June 18, 1958

Dr. Irving H. Davis, District Engineer
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Michigan Department of Health
Lansing 4, Michigan

Dear Doctor Davis:

I shall do my best to answer the questions, direct and implied, in your letter of June 6. First let me say that there is a tendency among physicians, which I greatly deplore for many reasons, to confuse preventive medicine with medical therapy, and there is no more distressing example of this tendency than that displayed in relation to lead. These are two distinct problems and they should never be confused in either the medical mind or in that of responsible people in industry.

Now with that to start with, the problem of prevention of lead poisoning is simply the problem of providing conditions under which men do not absorb dangerous quantities of lead. This means the environment, on the one hand, and the behavior of indoctrinated men, on the other - that is, clean air (to certain specifications), cautious work and cleanliness (to prevent unnecessary inhalation or ingestion), good supervision of the work and the workmen, and the use of appropriate safety equipment when it is required.

Under certain circumstances, when the complete control of environmental conditions is difficult or impossible (that is, there may be almost unavoidable problems and lapses in the efficiency of equipment and men from time to time), it may be both necessary and satisfactory to limit the duration of a man's exposure (that is, per day, per week, per month, per year) or it may be necessary to terminate it. There are criteria, in terms of the lead content of body fluids or excretions, whereby the duration of safe exposure can be established with precision. When, therefore, a man needs to be removed from a job involving dangerous exposure, this can be done, and without risk of being in error.

The use of medicaments to promote the excretion of lead in the urine of men who are exposed to potentially dangerous quantities of lead is not preventive medicine - it is, in fact, a crude and irresponsible form of medical pandering, a performance that is only explained by medical ignorance or a leathery medical conscience. When, therefore, you tell me that "a plant (this means a doctor) has found it necessary to treat a rather large number of individuals

with this compound on a more or less regular schedule," you are describing the very thing which my article in the A. M. A. condemned. This procedure is nothing short of barbarous, flying, as it does, in the face of all of the traditions of physicians that their primary concern is for the health and welfare of men, and it ignores the principles of physiology. While I realize that it is being done by persons of good intentions, I boil with frustrated indignation at the combination of ignorance and insensitivity which this kind of medical practice represents. It is the duty of a physician in the lead trades to show up the dangers of lead absorption, to insist that there are criteria of safety which should be met, and never to condone dangerous practices in production. This can be done, and therefore it is not unreasonable for the doctor to expect it to be done, and to insist that it must be. It is nothing short of shameful that we have as much lead poisoning as we do in America, when the means of preventing it are so surely known. And, moreover, it is even more shameful, that many American physicians are both too ignorant and too complacent to do their part in seeing that this is done. It is disgusting that some of them are willing to condone unsafe operating practices and to try to cover up for an irresponsible or unscrupulous management. You will think me harsh, perhaps, but perhaps you will understand my indignation when you consider that I have spent much, if not most, of my time for more than thirty years in the development of medical techniques for the appraisal of lead absorption and for the differentiation of safe from dangerous lead absorption. Having succeeded in clarifying these matters - not alone, of course, but with the help, collaboration and confirmatory experience of many other people - so that now they are in no doubt at all, and so that the industry for which I am the Medical Director has not had a case of even border-line lead poisoning in more than twenty years, despite the fact that it is the most dangerous, potentially, of any of the lead trades, I think I may be justified in expecting something more of my medical colleagues in the lead-using industries.

Now when one comes to the problem of the treatment of persons who are ill with lead intoxication, the situation is different. Here, among other forms of therapy, the hastening of the elimination of lead from the body under carefully controlled conditions is justified. It is not without some risk, but the condition of the patient justifies such risk as there is. This, in the experience of good clinical observers, does not cure the symptoms of lead poisoning at once or even promptly, in many instances, but it reduces the danger of injury and tends somewhat to shorten the period of disability. I cannot go into the details of the therapy of lead poisoning here, for it is a long story. But, to summarize the story of disodium-calcium versenate, it is a therapeutic agent of worth. It is, on the other hand, a dangerous prophylactic agent, and one which should not be used in lieu of an adequate limitation of lead exposure.

There are several published accounts of my views of an adequate medical program in the lead trades, the best of which, while not fully up to date, is generally satisfactory. I refer you to Chapter 2 in Volume II of "Industrial

Hygiene and Toxicology" edited by Frank Patty. The first requirement of a good medical program is an intelligent doctor who knows something about the behavior of lead in the human organism, and who also has "guts" and convictions.

Incidentally you are quite right about the value of determinations of porphyrins in the urine as a measure of medical control in the lead-using industries. Even when the determinations are made with precision, and they usually are not, they do not answer the purpose. When Coproporphyrin III is excreted in significantly abnormal quantities in response to excessive quantities of lead in the body, it is a sign of lead intoxication and so it shows up too late. It does not correlate in quantity with the quantity of lead absorption.

Sincerely yours,

Robert A. Kehoe, M. D.

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