

June 26, 1937

Dr. Frederick L. Hoffman
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Dear Doctor Hoffman:

Thanks for your further letter of June 17th. I think you are quite right in believing that pressure ought to be brought to bear on the managements of lead plants with serious lead hazards. However the type of pressure which might be expected to yield results is to some degree something of a matter of conjecture. Incidentally I am not speaking of small plants belonging to small producers. Rather the plants which I have in mind are plants owned and managed by rather large organizations. It would be somewhat difficult for me to initiate any measures for compelling changes in certain of the plants which I have seen. Over a period of several years, we have made changes in a number of lead plants and I have deliberately selected what I thought would be among the worst lead hazards to be found because I wanted to see the maximal limits of lead exposure, and the evidence of such exposure on lead excretion and on clinical symptomatology. My entree into these plants was provided through an understanding that I should be permitted to make observations for scientific purposes, and not for publication in which use was made of names of organizations. If you will refer to one of my articles which appeared in the September 1933 number of the Journal of Industrial Hygiene, you will find reference to an unnamed white lead plant and to another unnamed storage battery plant. If you refer to it, you will see that cases of poisoning were definitely reported to have occurred among the plant population in which most of the men were excreting exceedingly high quantities of lead. The lead content of the twenty-four hour fecal sample was as high as 0.21 milligrams in certain instances, with a number of results over 10 milligrams. Such results, in our experience, correspond to atmospheric pollutions with lead dust of the order of magnitude of 10 to 40 milligrams per 10 cubic meters of air. One of the jobs in this plant involves exposure to dusts even greater than those which I have indicated. The men on this job wear respirators, while they are being watched) but even so I saw several cases of poisoning from it in the course of a year's time. There is a somewhat similar plant also, of which I have only indirect

LE 00482

knowledge, having seen more than one case of poisoning in the course of several years, and I have autopsy data on two fatal cases from these plants. I have in my records analytical data on one or two cases of encephalopathy which were brought to my attention. (Without referring carefully to my records, I can not be sure of the precise number of cases in the different categories, but I have occasion to see and obtain information on a fair proportion of all of the cases of lead poisoning that occur in this general section of the country. I have also seen a fair number of plants at considerable distances from Cincinnati. My general impression is that where compensation laws are strict and are associated with adequate inspection of plants, the hygienic conditions are strikingly better than in those sections of the country in which neither compensation laws nor state inspections are carried out in an effective manner. In any case there is no question but that a large percentage of the industrial cases are preventable. What is needed to produce good hygienic conditions is a precise knowledge on the part of the managements of what can be done and what has been done in other similar plants. Obviously the advice of competent medical men would be of the greatest usefulness in working out the difficulties in these plants. Unfortunately in some of them the plant doctor is incompetent and poorly informed. In addition to that, in some such plants, the doctors connive with the management in avoiding the worst consequences of bad plant conditions. I know of one instance in which men are examined from time to time and those who show the most obvious evidence of lead absorption are laid off in an effort to forestall compensation claims. From one plant alone I have seen some eight or ten men in the course of the past two years who had active lead intoxication at the time they were laid off. Most of these men recover without permanent disability for, in general, cases of lead poisoning without central or peripheral nerve involvement do recover spontaneously. It is this very fact which justifies the procedure for handling the men in the minds of the management of certain of these plants.

From time to time, as the opportunity has afforded itself, I have done what I could do to stress the dangers existing in certain of the plants which I have seen. I have been very cautious not to appear as an expert witness on the side of plant managements in connection with such plants. I have insistently pointed out, whenever I have been consulted, that there is no defense against claims arising in such plants, either real or fictitious. I have tried to make it clear that the managements of such plants are jeopardizing their position before industrial commissions or before common law courts, and that they will eventually have labor difficulties as well as being at the mercy of every legal step taken against them. However I must confess that in the main these conditions are eventually eliminated only

when the public and when the group representing labor become sufficiently informed to make it hard for such employers. There is an occasional far sighted manager who out of his own decency and human understanding provides proper conditions for the workmen. There is an occasional additional manager who sees the handwriting on the wall and attempts to put his house in order before he is compelled to do so. In addition to that, insurance companies have provided a very considerable amount of both pressure and information. In my opinion their pressure has been more serviceable than their information for the one without the other is likely to be of little value. In general, after some years of experience, I am forced to the conclusion that a very considerable proportion of managements make only those modifications to which they are driven. Undoubtedly this is due to the fact that new hygienic measures are expensive. They enter into the cost of the commodity and, therefore, act as a hindrance in competitive fields. Obviously here I am speaking not only of lead poisoning but of a great many other industrial hazards. When we become sufficiently civilized, I think we shall regard it as a necessity to provide working conditions which are free at least of insidious health hazards. We are making some progress in that direction. However, as an observer in the field real progress seems to me to come very slowly. in part

I agree with you that definite separation should be made between occupational cases of lead poisoning and those which occur in the general population. In fact there are many people who would find it difficult to believe that there are many cases of non-occupational lead poisoning. It would be very useful not only to have this separation made, but to have such information available as would permit one to establish the causative factor in relation to illness or death from lead poisoning. Recently I have been trying to obtain some information on the occurrence of lead or arsenic poisoning from spray residues. My experience, and that of my colleagues at Harvard, leads me to believe that most cases of lead poisoning in infants and children come from chewing objects coated with metallic lead and lead pigments. I am not quite sure, but I believe that every case, except one, in our list of children has had such a causative factor. If we were able to put our finger on the most significant facts which cause lead poisoning outside of industry, we would certainly know a great deal more about the dangers to the public in this connection than we now know.

There are many other things which I could say about these problems and you will note that the paragraphs above are rather inadequate in their discussion of these problems. This will only serve to show you what you probably already know, namely that I am

not very certain as to how these difficulties can best be solved. I have merely been observing individual facts and cases as carefully as possible over a period of some years in order to understand as much as possible about the occurrence and the significance of lead intoxication. I have not been unmindful of the social problem or of the individual problem as I have gone along, but I must confess that I have not seen any clear-cut means of settling it.

With kindest personal regards,

Cordially yours,

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Robert A. Kehoe, M.D.