

July 26, 1950

Dr. B. W. Lewis, Acting Chief,
Industrial Hygiene Section,
Department of Public Welfare,
62 Municipal Courts Building,
St. Louis, Missouri.

Dear Doctor Lewis:

The result reported as having been found in the sample of urine (196.25 mg.) is entirely impossible as an expression of urinary lead excretion. Clearly this was gross contamination; and unless you know the precise method of collection of the sample, it seems reasonably certain that the contamination occurred in the Hospital. The use of a urinal or any intermediate container in collecting such samples results not infrequently in contamination of this type and degree. The urinary lead concentration associated with the value given for the blood (which is a credible value) should not be in excess of 0.60 or 0.80 mg. of lead per liter. Incidentally no known therapy could have given such a result in the urine. The highest concentration of lead found in a sample of urine known to have been collected without contamination was of the order of 17 milligrams per liter. This followed the administration of BAL to the tolerable limit. The response to this agent is entirely unique and of short duration, bearing no relationship to normal processes of transport and excretion of lead. The highest concentrations found in the urine of the worst cases of lead intoxication are of the order of 1.5 to 2.0 mg. per liter. These are most unusual results of massive lead absorption. Generally speaking, any result above 0.6 mg. per liter must be checked with rigid care before it can be accepted as valid.

Incidentally you will find adequate discussion of the matter in "Occupational Lead Exposure and Lead Poisoning," a report prepared by the Committee on Lead Poisoning of the Industrial Hygiene Association. In this, the range of analytical results on all of the tissues and body fluids commonly examined is given. Notwithstanding the fact that I was the Chairman of the Committee that issued the report, I have no embarrassment in commending it to you as the most valuable reference work available. It can be obtained from the Association office, 1790 Broadway, New York City 19, for \$.75.

Cordially yours,

Robert A. Kehoe, M. D.

RAK ef P.S. In every instance in which a responsible analyst is involved in a diagnostic procedure of this type, it is his duty to provide detailed instructions for the collection of the samples so as to avoid any possibility of contamination, and to be sure that they are followed minutely. Otherwise
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he is a party, frequently, to the perpetration of a serious blunder.
I have never found any of the people in a hospital to be familiar with
the difficulties and methods of collecting such samples.