

April 11, 1968

MacDonald Wood, M.D.
Chairman, Department of Surgery
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3435 West Durango Street
Phoenix, Arizona 85009

Dear Doctor Wood:

Your letter of February 29 raises certain questions which I shall undertake to consider as well as I can. The first of them relates to what is meant by "gasoline burns." I take it that you are speaking of thermal burns caused by actual fires in which gasoline is involved, rather than the chemical "burns" attributable to cutaneous contact with gasoline.

My next question relates to your findings as to the levels of the concentration of lead in the blood and urine of the victims of such burns. This question concerns itself with the actual data and with the analytical methods employed and their precision. Somewhat more than the usual considerations of analytical precision enter the matter here for several reasons. For example, the absorption of tetraethyllead exercises little influence upon the lead in the blood, so that if tetraethyllead, as such, were being absorbed by these victims of burns, very little or no evidence of an elevation of the level of lead in the blood would be observed. On the other hand, if the tetraethyllead were decomposed by burning (as it is in the internal combustion engine) the resultant lead compound (or compounds) would be present on the damaged skin as inorganic lead, the quantity of which when absorbed might well be very small. For the foregoing reasons, it would be very useful to me, toward a reply to your question, to examine your data, and to know as much as possible about the analytical procedure and their demonstrated reproducibility.

I do not believe that we have any information that would cast much light on this specific problem, and I have not encountered any situations or conditions that have pointed to the need for such information. If I were convinced that there is good reason to explore this matter, I would certainly try to get it done. While there seems to me to be little likelihood that much significance could be attached to this type of exposure to the lead alkyls or to the products of their thermal decomposition, I am not prepared to give a categorical answer to the problem. Much, it seems to me, would depend upon the conditions under which persons might be exposed to burning gasoline, in relation to the absorption of lead. It is not clear to me, however, that the cutaneous exposure to the lead compounds in burning gasoline would be sufficiently severe and prolonged to give rise to much systemic absorption. On the other hand, persons who might be subjected to respiratory exposure to air containing the combustion products of leaded gasoline over considerable periods of time, during which they had sustained cutaneous burns, might show a measureable elevation of lead in their blood and urine.

I should be glad to know more about your problem and your data.

Sincerely,

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P.S. I shall see what I can do about the abstracts on lead. This matter is in the hands of the bibliographic (library) staff of the Kettering Laboratory, acting through Lead Industries Association (New York), which is sponsoring this work. The chief of this service has written to them concerning your request, and you will hear from them directly in due course.

I shall send you, under separate cover, certain reprints which, I believe, will be of interest to you.

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