

February 25, 1946

Dr. F. William Sunderman,
701 Maloney Building,
Hospital of the University of Pennsylvania,
Philadelphia 4, Pennsylvania.

Dear Dr. Sunderman:

In accordance with the request in your letter of February 21 we are forwarding to you a number of containers for the collection of small samples of urine and suitable needles and tubes for the collection of blood. I consider that it is much more satisfactory for us to supply all the containers, since in that case we assume the complete responsibility for the chemical cleanliness of the equipment, and since at the same time you will have less inconvenience.

However, I do want to make a few comments on the subject of urine samples in relation to the problem in which you are interested. There is no way in which you or we or anyone else can be sure of the effect of various factors on the excretion of lead, other than by hospitalizing the patient and making complete detailed observations on the intake and output of lead during any period of treatment. In the case of spot samples of urine there will be chance variations in the lead concentration based on fleeting factors of which the most important is the quantity of water available for excretion during the period in which the given sample was secreted. Observations of this kind are difficult to carry out, in that they require careful supervision of the collection of all samples and that they involve obtaining precise duplicates of everything eaten and drunk during the period, as well as all the urine and feces voided during the period. I mention this matter, because the failure to take these precautions has resulted in all of the ambiguous data that are now available on the subject of "mobilization" and "demobilization" of lead. That is to say, unless one attempts to carry out total balance observations over considerable periods of time, he will be unable to draw any conclusions from the results obtained. If you doubt this, I can show you ample quantities of data that will prove it to you beyond any question. We have carried out a number of carefully controlled observations of this kind, some of them over rather long periods of time, and a number on carefully chosen cases, which should have been ideal in terms of current hypotheses. As I indicated in my letter, all of these results have been utterly negative, and I am prepared to say on wholly adequate evidence that there is no therapeutic means by which we can materially change the rate of lead accumulation under a given set of conditions or the lead excretion of an individual with a given quantity of lead in his body. It is unfortunate that the hypothesis concerning the mobilization of lead has taken such

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Dr. F. William Sunderman - (2) - February 25, 1946

a strong hold on the medical mind. It has resulted in considerable confusion, misunderstanding, and in very difficult medico-legal problems.

I restate these fact, for I do not want you to be disappointed on the one hand, or to misinterpret on the other the information which we shall be sending you as the result of our analyses. Unfortunately spot samples of urine will vary somewhat in their lead content. In interpreting such variations we shall find it necessary to determine the specific gravity of the samples sent to us so as to be able to establish whether they are concentrated or dilute. We shall do our best to interpret the results as fully as possible, but again I warn you that occasional samples of blood and spot samples of urine do not provide an adequate basis for the interpretation of any effects which might be presumed to be due to dietary and therapeutic measures. Both for your sake and our own we shall be glad to carry out the observations in which you are interested.

Sincerely yours,

Robert A. Kehoe, M. D.

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F. WILLIAM SUNDERMAN, M. D.
701 MALONEY BUILDING
HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA 4

February 21, 1946

Dr. Robert A. Kehoe
Kettering Laboratory of Applied Physiology
College of Medicine
Eden Avenue
University of Cincinnati
Cincinnati 19, Ohio

Dear Doctor Kehoe:

Thank you kindly for your report of the lead analyses of [REDACTED]
I was very pleased to obtain your comments.

According to the plant physician for the company where he works, [REDACTED] was removed from any occupational contact with lead in 1940. According to this physician he has been working since that time in "a lead-free atmosphere". In view of the higher concentrations of lead in his blood and urine, I suspect that perhaps he has not eliminated all of the lead which he absorbed during his period of exposure (i.e. before 1940). It is for this particular reason that I have placed [REDACTED] on a regimen of a low calcium diet with added ammonium chloride for a month, hoping that at the end of this time we might send you samples of both blood and urine to determine whether there had been any change in his blood concentration or urinary excretion.

[REDACTED] has no complaints except general malaise and an indisposition toward work. His employer suspects him of malingering and his union suspects that he is suffering from lead poisoning. Therefore, any information that might be helpful in establishing a correct and just opinion would be greatly appreciated.

Would you kindly send me two or three sets of your collecting flasks and needles? Perhaps it might be simpler and less troublesome to you if you were to send me merely your special type of needle and instructions for preparing glassware. I could then furnish the collecting vessels myself.

With kindest personal regards, I am

Sincerely yours,

F. William Sunderman

F. William Sunderman, M. D.

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