

November 11, 1936

Mr. Warren H. Reinhart
1221 Fessenden Street, N.W.
Washington, D. C.

Dear Reinhart:

I am very glad to hear from you again and I am interested in knowing that you are getting into some work on lead. I gladly comply with your request to send along some reprints, and I am sending you one series of six articles bound together on "The Normal Absorption and Excretion of Lead", of which my supply is almost entirely exhausted. I think it will be useful for you to have a copy of this and so I am stretching a point to supply you with a somewhat battered copy. However it is the best I can do.

We have carried on our work here beyond the point represented in these reprints, but I have not had either the time or opportunity to put together and publish our recent results. However you will find of considerable interest, I believe, the reprint on "An Appraisal of the Lead Hazards Associated with the Distribution and Use of Gasoline Containing Tetraethyl Lead. Part II - The Occupational Lead Exposure of Filling Station Attendants and Garage Mechanics", because, so far as I know, it gives the details of the first adequate metabolic studies on lead in the normal human subject. We are carrying this experimentation further in some studies of lead ingestion on human subjects. These experiments, I believe, will be of considerable importance in relation to the tolerance levels of lead in food materials, and they will be of especial importance in connection with the threshold of toxic lead absorption.

In as much as you are associated with Dr. Fairhall in some degree, I think it is worth while for me to point out that we have devoted especial attention to the question of analytical methods, and we are now operating three methods in parallel on various types of material. We are continuing our chemical analytical method as described in the Journal of Industrial Hygiene in 1933. This method is used only on samples containing lead in excess of one-tenth of a

milligram. The spectrographic method developed by Cholak is perhaps the most satisfactory method in use anywhere in the country. Its sensitivity is very high and its accuracy both in terms of samples of known lead content and in comparison with methods employed in several other laboratories in this country and abroad, is indeed satisfactory. The "dithizone" method, a modification of which is in use in this laboratory, is being given critical study as to its general applicability, and we are finding it very useful in dealing with tissues and samples of blood and urine with low lead content. It bids fair to be the most useful clinical method eventually. Some of your people, particularly P. A. Clifford and H. J. Wichmann, have been making use of the method and we have been in contact with them on certain improvements which have been developed in their hands. Incidentally we have found that in lead analyses of small samples with very low lead content, it is necessary to work in a dustless atmosphere. As a consequence of this we have developed special facilities in connection with our spectrographic and dithizone work whereby all the preparation of samples and the analyses are carried out in an air-conditioned room with walls and floors so treated as to prevent dust. This may seem an excess of caution but we have found it entirely necessary to do this in order to avoid occasional slight contamination of samples.

I am telling you these facts in somewhat more detail than is necessary, perhaps, because I fully understand Dr. Fairhall's apparent lack of knowledge of our work. Fairhall himself worked previously with methods which were inadequate for the type of samples he was studying. The publication of our results, together with my criticism of his methods and of his negative results, brought about a sort of controversy which for some reason or other as soured Fairhall on me and on all my work. I am quite sure that he either believes or wishes to believe that everything we have done is incorrect and unreliable. I think this is the result of the confirmation of our results in the hands of practically every other worker in the field since our initial publication. Obviously I have no wish to contribute in any way to Dr. Fairhall's hard feelings, and I should be glad if it were possible to do something to convince him of our essential honesty, as well as our lack of any feeling against his work. On the other hand I have been somewhat distressed by the fact that he has continued from time to time to publish results indicating that normal human beings are not excreting lead in their urine and faeces. Two of his studies in the Journal of Industrial Hygiene, the one on lead-weighted silk which he did with Heim and another on the potential hazards of rock-wool, completely ignore the observations made in at least a dozen laboratories on the normal lead content of the urine and faeces of experimental subjects, and other human beings. I have no idea of what to make

of such apparent blindness to the facts, nor do I have any intention of making any further effort to understand. I merely cite these matters as evidence of the bad feeling which exists toward me on his part in explanation of his lack of any interest or reliance in our experimental work.

I am and shall continue to be very much interested in the work which is going on in Washington in this field. Despite the large amount of work which has been done in recent years, there is still very much to be done and in as much as we are primarily concerned with the problem of public health, I should like to be in as close contact with what other workers in the field are doing as I may be.

With kindest personal regards,

Sincerely yours,

RAK:is

Robert A. Kehoe, M.D.