

December 11, 1974

Marvin D. Anderson, M.D.
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Dear Doctor Anderson:

Thanks very much for your letter of December 4. It does not seem that there need be any doubt at all about the administration of some inorganic compound of lead periodically by the patient about whom you talked with me some time recently. From the variability of the lead in the blood alone, this much is clearly evident. You assure me that the analytical work done at your behest is accurate, and I accept the likelihood that this is true, without serious question, since I know full well that this can be done now through the use of any one of a number of modern methods by competent analysts. The row of figures provided in the top line (blood lead) of the data which you have just sent to me cannot be explained in any other way than that, even omitting all of the other data. However, the other data are of such a sort as to fit that conclusion. This, therefore, is not a "suspicion" but a certainty in relation to this conclusion.

Let me point out to you that we have carefully investigated the rate of change of the concentration of lead in the blood of a group of human subjects, under the ordinary conditions of life, and in response to the administration of small and relatively large dosages of a lead salt in solution. Under ordinary conditions, the day to day variations of the concentration of lead in the blood are very small indeed (being of the order of magnitude of a few micrograms of lead per 100 grams of blood). The concentration of lead in blood increases, however, almost at once (certainly during the day of the administration of lead per os, and unless the dose is repeated promptly, it drops off sharply. This can be seen to have happened in the case of this man (see the change in concentration on successive days in this man's blood). The ordinary man whom we have studied prior to the ingestion of lead has about 2.00 milligrams of lead (or slightly more) per 100 grams of whole blood. When a moderate dosage (1 - 2 mg.) is administered to him daily (by mouth or by inhalation), the blood rises gradually over a period of weeks or months (dependent upon the size of the dosage), diminishing somewhat more slowly when the administration ceases. An increase from 56 micrograms on November 26, 1974 to 74 micrograms (per 100 grams - or cubic centimeters - of blood) on November 27, 1974 would require a large dose or series of doses (when administered by mouth). (This feature of the situation in the case is indicative of the efforts of an amateur, since a knowledgeable man would know that a small dose only is required to raise the blood lead. Such fellows as this, acting on their own ignorance, are likely to make themselves seriously ill by overdoing the act.)

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Incidentally, if I were you, I would not talk about the "normal" urine, for it will go up too promptly, if the dose is large enough or if it is repeated frequently. The speed of the reaction is the important aspect of this series of effects.

I trust that these remarks will be of some assistance to you, but if you wish to inquire further, do not hesitate to do so.

Cordially yours,

Robert A. Kehoe, M.D.
Professor Emeritus of
Occupational Medicine

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