

April 20, 1933

Mr. D. Davidson
Room 427
Y. M. C. A.
Elm and Central Parkway
Cincinnati, Ohio

Dear Mr. Davidson:

I was very agreeably surprised at your interest in the article which appeared in the Times Star in which reference was made to the presence of lead in Mexican Indians. There is merit in your criticism, particularly so if you interpret the word "normal" to mean "useful". Perhaps I should point out to you that the sense in which the word "normal" has been employed by me has to do with constancy of occurrence, and not with physiological utility. At present there is no evidence by which to determine whether lead or certain other of the other heavy metals has any useful function. However, the fact remains that when large numbers of individuals are investigated, lead is found essentially constantly. In this sense, it is to be regarded as a normal constituent of human beings. Some considerable search has been made in order to find human subjects in which this would not be the case. Our studies in Mexico represent a part of this search and these subjects were particularly favorable in that they had no opportunity for exposure to lead from other than natural sources.

I have no doubt we shall continue to search for human subjects and for animal forms in which lead may not be found. However, from the data which are accumulating in various laboratories, it seems highly improbable that such human beings and such animal forms exist. Even sea water and marine forms of life contain minute amounts of lead, and since the soil on the earth has been generally found to contain small amounts of lead, it seems highly unlikely that organisms living upon such an earth will be found to be entirely free of traces of this, as well as a number of other heavy metals.

It is possible that these metals are useful in the animal organism. On the other hand, it is entirely possible that they have no specific function. On this aspect of the question we are not entitled to an opinion at the present time.

May I again thank you for your interest in this problem.

Very truly yours,