LEAD INDUSTRIES ASSOCIATION

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LEAD HYGIENE and SAFETY BULLETIN No. 121

To the Members of the Lead Industries Associations

Facts and Fallacies of Plumbism and What to Do About Them

The interest shown in the address of Dr. Rutherford T. Johnstone on "Facts and Fallacies of Plumbism and What to Do About Them" at the annual meeting of our Association in St. Louis has been reflected in subsequent requests for a substantial number of copies. Dr. Johnstone's long experience as an industrial medical consultant, with his intimate knowledge of this particular subject, rendered his remarks of material importance to our members, and they have accordingly been reproduced in printed form and are distributed with this bulletin. Additional copies are available on request.

A copy of the report of the undersigned at the annual meeting is also enclosed.

Manfred Bowditch
Director of Health and Safety

FACTS AND FALLACIES OF PLUMBISM AND WHAT TO DO ABOUT THEM

RUTHERFORD T. JOHNSTONE, M.D.

LEAD INDUSTRIES ASSOCIATION
60 East 42nd Street
New York 17, N. Y.

This paper was presented at the Annual Meeting of the Lead Industries Association, St. Louis, Mo., April 24, 1958.

The author, Rutherford T. Johnstone, M.D. of Los Angeles, is a consultant in Occupational Medicine and Industrial Hygiene. He is also consultant to the California State Industrial Hygiene Department and Clinical Professor of Medicine at the University of California at Los Angeles.

Dr. Johnstone is Associate Editor of Industrial Medicine and Surgery and serves in the same capacity for the California Medical Journal. His publications include the three following books: Occupational Medicine, 1941; Industrial Toxicology (with Alice Hamilton), 1943, Occupational Medicine and Industrial Hygiene, 1947.

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AND WHAT TO DO ABOUT THEM

RUTHERFORD T. JOHNSTONE, M.D.

IN Chicago's tough West Side in 1910 a seemingly frail physician attired in female clothing scurried in and out of dark alleys and around the machinery and melting pots in dismal factories, seeking a criminal. The search ended in a bath tub.

This young medico detective, Dr. Alice Hamilton, had noted that the foreign-born residents of that area developed an insidious malady which produced paralysis of the extremities, "brain fits" and sometimes death. She further observed that the victims were always male and worked in industries manufacturing bathroom equipment. Pursuing this clue, she learned that the offending agent was the lead incorporated in the enameling process.

Why do I relate this episode? Dr. Hamilton did not discover a new disease. The ancient physicians described the signs and symptoms of plumbism, as did the Italian Ramazzini in the 17th Century and the Englishman Legge of the 19th Century. Dr. Hamilton's objective was to convince industrialists and legislators that lead poisoning was an unwarranted disease. Due to her pioneering and the genius of the industrial hygienist in the years that followed, it is a *fact* that serious lead intoxication in industry is rare. In twenty years I have had only one case of lead encephalitis and two of wrist-drop. But it is a *fallacy* to believe that the incidence that does occur has no significance.

Industry and industrial medicine need not be unnecessarily criticized when a previously untried substance or a newly evolved chemical produces intoxication in an exposed worker. Most of these substances are subjected to animal and sometimes human experimentation before being introduced into an industry. But it is not always possible to forecast harmful or innocuous effects. We know that often what occurs to the human may not take place in the animal or vice versa. The beryllium disease is an example of this. But we know all we need to know about lead hazards in their various forms. Then why does lead intoxication occur?

I appreciate that this is a hackneyed question, but I suspect the answer is usually just as trite, namely, the cause and incidence reside in small plants having no hygiene program or medical supervision. It is a fact that they are the greatest of-

true, but who is the human who errs? Are we to continue to blame human error on the unintelligence or carelessness of the worker, or should we indict the boss? And who is the boss? At what level of management does he operate?

In the Los Angeles branch of one of the largest industries in the world, a workman who, from previous experience, was cognizant of the symptoms of lead poisoning, believed he had it and so informed his foreman. The foreman laughed at him. The man was not referred to the medical department. He then chose an outside doctor who by proper tests proved the case to be one of lead poisoning. A day or two later a second worker made a similar claim. The foreman then took the allegation to the plant superintendent, who also laughed. "Why, it is ridiculous – we don't have lead poisoning in this plant." Without going further into details, it was subsequently uncovered that some twenty men had varying degrees of lead intoxication and some thirty or forty more who did not have it, claimed that they had. A smart attorney put in multiple claims for permanent disability. By the time the company's hired attorneys, hygienist, medical director and others from the home office had come to Los Angeles frequently over a period of a year to fight these false claims, and by the time final settlements were made, it cost the company nearly a million dollars. Human error? It surely was.

In a large Los Angeles plant, following a case of plumbism, the nurse suggested the cause to a newly created superintendent. But he was "too busy making good in the front office" to pay heed until a succession of cases occurred.

Then there was a recent situation in which a worker informed his immediate superior that the men had been issued the wrong type of respirator. The answer was an inference that the workers knew nothing about the proper selection of respirators. No – lead intoxication is not confined to the small plant, nor does it always result from the carelessness of a dumb workman. Likewise, to answer a previous question – who is the boss – I believe he should be one from top management. The efficiency of environmental control rests in the *interest manifested* by those at the top. Providing protective measures and posting directions are not sufficient.

In addition to the problem of environmental control existing in individual industries, there is possibly an even greater problem which is primarily the con-

...eases receive but scant attention in undergraduate years in medicine and there are less than half a dozen medical schools with adequate postgraduate training. A news item of April the 10th stated that a "$300,000 grant has been made by the Commonwealth Fund to help finance a basic change in the pattern of medical education at Northwestern University." The item mentions surgery, pediatrics, obstetrics, etc. No consideration is given to occupational medicine.

Likewise, in management, experience and knowledge is not always passed on by the wise old heads who are being replaced by inexperienced and untutored men. These also need to be educated.

My proposal of an educational program comes coincidental to the recent announcement that our Chairman, Mr. Joseph A. Martino, President of the National Lead Company, is Chairman of the Metals Division of the Committee of American Industry seeking to secure funds for medical education. Let us hope that, through him and others, some of this money can be directed towards education in industrial health.

But what can be done immediately and not ten to twenty years from now? To me the solution lies in the adoption of methods now widely accepted in medicine. At our medical conventions today an audience gathered to hear a paper or listen to a didactic discourse is invariably small, whereas the larger attendance is in those halls where sound movies or television are shown. Why couldn't the Lead Industries Association develop a film for doctors and one for laymen, or possibly a combination? This need not be too costly. County medical societies and other medical associations are eager to obtain teaching films and gladly pay for their rental. A large library of films is maintained at the headquarters of the American Medical Association and is in constant use. A film of the type I have in mind could be used in the medical schools, where generations of new doctors could be properly indoctrinated.

In summary, the second oldest industrial disease known to man should be better understood by men of medicine and management. Its cause and prevention are well understood. Yet the situation is not ...t what it should be. How to bring about a more ...early perfect understanding is the immediate problem. I feel that the old avenues of communication ...e outmoded to the point of disinterest. My suggestion would be to take into the plant, into medical ...ools and to a gathering of doctors, more easily ...derstood audio-visual education.

REPORT OF HEALTH AND SAFETY DIVISION*

Manfred Bowditch, Director

Rather than risk boring you with detailed statistics of activities, I will say only that the health and safety work continues to show a healthy growth (there has been an increase of at least 50 per cent since its inception) and will give a few examples illustrating its more important phases.

CHILDHOOD LEAD POISONING

Because of the difficulty of its solution and the great amount of adverse publicity which it engenders, childhood lead poisoning has continued to be a major time-consuming headache. A recent news item in the New York Daily News with the headline "Lead Poisoning Killed 10 Kids in Brooklyn in '55, Highest Toll in the City," is a typical example of the latter. Through our responses to the inquiries of physicians, hospitals and clinics, the sponsorship of research, and cooperation with such organizations as the American Academy of Pediatrics and American Medical Association, I believe that we are securing a better understanding of this problem and more reasonable attitudes towards it.

INDUSTRIAL LEAD POISONING

Although the recognition of lead poisoning as a disease dates back to antiquity, and despite the fact that its causes and control are well understood, yet, as Dr. Kehoe has told us, there has been a diminution in the severity of industrial cases, rather than in their total number. This is illustrated by the fact that inquiries and case reports continue with little change in the annual total. A primary need here, as Dr. Johnstone said yesterday, is better instruction of our physicians.

INDUSTRIAL MEDICAL AND HEALTH SERVICES

There is gratifying evidence of a greater recognition of the importance of adequate medical and health services on the part of the larger companies. Two examples of this have been an inquiry from a non-member company as to a physician suitable for appointment as over-all medical director, and a recent request from a representative of one of our members for advice in setting up a company-wide health program.

TREATMENT OF LEAD POISONING

The so-called EDTA therapy for plumbism, brought forward five years ago, is by far the greatest advance in this field in recent times. It continues to be a subject of intensive study, and a report of recent findings will shortly be mailed to all of our members.

*Presented at the 28th Annual Meeting,
Lead Industries Association,
April 24-25, 1956, St. Louis, Mo.

LEGISLATION

We continue to watch legislation adverse to the interests of our members. Three bills this year, two in New York and one in New Jersey, having to do with lead paints, were killed in committee. Two New York bills on air pollution have been recommitted for study and copies of a substitute draft bill prepared by the Associated Industries of New York State have been mailed to our members in that state. Because of the impossibility of keeping a close watch on 48 state legislatures, it would be most helpful if our members having installations in other states would notify us of adverse legislation coming to their attention.

UNIFORM LABELING

The trend towards more and more precautionary labeling regulations continues. Our effort here has been mainly to secure reasonable and uniform labeling requirements for lead compounds in all federal and state jurisdictions. This has been quite successful to date, with the elimination of objectionable wording from a labeling requirement of the U. S. General Services Administration the most recent episode. Modification of the New York City lead paint labeling regulation was secured by means of American Standard Z66.1, prepared by a committee of the American Standards Association sponsored by the Lead Industries Association. The futility of the labeling approach has been brought to the attention of health officials in other large municipalities and appears to have caused them to reconsider any such plans.

UNIVERSITY OF MICHIGAN PLASTIC PIPE REPORT

Getting wind of a forthcoming report on the suitability of plastic pipe for potable water supplies in preparation at the University of Michigan, we arranged to see the galley proof of the report and, through contacts with members of the advisory committee on the report, were able to secure elimination of a number of statements adverse to the use of lead stabilizers. Copies of the report, expected this week, will be mailed to those of our members known to be interested and will be available to any others on request.

ALLEGATIONS AS TO SOURCES OF LEAD POISONING

Experience has convinced us that no theory as to the causation of lead poisoning is too crazy to be brought forward. No matter how absurd such a theory may be, it can find its way into print, and from then on is almost certain to be regarded as gospel. Dr. Johnstone has mentioned several of these wild notions. In conclusion let me emphasize one of these and cite three additional and very recent ones:

> A group in Los Angeles had put forward the claim that lead from the exhausts of motor vehicles constituted a menace to the public health. They were very vocal and went so far as to hold sizable mass meetings. We have secured figures on the lead found by official agencies in the street air of New York, Chicago, Los Angeles, Detroit, Cincinnati and other major cities, have found that none of these concentrations remotely approach a hazardous level, and have brought this fact to the attention of municipal health authorities and others, whereby it is believed that this ghost has been laid.
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> A letter from a Washington physician, received in March, stated that "ingestion of newspaper has been the basis of lead poisoning in three of our more recent cases." His reference was

to plumbism in small children. In reply, we pointed out that there is no lead in newsprint, and none in the ink with which newspapers are printed. Our request that he explain the source of the lead in these cases brought no response.

It would be of some interest, if it were so, to know that the eating or drinking of lead paints has become a favored means of committing suicide. Such we would have to conclude to be the case from a tabulation received from the American Public Health Association, showing eleven cases of attempted suicide, one of them successful, during 1955, by means of ingesting lead paints. Here we have a respected and important national organization, publisher of the American Journal of Public Health, putting forth a seemingly utterly absurd item of vital statistics. When we questioned this, the reply was that "it might be a clerical error." It quite obviously was.

Perhaps the craziest of all was a letter from a physician in Alabama, reporting in detail on the case of a housewife thought to be suffering from lead poisoning, alleging a urinary lead value some ten times that found in severe industrial cases, and suggesting that the patient's habit of biting off silk thread, while sewing might be the cause. Because of the association of this physician with an organization overseen by one of our leading industrial medical friends (and one blessed with a sense of humor), these theories were brought to the latter's attention and elicited the understanding and amusing reply from which, in closing, I will quote, with minor changes:

> "Anent the case of Mrs. X concerning whom the words 'lead poisoning' have appeared.
>
> "We are suggesting to Doctor Doe that the Health Department be requested to make an investigation to determine if possible whether Mrs. X has been ingesting lead from sources in the vicinity of her home. Should this prove to be the case, perhaps it can be stopped with these sequelae:
>
> a) Mrs. X would feel better;
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> b) The hospitals would be relieved of dozens of admissions in addition to the dozens she has had;
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> c) Our organization would be relieved of the necessity of continuing to pay hospital and physicians' charges through ensuing years;
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> d) The clinicians, the Public Health authorities, our organization and the Lead Industries Association would all emerge triumphant for having had a part, and Mrs. X, we hope, along with all the others will happily live forever after."