

ANNUAL MEETING OF THE MEMBERS OF THE
LEAD INDUSTRIES ASSOCIATION

Chicago, Illinois

April 22-23, 1959

The annual meeting of the members of the Lead Industries Association was held on Wednesday and Thursday, April 22-23, 1959 at the Drake Hotel, Chicago, Illinois.

Members Present

Harold A. Cohn
Edward Brennick
Joseph Cassara
C. K. Conard
Gene Frawley
R. Hermsdorf
John J. Lennon
Ernest T. Rose
Jean Vuillequez
R. D. Bradford
Aubrey M. Callis
Morris Foodin
Albert J. Phillips
J. S. Smart, Jr.
Simon D. Strauss
Robert Ammon
K. A. Phillips
W. E. R. Smith
Carl A. Underhill
Howard L. Young
Richard A. Young
Thomas K. Graham
Julian S. Bers
R. J. Hopkins
Ralph H. Cutler, Jr.

Hugh W. Halton
Sidney E. Sweet
Ivor Thompson
Frank Gregory
Dr. W. G. Hiscock
David Kirkwood
John D. Bradley
Roger H. Cutting
Harold E. Lee
C. E. Schwab
Emmett A. Torney
W. G. Woolf
I. L. Barker
R. C. Bell
J. F. M. Douglas
H. T. Fargey
E. H. Gautschi

Representing

Alpha Metals, Inc.
American Metal Climax, Inc.
do
do
do
do
do
do
do
do
American Smelting & Refining Co.
do
do
do
do
do
American Zinc, Lead & Smelting Co.
do
do
do
do
do
The Anaconda Co.
Bers & Co., Inc.
Broken Hill Associated Smelters Pty., Ltd.
do
(C. Tennant, Sons & Co., Agents)
do
do
do
(Consolidated Zinc Corp., Ltd.)
do
(Imperial Smelting Corp., Ltd.)
The Bunker Hill Co.
do
do
do
do
do
do
do
Cerro de Pasco Corp.
Consolidated Mining & Smelting Co. of Canada, Ltd.
do
do
do

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H. G. McBoyle	Consolidated Mining & Smelting Co. of Canada, Ltd.
A. D. Turnbull	do
A. O. Wolff	do
Henry L. Day	Day Mines, Inc.
Wray D. Farnin	do
Ralph L. Corbin	Delco-Remy Div., General Motors Corp.
Samuel P. Miller	do
W. D. Atteberry	The Eagle-Picher Co.
K. W. Green	The Electric Storage Battery Co.
M. McMullan	do
M. G. Smith	do
Evans Taylor	do
E. R. Anderson	Ethyl Corp.
J. A. Costello	do
Hyman Ferer	Aaron Ferer & Sons Co.
Harvey Ferer	do
R. A. Gardiner, Jr.	Gardiner Metal Co.
Alan Stevenson	do
D. F. Goldsmith	Goldsmith Brothers Smelting & Refining Co.
M. S. Goldsmith	do
Willard F. Haas	Hammond Lead Products, Inc.
William P. Wilke, III	do
George H. Eddleman	Imperial Type Metal Co.
Lewis S. Somers, III	do
P. H. Burless	International Smelting & Refining Co., (Anaconda Sales Co., Agents)
W. P. Murdock	Murdock Lead Co.
John Jennings	National Lead Co.
R. J. Kovar	do
Paul J. Pater	do
John J. Forst	Glin Mathieson Chemical Corp.
William A. Oakley	do
J. J. Sharkey	do
Jens Jensen	Pend Oreille Mines & Metals Co.
Jack C. Pierce	Shattuck Denn Mining Corp.
C. Merrill Chapin, Jr.	St. Joseph Lead Co.
Robert F. Doelling	do
Charles D. Henderson	do
William F. Hoffmann	do
Charles R. Ince	do
W. T. Isbell	do
Carleton C. Long	do
Donald K. Lourie	do
R. J. Mechin	do
L. A. Creglow	U. S. Smelting, Refining & Mining Co.
G. Howard LeFevre	do
F. S. Mulock	do
C. G. Rice	do
F. C. Snyers	U.S.S. Lead Refinery, Inc.
F. L. Warner	do
Howard Novasel	Victory White Metal Co.
Reuben Viener	Hyman Viener & Sons
Leo Bledsoe	Western Lead Products Co.
Robert N. Quenell	do

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Represented by Proxy

Hecla Mining Co.
Lead Products Co. Inc.
Newmont Mining Corp.

Revere Copper & Brass Inc., Foil Div.
John A. Roebling's Sons Corp.
White Metal Rolling & Stamping Corp.

Guests

C. W. Ballard
Richard J. Bauer
Philip R. Blanc
Frank Camard
John Coblenz
J. O. Edwards
William H. Finkeldey
E. L. Frank
D. B. Fraser
Arthur J. Cervais
Dr. P. P. East
Paul V. Higgins
Hideo Iways
F. R. Jeffrey
J. J. Kelleher
Jerome D. Luntz
Edward G. Orkin
J. D. Phibbs
C. Wilson Randle
Kurt E. Reinsberg
Kenneth Rose
A. A. Scharf
Nedeljko Sordarevic
J. A. Singmaster
Willis Smith
James V. Stafford
M. J. Sullivan
J. J. Svec
Theodore C. Waters
Brian Wilson
Joseph Zimmerman

Hercules Powder Co.
Henning Brothers & Smith, Inc.
Indussa Corp.
O. S. Tyson & Co., Inc.
Associated Metals & Minerals Corp.
Department of Mines & Technical Surveys
Singmaster & Breyer, Inc.
Philipp Brothers Ore Corp.
Department of Mines & Technical Surveys
International Minerals & Metals Corp.
Non Ferrous Metals Association (German)
O. S. Tyson & Co., Inc.
Mitsui Mining & Smelting Co., Ltd.
National Zinc Co., Inc.
Hercules Powder Co.
Nucleonics Magazine
Metal Traders Inc.
Mount Isa Mines Ltd.
Booz, Allen & Hamilton
Associated Metals & Minerals Corp.
Automotive Industries
Philipp Brothers Ore Corp.
Jugometal
Singmaster & Breyer
McGraw Hill Publishing Co.
American Metal Market
International Minerals & Metals Corp.
Ceramic Industry
Miles & Stockbridge
Steel Magazine
Daily Metal Reporter

GOVERNMENT REPRESENTATIVES

O. W. Bilharz
O. M. Bishop
Joseph C. McCaskill
Thomas H. Miller
Richard H. Mote
C. W. Nichols
Donald Sham

Office of Minerals Mobilization,
Department of Interior
U. S. Bureau of Mines
Office of Asst. Secy. for Mineral Resources,
Department of Interior
U. S. Bureau of Mines
do
Office of International Resources,
Department of State
International Resources Staff
Bureau of Foreign Commerce, U.S. Dept. of Comm.

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LEAD INDUSTRIES ASSOCIATION STAFF

Robert L. Ziegfeld, Secretary-Treasurer
 David M. Borcina
 Manfred Bowditch
 Bruce Fuder
 Edward J. Mullarkey
 Owen F. Shobe
 Sid W. Turner
 Homer S. Yetman

EXPANDED RESEARCH PROGRAM--AZI-LIA

Schrade F. Radtke, Director
 Samuel Eck

The minutes of the previous meeting of April 15-16, 1958 were circulated to members after that meeting and no changes or corrections were received.

The president welcomed the members and guests to the 31st annual meeting of the Association and briefly summarized the progress he felt the Association was making, through research and market development, to improve the commercial position of lead.

NOMINATING COMMITTEE

Mr. J. S. Smart, Jr., chairman of the Nominating Committee, reported for his Committee, composed, in addition to himself, of Messrs. E. R. Anderson, C. R. Ince, Jens Jensen, and M. M. Zoller, and placed in nomination the following slate:

Julian Bers	Bers & Company, Inc.
R. D. Bradford	Federated Metals Division, American Smelting and Refining Co.
J. D. Bradley	The Bunker Hill Company
J. A. Costello	Ethyl Corporation
W. H. H. Cranmer	New Park Mining Company
H. L. Day	Day Mines, Inc.
Andrew Fletcher	St. Joseph Lead Company
K. W. Green	The Electric Storage Battery Company
F. H. Hurless	International Smelting & Refining Co. (Anaconda Sales Co., Agents)
J. A. Martino	National Lead Company
F. S. Mulock	United States Smelting Refining & Mining Company
S. D. Strauss	American Smelting & Refining Company
Jean Vuillequez	American Metal Climax, Inc.
William Wilke, III	Hammond Lead Products, Inc.
M. M. Zoller	The Eagle-Picher Company

There being no further nominations the slate was unanimously elected.

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REPORT OF THE SECRETARY-TREASURER

The secretary-treasurer reported to the membership on the 1958 activities and plans for 1959, his report having been circulated to members on April 10, 1959. See Exhibit A.

REPORT OF THE RESEARCH DIRECTOR

The research director reported on the progress of the various research projects and others being initiated. A copy of this report is available upon request. See Exhibit B.

ADDRESSES AT MEETING

The following talks were delivered at the annual meeting and, with the exception of "Lead and the Expanding Nucleonics Market" by Jerome D. Luntz, and "The Management of New Products" by Booz, Allen & Hamilton, are available to those members interested:

"Ease the Profit Squeeze" by Evans Taylor, sales manager, Chicago District, Electric Storage Battery Co.

"Tetraethyl Lead" by J. A. Costello, vice president, Ethyl Corp.

"New Developments in Lead Pigments" by David M. Borcina, assistant to the secretary, Lead Industries Association

"A Lawyer Looks at Plumbism" by Theodore C. Waters, Miles & Stockbridge

"Executive Reserve Program of the Office of Minerals Mobilization" by O. W. Bilharz, coordinator for Base Metals, U. S. Department of the Interior

"Advertising and Promotion in the General Sales Campaigns of the Steel Industry" by John Veckly, director of advertising, U. S. Steel Corp.

ANNOUNCEMENT OF ELECTION OF OFFICERS

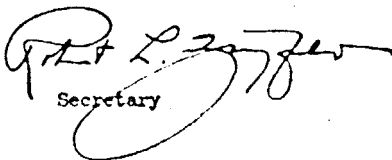
The election of the following officers for the ensuing year at the meeting of the Board of Directors on April 22nd was announced:

John D. Bradley, President and Chairman of the Board

F. S. Mulock Vice President

F. E. Wormser Vice President

Kenneth W. Green Vice President


Secretary

ANNUAL REPORT OF THE
SECRETARY-TREASURER
FOR THE YEAR 1958

In the past, knowing that you have had my written reports, it has been my practice to report to you verbally as briefly as possible, in order to leave more time to hear from various industry experts. Today, because Association activities have been proceeding at such an exciting pace, I propose to give you a detailed report by word of mouth and help you save your eyes on my written report. So here it is!

The semi-conducting properties of lead telluride are employed to make the much publicized 5-lb. electrical generator, developed for the A.E.C. for rockets and other uses.

Pearlescent lead pigments make possible the sharpest and clearest images on projection screens, and the simulation of mother-of-pearl finishes on a variety of products from toilet seats to buttons and costume jewelry.

Tiny lead zirconate-titanate capsules form the heart of the pick-up devices on many of the best stereophonic hi-fies.

Twenty-five tons of lead slabs are controlling vibration in one of the nation's most modern laboratories devoted to inertial guidance of missiles.

Over 500 tons of sheet lead form lubricating and sealing bases for the hinged-arch construction of two large water tunnels in the Niagara Power Project.

Lead-containing porcelain enamels are providing bright, colorful porcelain enamel finishes on aluminum.

The super-conducting properties of lead are being employed in International Business Machines' most modern computing devices.

More than 500-tons of lead are going into the protective shielding around the reactor of the world's first atomic merchant ship.

Lead-powder-impregnated plastic is being used for sound-proofing on commercial transport planes like the DC-7 and DC-8.

Lead-shielded instruments are in our space rockets to measure radiation in outer space.

These are just a few of the intriguing new developments in lead that the Association is watching. When any of these or others that we encounter appears to have the possibilities of establishing a substantial commercial market for lead, we want to be in a position to help develop that market through technical service, promotion, advertising and publicity. Not all of them by any means will offer such possibilities, but we must be prepared to step in and take the initiative whenever the opportunity arises.

Meanwhile, our research programs, of which you will hear more tomorrow, are tying in with these new developments and with the more established uses of lead. It is also in the latter applications where most but not all of our current promotional activities lie.

We now have several promotional projects dealing with specific products or industries, together with technical service, advertising, publicity and direct mail which cover the broad use of lead in all applications.

For example, "Lead" magazine describes both established and new applications of lead in any form and in any industry. This broad promotion of the use of lead is published quarterly and goes to a mailing list of over 50,000 names. This list includes a variety of people such as architects, builders, utility companies, railroads, ship builders, paint manufacturers, nuclear scientists, corrosion engineers and a lot more. Thus more than 200,000 copies containing an average of six different articles are distributed each year. That is about a million and a quarter detailed messages about lead going to people who are real prospects.

We are just starting a new advertising campaign directed primarily at design engineers. It consists of six one-page ads each in "Materials in Design Engineering" and "Product Engineering" with a combined circulation of about 70,000 per ad or another 400,000 plus messages. Supporting this will be an exhibit emphasizing lead's properties and new applications at the Design Engineering Show next month. This will be the first such exhibit for L.I.A.

Most important of all in the broad promotion of lead is the technical service we are now able to render industry. We have at least four trained men who are constantly contacting industries of all kinds to help them with problems involving lead and to show engineers how they can use lead to advantage.

And, backing up all this is a planned publicity program designed to place feature articles on interesting uses of lead in trade papers which reach the desired audiences. Started a little over a year ago this campaign is beginning to show good results and is being expanded this year.

In addition to these broad activities we are conducting several specific campaigns. Take the construction industry, for example, where upwards of 100,000 tons of lead per year is used. For the second successive year we have two four-page inserts in Sweet's Architectural and Light Construction Catalogs. One insert is on lead for plumbing, the other on roofing and flashing. The combined circulation is over 40,000 architects and builders or a total of 80,000 messages on lead in books that are referred to constantly throughout the year.

For the first time we are devoting six one-page ads in "Engineering News-Record" to construction applications of metallic lead products. The circulation is over 75,000 or a total of 450,000 messages. We are also continuing the issuance of our series of Building Construction Bulletins and a new series of flyers descriptive of various uses of lead in construction, distributed by direct mail to some 20,000 architects and builders. We will mail between 100,000 and 150,000 of these during the year.

In this activity we are maintaining personal contact with architects, construction engineers, contractors and chemical engineers to provide technical service. During the annual international plumbers' apprenticeship contest we provide a judge for the lead work and an instructor to show instructors of lead work how to teach it. We also exhibit annually at the National Home Builders Show, the Plumbing Contractors Show, and the National Chemical Exposition.

Solder consumes about another 50,000 tons or more of lead a year. Our solder committee, under the chairmanship of a member of the staff, has completed writing a Soldering Handbook which is being published by the American Welding Society. Copies will be available to the Association and its members at substantially reduced cost.

For many years we have been promoting red lead primers for steel with considerable success. This work was expanded in the last couple of years to take advantage of the huge government-supported highway building program. This year we will use seven full-page ads in "Engineering News-Record" and also seven pages in "Marine Engineering/Log" to intensify our efforts in the field of marine painting. These publications have a combined circulation of 90,000 for a message total during the year of over 600,000.

However, this program is being broadened to include lead paints other than red lead primers. All lead pigments consume over 50,000 tons of lead annually, still a substantial amount despite the decline over the years in the use of white lead. Red lead, lead chromate and white lead, together with newer pigments like the basic silicate, silico chromate and pearlescent pigments, make up this total. We now plan to give them all a boost wherever we can, of which you will hear more this afternoon.

Our familiar Red Lead Technical Letters will be continued as Lead Pigments Technical Letters, circulated to some 12,000 people once or twice a year. We are also providing personal technical service in the field by an experienced paint technologist, to highway engineers, ship builders, railroads, oil companies, water works and other large users of paints.

Ceramics use around 20,000 tons of lead a year in a variety of products that include glass, glazes for various clay products such as china, tile, brick and sewer pipe, porcelain enamels for steel, aluminum, cast iron and other metals, and bodies for electronic and other applications. Following publication of our technical data book "Lead in the Ceramic Industries," two supplements to it have been issued and a third is about to appear. Some 6,000 copies of the book and supplements have been distributed.

We are currently advertising lead in ceramics in general in the American Ceramic Society "Bulletin," "Ceramic Industry," "Ceramic Age," and "Ceramic News," with more specialized advertising in "Brick and Clay Record" and "Metal Product Manufacturing." Six one-page ads per year are being used in each case. Combined circulation is about 30,000 for a total of 180,000 messages per year.

I have not been able to locate any reliable estimate of the amount of lead being used annually for nuclear radiation shielding. From what we know of amounts that go into individual ships and laboratories, I think it would be safe to say that the use of lead for shielding would have to be expressed in five figures. Two men in our organization are "Q" cleared so that they have access to classified information and atomic installations. We have been collecting information on how lead is used and intend shortly to start a series of technical bulletins on this subject for circulation to nuclear scientists.

Industrial storage batteries account for some 40,000 tons of lead consumption per year. They are the type used to power industrial trucks, mine locomotives, and for stand-by or auxiliary power. They meet strong competition from gasoline and propane power in industrial truck applications. We are planning to issue a booklet on the advantages of lead-acid batteries for this kind of service. We are also watching closely efforts to revitalize the battery-powered electric

automobile and delivery truck. Several are already on the market and are getting strong support from public utility companies who visualize a new source of revenue from power to charge the batteries.

Not because charity begins at home but because we believe that many lead products offer definite advantages in industrial applications and that, all other factors being equal, the lead industry should use its own products, we are urging our own members to be sure that they give full and fair consideration to lead products in their own operations. We have been getting up a mailing list of purchasing and engineering personnel in our member companies and we intend to see that they get all informative literature which we publish and to provide them with technical service on lead products.

You may be interested to know that we handled approximately 5,000 inquiries last year as a result of the circulation of our quarterly "Lead." Of course, most of these were routine inquiries for additional literature but many also asked for specific help or more information about the lead products described. I think this is an indication that "Lead" is well read and the importance of the individuals and companies inquiring is often impressive.

Also during the year as a result of our ceramics program we were able to circulate to our interested members the names of more than 1,250 inquirers for literature and over 75 more who asked for specific information or help. This despite the fact that a mailing list of about 6,000 people in the ceramic industry, including all members of the American Ceramic Society, receives our literature automatically. Similarly, nearly 600 inquiries for red lead literature were received despite the fact that some 12,000 paint users and manufacturers receive our literature automatically.

In addition to these market development efforts the Association has continued to perform routine functions relating to statistics, liaison with government agencies, professional societies and trade associations representing our consuming industries, special requests for information or assistance from members, government agencies, banks and the press, and many other functions.

There is, however, one other important activity I would like to emphasize in some detail - our health and safety work. I don't know how many members realize how often toxicity crops up, in one form or another, to hamper the sale of lead products. I would just like to cite a few instances that have occupied much of our time and contributed to our headaches in the past year.

Take television, for example. A highly popular national program shown on NBC and other channels is "Highway Patrol." One episode in this weekly series was shown at least twice on NBC and once on WPIX in New York. This episode depicted a young farm boy making wooden toy pistols and painting them with a lead arsenate-water mixture he found in the barn. Inspector Mathews of the State Highway Patrol happened by and, being a friend, showed the youngster how to paint one of these toy pistols. Not long thereafter both the inspector and the boy allegedly came down with lead poisoning. The source of the lead was traced, after testing water they had drunk and food they had eaten, to the toy pistol. Both showed unrealistic, even ridiculous symptoms of lead poisoning and neither could have contracted it in this way. With advice of counsel we protested to NBC and the producer. NBC has been cooperative and wrote that they would take all possible steps to avoid any repetition. The producer so far has been less cooperative, attempting to protect

his investment of \$35,000 in this episode, but we intend to keep the pressure on him to avoid future showings. Recently we were verbally assured that the film would be changed to eliminate all reference to lead and we are trying to get this commitment in writing.

This is just an example of health problems with which we are faced every day. They include labeling laws and ordinances prohibiting the use of lead paint for certain purposes. We have cooperated with attorneys for the Authority which operates the Philadelphia-Camden bridge in the painting of which with red lead some printers contracted lead poisoning. We are working with the American Water Works Association to protect their red lead paint specifications for water tank interiors which are under attack. It is endless, time consuming work.

We sponsored a highly successful lead hygiene conference right here in this hotel last November. It was attended by some 150 industrial medical men and hygienists, the cream of the crop. Such conferences ease our problems by disseminating accurate information and create a lot of good-will for our industry. The proceedings were recently printed in "Industrial Medicine and Surgery," with a circulation of some 9,000 in the industrial medical profession.

Although Dr. Radtke will give you the complete story of our research programs tomorrow, some reference should be made here to research projects initiated and conducted last year. In ceramics our graduate research fellowships at universities were increased from three to nine at seven different universities. A study of the emissivity of lead compounds was started at New York University. Battelle Memorial Institute was engaged to investigate lead as a cementing material for other substances which might improve the physical properties. A contract was entered into with Armco Research Foundation for a study of improved lead alloys. The architectural and engineering firm of Skidmore, Owings and Merrill studied the possibilities of lead in modern building construction which has resulted in investigation of certain research projects now under consideration, particularly in the field of sound attenuation. Experimental continuous extrusion or casting of the usual lead cable sheathing alloys was undertaken in collaboration with the John Robertson Co.

I have tried to give you the high spots of our activities in this report. As I said, I have not attempted to cover routine activities like our "Information Bulletin," statistics, and liaison with technical societies and associations of customer industries. But I would like quickly to run over a summary of the quarterly reports already circulated to members.

SUMMARY

The following briefly summarizes our activities for 1958:

GENERAL

1. "Lead" - Four issues of this 8-page publication were mailed to a list of over 50,000 names.
2. Annual Reviews - Annual review articles on lead were prepared for "Engineering & Mining Journal," "Steel," "Industrial & Engineering Chemistry," the "Yearbook" of the American Bureau of Metal Statistics, and "Practical Builder."

3. Addresses - Addresses were presented before the American Institute of Mining, Metallurgical and Petroleum Engineers, the Colorado Mining Association, graduate students of the Newark College of Engineering, the National Association of Corrosion Engineers, the New York Chapter of the Construction Specification Institute, and the New York Section of A.I.M.E.

4. Technical Service - Another technically trained man was added to our staff to provide better technical service to users and potential users of lead and its products.

5. Annual Meeting - The 30th annual meeting of L.I.A. was held in St. Louis in April. As has been customary in recent years, one session was held jointly with the American Zinc Institute.

6. Information Bulletins - These were circulated monthly to members of the Association.

7. Annual Statistical Review - This was printed and circulated to the membership in the Spring.

8. Meetings - Meetings of other organizations in which representatives of L.I.A. participated include A.I.M.E., Atom Fair, A.S.T.M., The Battery Conference sponsored by the Signal Corps., American Ceramic Society, American Mining Congress, American Electrochemical Society, National Metal Congress, Building Research Institute, Porcelain Enamel Institute, Association of American Battery Manufacturers and Atomic Industrial Forum.

9. Solder Handbook - Preparation of this book by our Solder Committee under the chairmanship of a staff member was completed and approved by the American Welding Society for publication in 1959 by that organization. The same staff member, on invitation by that Society, also accepted chairmanship of a committee to revise the soft soldering chapter of the Welding Handbook.

10. Field Work - In addition to technical service work which embraces many areas, we maintained two well-trained men to work in the field in the one case with architects, engineers, builders and plumbers on lead in building construction, and in the other case with highway engineers, oil companies, ship builders and others who use or specify large quantities of metal protective paint.

11. Advertising - This concentrated on lead in metal protective paints and ceramics. Our schedule consisted in the former case of 13 two-color pages in "Engineering News-Record." In ceramics it consisted of 12 black and white pages each in "Bulletin" of the American Ceramic Society, "Ceramic Industry," and "Ceramic Age," and six pages in "Ceramic News." The Association had two four-page inserts in Sweet's Catalogs for Architects and Light Construction on lead plumbing and roofing and flashing.

12. Exhibits - L.I.A. exhibited at three national expositions at which a variety of lead products were displayed. These were the Home Builders Show, the Chemical Exposition, and the National Plumbing Exposition.

13. Apprentice Training - L.I.A. supplied a judge and prizes for the international plumbers' apprenticeship contest sponsored annually by the plumbers union and an instructor to train teachers of lead work.

14. Publications - In addition to the four issues of "Lead," the following publications were distributed by the Association:

- A four-page supplement to "Lead in the Ceramic Industries"
- "Use Lead to Control Refinery Corrosion," reprint of an article in "Petroleum Refiner" prepared by the Association.
- Red Lead Technical Letter No. 13, "A Single Red Lead Primer for Rusted, Weathered or New Galvanized Steel."
- Lead Building Construction Bulletin No. 3, "Lead Laboratory Drainage Systems."

15. Publicity - Feature articles prepared by the Association or its advertising agency appeared in the following publications:

- "Air Conditioning, Heating and Ventilating"
- "National Roofer"
- "Heating and Plumbing Engineer"
- "Petroleum Refiner"
- "Chemical Processing"
- "Manufacturing and Industrial Engineering"
- "Building Digest"
- "Architectural Record"
- "Southwest Builder and Contractor"
- "Catholic Building and Maintenance"
- "American Painter and Decorator"
- "Concrete Construction"
- "Plant Engineering"
- "Civil Engineering"
- "Science Counselor"
- "Modern Sanitation and Building Maintenance"
- "Industrial and Engineering Chemistry"
- "American Roofer and Siding Contractor"

In addition an 8,000 word article on solder was prepared for publication in a book on "Modern Materials, Advances in Development and Application."

16. Educational Exhibits - Eighteen educational exhibits depicting the use of lead in all forms of ceramics were built and one was presented to each of the leading schools of ceramics in the United States as a permanent display.

17. A.E.C. Clearance - A second member of the staff obtained "Q" clearance providing access to secret atomic energy information.

18. Steel Structures Painting Council - L.I.A. continued support of the Council and was represented on its research committee.

RESEARCH

19. Battelle Report - The Technical Steering Committee evaluated the Battelle report of their study of our industry's research needs and recommended a specific research program which was initiated.

20. Skidmore, Owings and Merrill - A survey of lead's use in building construction was made by this leading architectural and engineering firm. Some of its recommendations regarding marketing have been or are being put into effect. Other aspects of the report are being incorporated in the research program.

21. Ceramic Fellowships - Nine graduate research fellowships on various phases of lead in ceramics were awarded for the academic year 1958-59 at seven ceramic schools as follows: Rutgers (2), Illinois (2), Ohio State, Alfred, Penn State, California and Clemson. Subjects of study include ceramic bodies, porcelain enamels for steel and aluminum, glazes for whiteware, sewer pipe, brick and tile, ferroelectrics, glass, and phase diagrams.

22. Cable Sheathing - In May experimental work to produce lead alloy cable sheathing continuously was entered into jointly with the John Robertson Co., extrusion press manufacturer. This project appears to be nearing a successful conclusion.

23. Lead-Cemented Metallic Materials - A six-month contract, which was concluded at the year-end, was made with Battelle Memorial Institute for this approach to the improvement of lead's physical properties. Data developed did not warrant continuation of the contract.

24. Heat End-use Studies - These studies are being financed by L.I.A. at New York University and constitute a long-term approach to the use of lead compounds in heating and refrigeration.

25. Lead Alloys - Armour Research Foundation is working on lead alloys under a one-year contract to attempt to develop lead alloys with better physical properties.

26. Reinforced Lead - A similar contract was made with the same organization for a study of lead reinforced with felted metal fibers towards the same objective - improved physicals.

27. Lead Interals - Arthur D. Little, Inc., received a one-year contract for a study of the properties and applications of lead compounds with particular emphasis on organo-lead compounds.

28. Lead Chemicals - Negotiations were conducted with Dr. G. J. M. van der Kerk of the Organisch Chemisch Instituut T.N.O. of Utrecht, Holland, for a somewhat similar but more basic study than the one at Little.

29. Other Projects - A number of other projects including studies of sound and vibration attenuation, powder metallurgy, and lead and lead alloy coating were also under investigation.

30. Research Organization - As of September 1, 1958, Dr. Schrade F. Radtke was engaged as Director of Research. He also heads up the research of American Zinc Institute. Dr. Radtke was formerly director of the metallurgical research laboratories of Reynolds Metals Co. at Richmond, Va.

HEALTH AND SAFETY

31. Red Lead Paints for Potable Water Tank Interiors - After devoting much time to this problem, it appears that our work to prove the safety of red lead paints for this purpose will be reasonably successful in continuing their use.

32. Warning Labels - Much effort has been expended in seeing that proposed labeling laws are not onerous to our membership and are uniform in their requirements.

33. Threshold Limit for Lead in Air - A 33-1/3 per cent increase in the allowable limit for lead in air, instigated by our Health and Safety Director through an American Standards Association Committee of which he is chairman, received general acceptance as indicated by its publication in a "Hygienic Guide for Lead" issued by the American Industrial Hygiene Association.

34. Lead Hygiene Conference - This Conference, held in Chicago in November, was extremely successful and enlightening, being attended by nearly 150 leading industrial physicians and hygienists.

35. Diagnosis of Plumbism - In concert with pediatricians and toxicologists and the National Paint, Varnish and Lacquer Association, a movement has been initiated to establish standardized criteria for diagnosis of plumbism and to seek national acceptance. This is an attempt to eliminate erroneous diagnoses too often made.

36. Health and Safety Bulletins - Four such Bulletins were issued and sent to members during the year.

37. Meetings - Among meetings attended in the interest of our health and safety program were the Academy of Medicine, Congress on Industrial Health of A.M.A., New England Hospital Assembly, a conference on Medical Control of Lead Workers, Industrial Health Conference, American Medical Association, Greater New York Safety Conference, American Industrial Hygiene Association, a conference on Dust Diseases, Committee on Toxicology of A.M.A. and the Industrial Hygiene Foundation. Committee work was also important and included, among others, one committee and three subcommittees of American Standards Association.

I would like to conclude this report by thanking the officers and directors, the many active committee members, and the membership at large for their continued support and assistance, and to commend the staff for its loyalty and productivity. Please take the time to look at the literature, publicity clippings and samples on display at the back of this room.

Respectfully submitted,

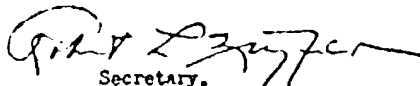

Secretary.

EXHIBIT B

April 22-23, 1959

FOR RELEASE NOT EARLIER THAN
12 NOON, THURSDAY, APRIL 23, 1959

THE EXPANDED RESEARCH PROGRAM
OF THE
AMERICAN ZINC INSTITUTE AND THE LEAD INDUSTRIES ASSOCIATION

By

Schrade F. Radtke
Director of Research
American Zinc Institute
Lead Industries Association
60 East 42nd Street
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The law of our present industrial society is the law of the jungle. By this I mean survival of the fittest. I do not refer to man or animal or the development of superior genetic strain. Rather do I refer to one's product, one's process, or one's material of construction. Each must perform in a superior manner or it is doomed to extinction; it must be steadily improved so that it can meet the competition of other materials, of other equipment, or other processes. We have before us the classic examples of the horse and buggy vs the automobile, of silk vs nylon, of the steam locomotive vs the diesel engine; in each case, a superior product has virtually wiped out the former. Furthermore, a product, process, or piece of equipment is sold on its performance, together with engineering data which define its characteristics and performance. For the most part, the present day salesman must deal in terms of engineering performance of his product; he must know competitive materials - their strength and limitations as well. Neither old fashioned salesmanship, tradition, nor custom could have saved the horse and buggy from extinction; a superior product which has been steadily and consistently improved won out, and in turn, this change-over caused a dramatic change in our whole way of life.

(Presented at the Joint Session of the
American Zinc Institute and Lead Industries Assn.,
Chicago, Illinois, April 23, 1959)

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The only thing constant in today's world is change. Man's imagination has left no part of our world or universe untouched. What has brought this about? The answer is research - that incessant quest for knowledge and improvement carried on by a minority group composed of scientists and engineers. They have dramatically changed our world as nothing has ever done before. Never in man's history has one small group caused so much change in our world in so short a time.

It was the recognition of this phenomenon which caused the lead and zinc industries to initiate the Expanded Research Program. It was their belief that the research efforts of the industry must be stepped up not only for lead and zinc to retain their place in our over-all industry, but also to expand to reach new and presently unknown markets. It should be pointed out in the very beginning that the lead and zinc industries have, throughout their history, carried on research to improve their processes and their products. However, research costs have increased markedly. Furthermore, there are many areas of investigation which a single company could neither afford to carry out nor could justify to its management. On the other hand, a cooperative program, supported by all concerned, could undertake research programs of far greater scope or of greater risk, and yet would permit the budget for each individual company to remain within the company's financial capabilities. It is also important to know that the individual companies have not abandoned their own research programs but are continuing to carry on vital research of their own. This is a very important point, as it shows how conscious our companies are of the value of research and the retention of sound technical staffs within their individual corporate framework.

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S. F. RAUTEE

How is this program to be financed? It was agreed that the companies of the English speaking world, stretching from Tsmieb, Africa, to Australia, would participate, not on a national basis but on a truly international effort. The zinc companies contribute to the program on the basis of their total production of slab zinc; the lead companies on the basis of their total pig lead production. These monies accumulated through the existing organizations, the Lead Industries Association and the American Zinc Institute, are put into a separate fund for the Expanded Research Program to cover the administration and the conduct of this research. It is truly international in character and brings to it the thinking of the major lead and zinc companies of the free world. While the program has been under way for sometime, it is only during the last year that it has reached major proportions. The budget, which is an openended budget, has reached a total of three quarters of a million dollars; however, as additional projects and programs of importance are developed, the companies have agreed that additional funds will be contributed to the program to see that the necessary work is carried out. This is an important sum of money, and it must be included with the research budgets and programs of the individual companies. Our lead and zinc industries, together, can be proud of their total contribution to research and development.

Where will this work be conducted? In order to get the program started at the earliest possible date, to provide adequate time for planning and programming, and to minimize the necessity for a crash effort to design and construct and staff a laboratory, it was decided to contract out all its research to existing organizations. This enables us to take advantage of the outstanding and unique capabilities of the research laboratories throughout the free world. The

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work will be conducted in independent research laboratories, laboratories of the member companies, government laboratories here and abroad, as well as in the universities. Our principal objective is to have the best possible research carried out in those laboratories which are most capable for each of the programs which is desired, and, most important of all, this permits us to utilize the outstanding skills of the personnel of these organizations. At the present time, research is under way or is programmed for laboratories in the United States, Canada, Great Britain, Holland, and Australia, and I know that the geographical distribution will be even greater by this time next year.

For the most part, invitations to bid are submitted to the laboratories in question, with the exception of research of a fundamental nature, or the undertaking of a program unique to a particular organization. We expect a dollar's worth of research effort for every dollar spent, and we are interested principally in quality and not quantity. We have had excellent cooperation from the organizations working with us, and we feel sure that this will continue in the future.

How has this work affected the individual companies? I have, personally, never before been associated with two industries which are cooperating so well and which have so much enthusiasm for the program; individual company interests have been subordinated for the good of the industry. It is truly wonderful to watch our organizations work together toward a common objective - the growth and expansion of the markets for lead and zinc. It is truly remarkable, and from my standpoint, most comforting to know that I have such excellent support from all the twenty-four companies participating in this program. This enthusiasm is shared by member companies not only in the United States but abroad. I have found that

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each and every company has much to offer and much to give to the success of this program, and this will be discussed further in subsequent paragraphs.

Lead and zinc have contributed to mankind since the dawn of history. There has been a tendency to accept them and to consider them old materials - on the contrary, they are new and modern and are participating in every phase of our development from heat pumps, to the nuclear program, to stereophonic sound. Everywhere one turns, lead and zinc play an important part. They are truly modern metals despite the fact that they have helped our civilization grow over the past centuries. The objectives of our program may be simply stated - to expand our markets as well as retain those we have, to earn more money for our member companies. It would be insincere to ascribe any other motive than that of improving the profitability of our member companies and those other companies associated with us. We are in business to make money and this program is dedicated to that objective.

Specifically, a portion of our program is devoted to improving our products. Much soul searching has gone into the planning of this program to define those areas where our products have limitations and to undertake research to eliminate or minimize those limitations as well as to enhance their superior characteristics. Our second major objective is to develop new products, new applications and new markets. To balance our program and to contribute to the furtherance of scientific knowledge, part of our effort is concerned with fundamental or basic research. The objective is, of course, to obtain new knowledge about lead and zinc. This is our industry contribution to the future.

The major portion of the information which we develop will be not only for our own industries, but for the most part for all of industry. We have established the following patent policy:

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"The American Zinc Institute and Lead Industries Association will obtain patents in the United States and foreign countries where warranted by technical considerations or potential commercial usage. In general, the rights to both patented and unpatented inventions owned by the two organizations will be licensed on a non-exclusive, unrestricted basis in such a manner as to assure maximum usage of the invention at the earliest practical date. Reasonable royalties may be charged in appropriate cases."

This statement clearly points out that we are dedicated to the expansion of the markets for lead and zinc and not to any limitation thereof. Because of this program, it is possible for us to let our imagination run rampant yet we must maintain a close eye on the dollar sign and on the return which we may expect. Certainly, our fundamental research is a contribution to the future for which we can specify no commercial objective. Yet, the major portion of our program is dedicated to the realization of profits from the dollars invested in our research effort. An important part of our program is to maintain close liaison with the American Zinc Institute and the Lead Industries Association which have, as a major function, sales exploitation of much of our research results.

I am sure you will be interested in knowing how this program is developed and coordinated. Each of the member companies contributing to the Expanded Research Program has a senior member of its research organization on our Technical Steering Committee. There is a Technical Steering Committee for both the American Zinc Institute and the Lead Industries Association. We also have subordinate committees whose membership is made up of people with special skills in the various areas where lead and zinc are used. By means of meetings and reports, recommendations are submitted to the Technical Steering Committee, which in turn formulates a master plan and defines and approves, from a technical standpoint, those pro-

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jects which appear feasible. Commercial realization is considered at this point, however, the principal objectives of the Technical Steering Committees are to define the technical needs and recommend that procedure which can best bring forth the required technical results. Once a project or a program has been formulated, it is submitted to the appropriate Industry Development Committee where the market potentialities are further reviewed. Finally, the recommendations which include technical feasibility as well as market potential are submitted to the Board of Directors for approval of the funds which will be required to accomplish the desired research. Periodically, the progress of the program is reviewed at all levels as to the desirability to continue the research, the quality of the effort, and methods for commercial exploitation. Communications are somewhat complicated because of the number of participating companies and the broad scope of our program. Nevertheless, the interest and enthusiasm for this program have minimized problems of coordination and communication.

Now, I would like to briefly review for you the research which is under way and the progress which has been achieved to date. (See Quarterly Report)

You will see from the foregoing that our program is broad and encompasses the major portion of the technical disciplines. From this we should all realize that lead and zinc are modern metals, that they have a major contribution to make to all phases of our technical world. These metals are of vital importance and will continue to remain so, because of the enthusiasm, interest, and financial support which our companies are giving to this program. We will not reach all of our objectives within the next year or even the next five years, but

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this program, provided with continuity, will bring to the lead and zinc industries what research has done for industry everywhere.

I hope that I have brought to you some of the enthusiasm, the spirit of cooperation, and the wonderful people we have in our industry to support this effort, which we feel will certainly carry us on to reach our objectives, the development of new markets and new products, the improvement of our present products, and the contributions of fundamental knowledge of lead and zinc, but above all, to translate research dollars into profits for our industry. In our industrial jungle - lead and zinc will survive and grow.