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Robert A. Kehoe, M.D.,
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Dear Dr Kehoe:

Thank you very much for your full letter of the 17th. I presumed that you were busy, or absent. I am glad that I may send further bone specimens later, when I have obtained more and better ones, to Prof. Cholak, and that he is preserving the remainders of my samples. I trust I might send him also samples of ancient wine and olive oil, to assay for lead, if I can obtain such. I take it that the analyses were made by the spectrographic and dithizone methods jointly.

I am disappointed, of course, in reading your severe judgment on the significance of these tests. But I think they are still of some value in a statistical sense, as you mention in the 3d par. of your 2d page, for comparing the results with my indications of the individuals' wealth, where known.*And as to dates, there seems to be much more lead shown within the Roman period, than in the few cases before and after it. I note too that most of the cases outside of Athens fall below 2.3 mg.%, suggesting, if I am right, that they had not absorbed any lead post mortem.

If a lead assay be very high (above 60 mg., or what figure would you set ?) I suppose the case should be thrown out, as indicating so much lead absorption after death as to leave no significance in the presence of abnormal lead. A bone might show somewhat more lead than could have come during life, and still mean that probably the person took in a considerable share of it before his death.

I wish you could give me, or cite some good source for looking up, a few translations of the lead percentages into medical language, as what score would indicate mild poisoning, what severe enough to reduce, or to ban reproduction, or to entail death, and the worst found in fatal cases. On the basis, say, of a rib, and chronic poisoning.

As to embalming, I have not heard of it in ancient times except in Egypt, but shall inquire.

Answering your inquiry on p. 2, a body in a filled-in well might lie cheek by bowl with a leaden bowl for 20 centuries, beneath the water level.

As to the which-bone factor, since the lead was dietary I wonder if we could not assume (even if sometimes wrongly) that all the cases were ones of gradual accumulation, and that a table of the bones' relative take-ups on this assumption would provide a better estimate of the degree of leading, than to ignore this factor, which would mean to assume that all the bones take lead equally. But in

*My problem is of course different from the modern one to which you are most accustomed, ~~whether~~ where the question is: Was this man lead-poisoned?

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any case I shall seek preferably rib specimens henceforth.

Our problem is one of casuistry--that since we are bound to fall into the sin of error, it is better to commit a smaller error rather than a larger one. As to finding ideal remains, I find they are not to be found, unless possibly after this ~~xxx~~ theory has become famous.

I am glad to be corrected on my out-of-date ideas about plumbism, and should be glad of any citations of books or articles I should consult. I have known of no text-book later than that of Cantarow & Trumper, 1944. But for drastic cases of lead poisoning, reducing the birthrate, one may find more data from 40 to 70 years ago, than recently.

The write-up of my ideas in die & Zeit put me in touch with a German health official, conversant with Russian, who sent me two min. translations he had made from the Russian journal Gigiena i Sanitaria (Hygiene and Sanitation):

A.S.Zykova: Die Verunreinigung der atmosphärischen Luft mit Blei und ihr Einfluss auf die Gesundheit der Bevölkerung; from 1957, and

D.D.Smirnow: Ermittlung von Bleiträgerschaft bei Kindern aus der Umgebung eines Blei verarbeitenden Betriebes mit Hilfe von Röntgenaufnahmen; from 1962. With separate printed summary.

I have read these, without getting much benefit in my own inquiry, but they should be valuable to someone. Should I send them to your library, or to some one in Washington?

With much thanks, and best wishes in your future activities, I remain

Quite yours,



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