March 14, 1972

Mr. S. A. Hiscock
Lead Development Association
34 Berkeley Square
London W.1, England

Dear Sid:

Thank you for your letter of February 16th. I am sorry to have taken so long to reply but I have been doing quite a bit of travelling and am only now catching up on some of my correspondence. With regard to the proceedings of the Lead in the Environment Conference, I will take care of ordering them myself.

You have asked for help on two topics which are extremely controversial. First of all, I can only say that there is really no universally recognized danger level for lead in blood. Certainly physicians who have studied lead poisoning, whether in children or adults, are in agreement that concentrations above 80 ug/100 G are unacceptably high. However, some physicians feel that levels above 40 ug/100 G may cause certain biochemical changes which are really preclinical toxicity. I think that the most authoritative article on this subject was written last year by Dr. J. Julian Chisolm in the February issue of Scientific American. In his article, Dr. Chisolm points out that there are no demonstrable effects of lead in blood below a concentration of 30 ug/100 g. Between 30 and 50 ug/100 G, there may be minimal subclinical effects. Above this concentration, we see a compensation phase and then actual injury. In a practical sense, the only persons who are actually ill are those who show a functional injury. Good practice, however, calls for inclusion of an acceptable safety factor which would lower the acceptable concentration to below the compensation level. Generally, in the United States the level which is considered to be outside the range of normal is 40 ug/100 G. This particular figure has been given credence by the National Academy of Sciences and also by the U.S. Department of Health, Education, and Welfare.

With regard to your second question, there now are many who frequently refer to lead as cumulative poison. Lead is cumulative in the same sense that calories are cumulative. If we take in too many calories, obesity results, but if we take in the proper amount of calories to be offset by our energy usage, then no obesity results. The same occurs with lead. If the concentration of lead taken in is low enough, then the body does not accumulate this metal. The theory that lead in the bones can be released under certain physiological conditions has no apparent substance. Actually, calcium levels in the blood are much more critical than lead. In order to release even a very small amount of lead, enormous amount of calcium would have to be released producing hypercalcemia. Donald Barltrop has done some

tissue culture work showing that lead can be released from bone tissue but in doing so, the bone is nearly destroyed.

I hope that these comments are of some use to you but if they are unclear, please do not hesitate to come back to me. While I had planned to visit Europe this spring, the press of other activities including the upcoming EPA hearings may prevent me from coming until fall. At that time, there is an International Symposium on the environmental health aspects of lead scheduled to be held in Amsterdam. I probably will be attending that conference, perhaps to present a paper and will, of course, take care of other European business while there.

The ILZRO technical and program review committee meetings have not been fully set, but the tentative dates for the technical meetings are from September 18 through 29, while the program review committee meetings are scheduled from October 30 through November 6.

I think that that takes care of all for now.

Best regards.

Sincerely,

J. F. Cole, Sc.D.
Director, Environmental Health

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