

THE OUTLOOK FOR LEAD SHEET LEAD PIPE SOLDER AND BABBITT

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LEAD SHEET AND LEAD PIPE

In order to forecast the future of Lead Sheet and Lead Pipe, average monthly shipments as reported by the Lead Industries Association have been examined back to 1930. It is interesting to note that the trend of such shipments is almost identical with that of the Federal Reserve Board Index of Industrial Production, when you consider the multitude of new products that have come on the market in the last decade that are competing with, and serving as, substitutes for lead. These new products have been introduced with much fanfare by effective and persistent sales organizations. In many instances, these new products have been overhyped as a result of lack of performance experience. New materials have often displaced lead in a flash of glory, only to find that lead regains its former stature in what are apparently "natural" applications. One of the most common "natural" applications of lead involves sulfuric acid equipment, where it is apparent that lead will continue to hold its own against an onslaught of new materials. At one time, stainless steels were to be the panacea for all corrosion problems. After a short period of service, however, they were replaced in many a plant by lead, the former material that had given service for such a long period of time.

The increased use of lead as a radiation shielding material will certainly tend to contribute to the demand for lead sheet and extruded shapes. Lead is the highest density material available, commercially, in large quantities at a nominal cost, and also has additional advantages as a radiation shielding material, making it unique for this use. It does not become contaminated by neutron and gamma radiation; thus high grade lead can be used continuously without becoming radioactive or an emitter of harmful radiation.

I believe the reasons for the continued wide use of lead sheet and pipe might be summarized as follows:

LOWER PROBABILITY OF PIN HOLLING

All organic materials have an extremely high susceptibility to pin holling. This is especially so, not only with the brush and sprayed materials, but also when they are used in sheet form. It is a factor that requires rigid and continuous testing and inspection.

In contrast, sheet lead can be depended upon to be free of pin holes to such an extent that this factor is rarely tested for, specified, or even considered, in the purchase of lead.

SUPERIOR MECHANICAL PROPERTIES

The superior mechanical properties of lead, as contrasted with organic materials, are immediately evident to any plant operator. Generally, a brick lining must be used as

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In radiator production, where large quantities of solder are consumed, the size of radiators has decreased as much as 50%, but the amount of solder used depends on the so-called "frontal area". This frontal area, however, has not decreased in size, and thus the amount of solder used, per unit, has not decreased. Although a good deal of research is being conducted on aluminum radiators, no economical and suitable substitute has been developed. As long as radiators can be manufactured economically by soldering copper and brass strips with a tin-lead solder, such processing will be used.

In the automotive field, numerous experiments have been conducted to eliminate the use of body solder. However, no economical way has yet been discovered to manufacture an automobile body of good appearance without the use of conventional body filler metal. The number of cars on the road today, and the anticipated increased number to come, will obviously increase the collision rate, and thus increase the demand for more body solder for repair purposes.

In the field of can manufacturing, a plastic substitute for solder has made an appearance, but it is doubtful whether its application will extend much beyond that for non-food uses. Over a period of years, the canning industry and can manufacturers have succeeded in reducing the amount of solder used per can. However, I believe that this unit use is now at a minimum.

One other development, which is interesting to note at the present time, is the use of printed circuits in the electronics field. In the past, it has been commonly thought that this development would tend to eliminate the use of solder. However, it appears that this is not the case and that a dipping solder will be required. This operation will, no doubt, cut down on the use of solder per unit, but it is expected that the rapid expansion of the Electronics Industry will sustain the total demand for solder in this field.

In view of the above, I believe that we can expect a sustained demand for solder as long as Automobile and Industrial Production continues at present, or near present levels.

BABBITT

The future outlook for the use of babbitt is certainly not as bright as it is for solder or lead sheet and pipe. The development of direct drive, roller bearings, and a sharp reduction in bearing alloy thickness have all contributed substantially to a reduction in the use of babbitt.

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In pre-war and early post-war automobiles, for example, the bearing alloy thickness per unit bearing was about .015 inches. In present day automobiles, the bearing alloy thickness is an average of .005 inches. There are, however, some compensating factors. Many cars now have a greater number of cylinders, eight being the conventional number, whereas, heretofore, there were a greater number of four and six cylinder cars. Also, while bearings are shorter in present day cars, they are larger in diameter. In spite of these facts, however, I would estimate that there has been a decline of - roughly - 35% in the use of bearing alloys per unit automotive use from pre-war days.

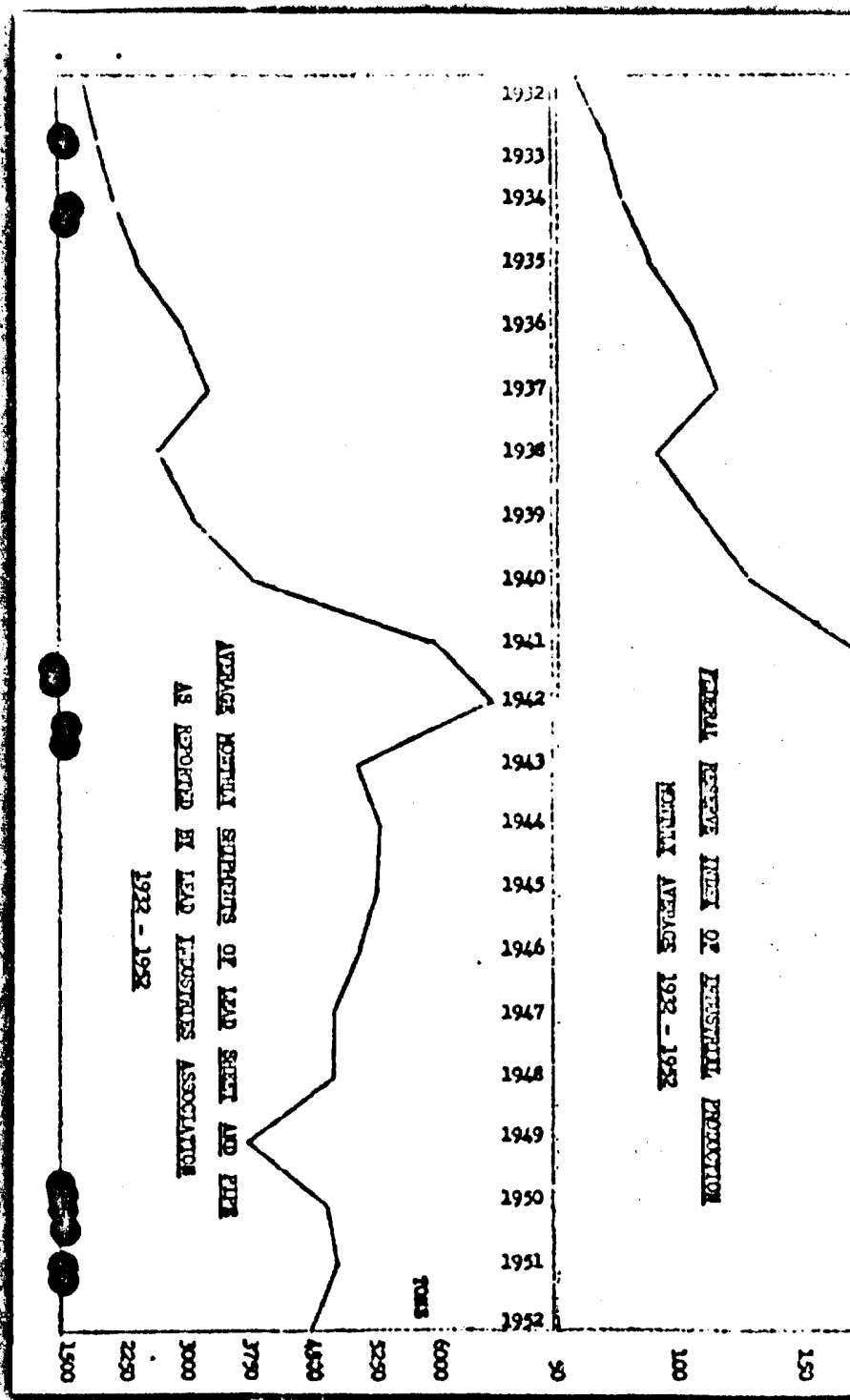
It is also self-evident that the use of roller bearings by a number of railroads has also made inroads on the use of babbitt in this field. However, it may be reported that a number of roads are convinced that roller bearings are NOT the answer to bearing failures. Many of them have discovered that they have just as many failures with roller bearings as they have with babbitted bearings.

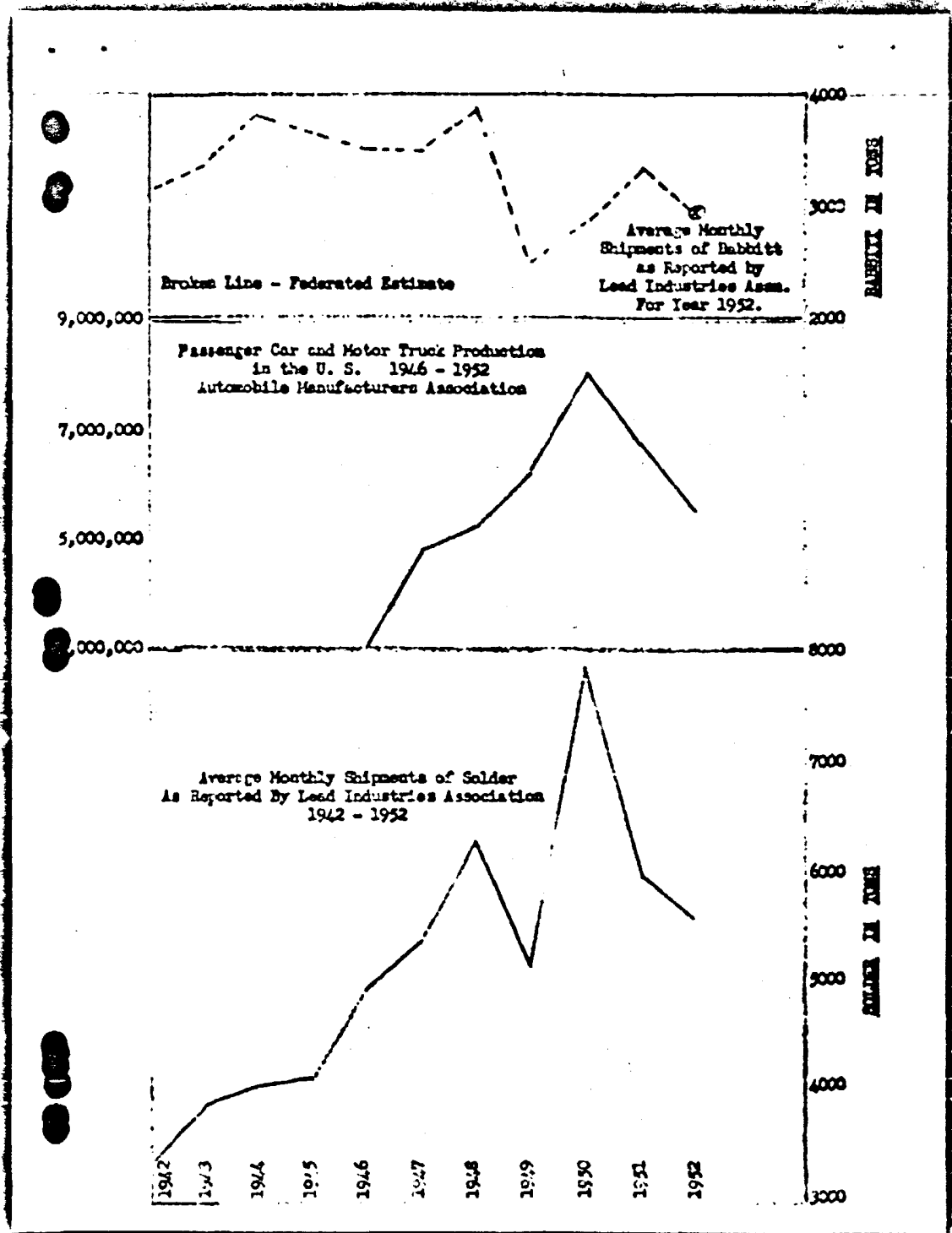
In behalf of the Association of American Railroads, several Research Institutes are today putting forth considerable effort on the study of the car box journal bearings for the purpose of finding the best bearing metal.

It must also be remembered that there are approximately 2,000,000 freight cars in railroad service, a large percentage of which are using babbitted bearings, and that even if a change were to be made, it would take many years for the transition to take place.

In view of these facts, it is my hope and belief that the Railroads will continue to use babbitted journal bearings in sizable quantities.

Although I do not believe that a great deal may be expected in the development of new uses for babbitt, I believe that future shipments will parallel the industrial production of the country. Furthermore, the continuance of research, which has resulted in a tremendous increase in the load carrying capacity of babbitted bearings, as well as an increase in their resistance to fatigue failure, will certainly tend to help sustain the demand for this alloy.





AVERAGE MONTHLY SUPPLIES OF FABRICATED LEAD PRODUCTS

Source: Lead Industries Association
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