by the British Ministry of Supply. The price of 70¢ for Grade A tin in New York was held until April 2 when the R.F.C. was forced to raise the price to 80¢ in order to conform with the higher price for Bolivian concentrates under an agreement reached in the latter part of March. Later in the year the R.F.C. again began negotiations with the Bolivian producers for delivery of concentrates during 1948 and again a higher price was expected. However, before the agreement was concluded the British Ministry of Supply took the initiative in setting tin prices by raising its selling price for pig tin from £37 to £510 per ton. This action occurred on December 16. In conformity with this price the R.F.C. announced a selling price of 94¢ on December 18. On December 31, the R.F.C. announced a new agreement with the Bolivian producers calling for a base price of 90¢ f.o.b. South American ports. Since this was in line with the domestic price of 94¢ announced earlier no change in selling prices was necessary.

The continuing inadequacy of supplies has made it necessary to continue conservation and allocation controls over tin. The authority for these controls was extended by the Congress until February 29, 1948 by Public Law #188 known as the Second Decontrol Act. Legislation was introduced to extend the period of control for at least a year beyond this date. On February 28th the authority for controls was extended to May 31, 1948 and before that time exhaustive hearings will be held on the operation and desirability for continuation of controls.

The controls on tin are contained in Order M-43 administered by the Office of Materials Distribution, Department of Commerce. This order controls the distribution of pig tin and the end uses of both pig tin and secondary tin. Both imported metal and metal smelted in the Texas smelter are assigned to the Office of Metals Reserve, Reconstruction Finance Corporation, and are distributed in accordance with authorizations issued by the Office of Materials Distribution. The pig tin produced by private companies from secondary material is also sold by special authorization. The permitted uses of tin are listed in five schedules of Order M-43. These schedules specify the uses and the tin content of the various permitted alloys and coatings. Order M-81, which supplements Order M-43, specifies the type of tin plate which may be used for cans and is one of the principal means of conservation. By means of the above controls it has been possible to bring the limited supply of tin into line with the basic needs of industry. The permitted uses, alloys and coatings, have been determined by years of experience and constant contact with tin-consuming industries.

Since the war the policy with regard to conservation has been one of gradual relaxation as more tin supplies became available. However, under this policy no provision can be made for additions to the strategic stockpile under Public Law #520. Furthermore, the supply and demand outlook is such that little or no tin will be available for stockpile accumulation for at least 18 to 24 months. Therefore, in November 1947, the Secretary of Commerce announced that the use of tin plate for certain non-food items would be restricted and that the savings of tin so effected would be made available for the strategic stockpile. Conferences with the industries concerned took place in order to work out the most effective and least disruptive means of accomplishing this purpose. As a result of those conferences, Direction 10 to Order M-81 was issued on January 30. This direction

- 3 -

effective February 29, placed restriction on can manufacturers and can users with respect to beer, animal foods, coffee, lubricating oil and pigmented oil paints. In general, the effect of the Order will be to hold tin consumption for tin plate to approximately 1947 levels.

During the war, supplies of both tin metal and ore available to the United Nations were allocated by the Combined Raw Materials Board. When that Board was discontinued at the end of 1945 in accordance with a joint declaration by the President of the United States and the Prime Minister of England there was established the Combined Tin Committee, which now allocates the pig tin exportable surpluses of the world's major producers among consuming countries. The original members of this Committee were the United States, United Kingdom, France, Belgium and Holland. Canada, China and India later joined the work of this Committee. The United States receives allocations from the Committee in addition to the production of the Texas smelter, the output of which is not involved in the allocation. The allocation system established an orderly distribution of a very scarce commodity of which the United States has no supplies. In 1946 the United States received allocations of over 16,000 tons of tin metal from the Committee, and in 1947 received allocations of over 31,000 tons. Part of the latter amount was from stocks found in the Far East after the Japanese occupation and is therefore a non-recurring supply. The Committee expects to continue operations during 1948.

During 1948 world production should rise to at least 150,000 tons, and may reach 160,000 tons. This assumes political stability in Bolivia and the Far Eastern producing countries. Out of this production the United States should receive at least 32,000 tons of concentrates and 35,000 tons of tin metal. These amounts, together with 24,000 tons from secondary sources, would provide supplies of 91,000 tons and without any transfer to strategic stockpile would allow a consumption of 3,500 tons more than in 1947. A decision to transfer tin to such a stockpile would mean correspondingly less tin available, and consumption would have to be held to 1947 levels or less, depending on the amounts involved.

LIA23170

- 4 -

## TIN

## U. S. SUPPLIES, CONSUMPTION AND STOCKS

|                            | <u>1946</u>            | <u>1947</u>                                   |
|----------------------------|------------------------|-----------------------------------------------|
| SUPPLIES:                  |                        |                                               |
| Imports of Concentrates    | 38,116                 | 30,503                                        |
| Imports of Pig Tin         | 6,716                  | 33,692                                        |
| Domestic Secondary Pig Tin | 2,512                  | 3,160                                         |
| Domestic Secondary Alloys  | <u>22,025</u>          | <u>23,322</u>                                 |
|                            | 69,369                 | 90,677                                        |
| CONSUMPTION AND EXPORTS:   | 80,386                 | 87,598                                        |
| STOCKS:                    |                        |                                               |
|                            | <u>January 1, 1946</u> | <u>January 1, 1947</u> <u>January 1, 1948</u> |
| Government                 |                        |                                               |
| Concentrate                | 32,536                 | 24,642                                        |
| Pig 1/                     | 23,350                 | 17,197                                        |
| Industrial                 |                        |                                               |
| Pig                        | 14,551                 | 14,837                                        |
| Other                      | <u>8,645</u>           | <u>9,109</u>                                  |
| Total 2/                   | 79,483                 | 65,785                                        |
|                            |                        | 67,387                                        |

1/ Does not include Munitions Board stocks.

2/ The difference between supplies and consumption does not necessarily equal the change in stocks because smelting losses are not taken into consideration as consumption.

## Source:

Tin and Antimony Section  
Office of Materials Distribution  
U. S. Department of Commerce

SUMMARY OF PANEL DISCUSSION OF THE LEAD SITUATION

Presented at the  
HYGIENE AND MARKET CONFERENCE  
Sponsored by  
METALLIC LEAD PRODUCTS DIVISION

LEAD INDUSTRIES ASSOCIATION

New York, March 16, 1948

(As the panel discussion of the lead situation was largely extemporaneous we are unable to provide the complete remarks of each speaker but are presenting herewith a summary of their remarks.)

PANEL Chairman, Simon Strauss, sales manager, American Smelting and Refining Co.

Irwin H. Cornell, vice president, St. Joseph Lead Co.

Clarence Glass, vice president, Anaconda Sales Co.

Norman Hickman, vice president, The American Metal Co. Ltd.

Neil R. Taylor, United States Smelting Refining & Mining Co. Inc.

The supply of lead actually shipped to consumers in 1947 was the greatest on record. Supplies available to consumers in 1948, however, are not likely to be as large as in 1947, primarily because last year it was possible to draw on stocks of ore and scrap accumulated during 1946. In that year a series of strikes at large smelting plants interfered with production and the effect of O.P.A. price control tended to discourage the collection of lead contained in scrap material, such as battery plates.

Actual new mine production in 1948 is expected to be greater than in 1947 both in the United States and in the foreign market. If demand continues at present levels, however, the supply may be inadequate to meet all consumer demands. A further factor complicating the situation is the probability of attempts by the Government to accumulate a substantial stockpile of lead. This could only be accomplished at the expense of reducing supplies available to consumers.

Substantial increases in new mine production of lead may be expected over a period of several years as a result of exploration and development work now under way.

- 2 -

In discussing the lead situation in various sections of the United States and abroad, attention was called to the fact that in the Tri-State or Joplin District, the mine production in tons of lead was greater in 1947 than it was in 1946 in spite of the drop in zinc production and the end of the Premium Price Plan in 1947.

In Southeast Missouri the labor supply is now adequate, but the district is very far behind in development work and more money is being spent than at any other time in history on developing known ore bodies and prospecting for new ones. The production in 1947 was slightly less than in 1946 but it is hoped that 1948 production would be approximately what it was last year.

The Northwestern States, Idaho, Montana and Washington, present the most encouraging picture for the immediate future. There new developments and improved labor supplies have already resulted in increased production in recent months and a further increase of as much as 15 per cent may be a possibility. Improved methods are bringing large tonnages of low grade ore into production in addition to the discovery of new ore bodies.

On the other hand, it is doubtful if there will be any material increase in lead production in 1948 in Utah and the Southwestern States. In Utah several large construction projects are getting under way and the mining industry will have to compete for labor in this area which has a limited labor supply. Under these conditions increased lead production can not be expected until the last quarter of this year at the earliest.

Mexican production is at least temporarily affected by strikes which may spread and have a serious effect on production. Should they be settled shortly, however, their effect should not be great on the total amount of lead to be expected from Mexico this year. Although production of lead from Canada has been lagging slightly in 1948 imports will probably equal or slightly exceed 1947 imports from that country.

Peru is an example of a country where high prices for lead have resulted in little improvement in production. Labor in that country has little incentive to work because even with higher wages they can not buy what they want and need.

From Africa some improvement may be expected. There are two important developments on that Continent which will add to supplies. One is in Morocco and the other in South West Africa. Production of lead from Burma will probably be resumed on a small scale later this year and Argentine production could be materially increased if more transportation facilities were available.

It was emphasized throughout that considerable time is required to do development work and to bring new ore bodies and new mines into production. As exploration and development work is proceeding at an unprecedented rate, the outlook for the long pull is encouraging, but that can not be said for the immediate future if demand is maintained on such high levels.

TABLE I - LEAD SUPPLIES

|                                                                            | 1945<br>(tons) | 1946<br>(tons) | 1947<br>(tons)<br>(estimated) | 1948<br>(tons)<br>(estimated) |
|----------------------------------------------------------------------------|----------------|----------------|-------------------------------|-------------------------------|
| Receipts of lead in domestic ore                                           | 387,733        | 332,876        | 401,336                       | 420,000                       |
| Receipts of lead in foreign ore                                            | 90,776         | 54,848         | 52,347                        | 60,000                        |
| Receipts of lead in scrap                                                  | 68,860         | 46,892         | 71,480                        | 60,000                        |
| Totals received at smelters                                                | <u>547,369</u> | <u>434,616</u> | <u>525,163</u>                | <u>540,000</u>                |
| Change in stocks of ore, matte, and<br>bullion, at smelters and refineries | 412,465        | 423,112        | -34,637                       | unchanged                     |
| U. S. primary refinery output                                              | 524,328        | 413,903        | 583,716                       | 600,000                       |
| Change in stock of refined lead at<br>refineries                           | 425,210        | 44,342         | -27,191                       | unchanged                     |
| Shipments from refineries                                                  | 500,003        | 411,433        | 608,421                       | 600,000                       |
| Production by secondary plants                                             | 242,000        | 295,900        | 344,320                       | 320,000                       |
| Imports of refined metal                                                   | <u>255,200</u> | <u>116,248</u> | <u>159,522</u>                | <u>150,000</u>                |
| Total shipments marketable lead                                            | <u>997,203</u> | <u>823,581</u> | <u>1,112,253</u>              | <u>1,070,000</u>              |

TABLE II - STOCKS OF LEAD AND LEAD-BEARING MATERIALS

|                                                | Dec. 31, 1946<br>(tons) | Dec. 31, 1947<br>(tons)<br>(estimated) | Dec. 31, 1948<br>(tons)<br>(estimated) |
|------------------------------------------------|-------------------------|----------------------------------------|----------------------------------------|
| In ore and matte and in process<br>at smelters | 111,836                 | 77,199                                 | 75,000                                 |
| In base bullion at smelters and refineries     | 8,453                   | 7,652                                  | 8,000                                  |
| In base bullion in transit to refineries       | 1,911                   | 5,447                                  | 6,000                                  |
| In process at refineries                       | 16,042                  | 16,328                                 | 15,000                                 |
| Refined pig lead at refineries                 | 41,057                  | 13,866                                 | 14,000                                 |
| Antimonial pig lead at refineries              | 7,442                   | 7,921                                  | 8,000                                  |

Based on American Bureau of Metal Statistics.

All these figures are based on recoverable lead content.

An incomplete report of manufacturers' stocks indicates that during 1947 these increased slightly - perhaps 15,000 tons.

ATTENDANCE AT HYGIENE AND MARKET CONFERENCE  
SPONSORED BY METALLIC LEAD PRODUCTS DIVISION  
OF LEAD INDUSTRIES ASSOCIATION

|                                                               |                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| American Brake Shoe Co.                                       | L. E. Hanlin, M.D., medical director<br>H. J. Weber, industrial hygienist                                                                                                                                                                                                       |
| The American Metal Co. Ltd.                                   | Norman Wickman, vice president<br>J. Vuilleques                                                                                                                                                                                                                                 |
| American Smelting & Refining Co.                              | J. H. Auburn<br>G. B. Augustine<br>W. B. Clancy, assistant sales manager<br>K. C. Brownell, vice president<br>R. L. Jourdan, Manager, Ore Pur. Dept.<br>S. D. Strauss, sales manager                                                                                            |
| Anaconda Sales Co.                                            | Clarence Glass, vice president                                                                                                                                                                                                                                                  |
| Barr & Co. Inc.                                               | Julian S. Barr<br>Leon M. Rose                                                                                                                                                                                                                                                  |
| Consolidated Mining & Smelting Co. of<br>Canada, Limited      | R. Hendricks, assistant to president<br>M. A. Fulkill, sales manager                                                                                                                                                                                                            |
| Division Lead Co.                                             | J. A. Stone, sales manager                                                                                                                                                                                                                                                      |
| E. I. duPont de Nemours & Co.                                 | F. K. Hart, assistant division pur-<br>chasing agent<br>Dr. J. M. Herndon<br>A. C. Jones, division purchasing agent<br>R. M. Marshall<br>Dr. S. L. Rankin                                                                                                                       |
| Eagle-Picher Co.                                              | W. R. Dice, vice president                                                                                                                                                                                                                                                      |
| Electric Storage Battery Co.                                  | Dr. F. B. Lanahan, medical director<br>D. A. Sonnenmaier, purchasing department                                                                                                                                                                                                 |
| Ethyl Corporation                                             | E. R. Anderson<br>J. A. Costello                                                                                                                                                                                                                                                |
| Federated Metals Division<br>American Smelting & Refining Co. | George M. Baumann<br>W. Foodin, assistant to president<br>Leo Halpern, assistant to president<br>Paul Herscov, general manager, scrap<br>purchasing department<br>R. H. Kathman<br>E. L. Nechouse, Jr., president<br>D. Saunders<br>R. D. Taylor, Mgr., Perth Amboy, N.J. Plant |
| Glaser Lead Co. Inc.                                          | Robert Glaser, vice president<br>Simon Glaser, president                                                                                                                                                                                                                        |
| Grant Storage Battery Co.                                     | Manfred Husebo, president                                                                                                                                                                                                                                                       |
| Imperial Type Metal Co.                                       | L. S. Somers, vice president                                                                                                                                                                                                                                                    |

- 2 -  
ATTENDANCE AT HYDRIUM AND LEAD CONFERENCE  
SPONSORED BY METALLIC LEAD PRODUCTION DIVISION  
OF LEAD INDUSTRIES ASSOCIATION

Magnolia Metal Co.

R. A. Dett  
A. F. Miller

Metro Smelting Co.

Rudolph Spitzer

National Lead Co.

E. R. Dondorf, manager, metal purchases  
A. R. Drewes, assistant to the president  
C. A. Gentry, director  
J. A. Martino, president  
D. A. Merson, director  
A. Stewart, director of research  
W. J. Tolch, manager, metal sales dept.  
H. J. Whitsun, Sales Mgr., Dry Flg., Atlantic Branch  
H. C. Fildner, comptroller  
W. C. Wilutz, M.D., medical director

North American Smelting Co.

A. Charrington  
E. J. Ferguson, Vice President

The Okonite Co.

R. S. Keefer, vice president, sales  
R. K. Spofford, purchasing agent

Phelps Dodge Corporation

J. Douglas, Secretary

Phelps Dodge Refining Corp.

W. Hill

Rochester Lead Works, Inc.

W. H. Dwell, president

St. Joseph Lead Co.

J. H. Cornell, vice president  
A. Fletcher, president  
C. R. Ince, sales manager  
D. Marshall  
F. E. Wormser, assistant to the president

Silverstein &amp; Pinsof, Inc.

M. Silverstein, president

C. Tennant, Sons &amp; Co.

Geo. E. Biscaye

United American Metals Corp.

W. H. Street, vice president

United States Smelting Refining &  
Mining Co., Inc.

W. R. Taylor

Hyman Wiener &amp; Sons

R. Wiener

Erwin Vogelsang

Chief, Tin and Antimony Branch, Office of  
Materials Distribution, U.S. Dept. of  
Commerce

Western Electric Co. Inc.

H. G. Ross, assistant purchasing agent  
T. G. Stover, purchasing agent

Willard Storage Battery Co.

F. L. Kulow, purchasing agent  
C. E. Murray, executive vice president  
B. H. Shaffer, vice president, in charge  
of manufacturing

Winchester Repeating Arms Co.

R. C. Swanton, vice president