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CINCINNATI, OHIO 45219

May 27, 1968

Gordon J. Stopps, M.B.
Haskell Laboratory
E.I. du Pont de Nemours and Company, Inc.
Wilmington, Delaware 19898

Dear Doctor Stopps:

I have found your presentation of the information, on the subject of Air Quality Criteria--Lead, to be quite satisfying in its scope and its reasonable stance, and I congratulate you on having done a good job of it. I cannot quarrel with your opinion that some such a position should be taken.

It is only in the first or introductory part of it that I would find fault, and while the faults are minor, their very location within the first paragraphs gives them an importance that they would not have otherwise. I suspect that their importance, even so, is much greater in my eyes than it would be in others. But here are my comments for what they may be worth to you.

1. In the fifth paragraph on the first page (bottom line) you speak of the "much greater" significance of the lungs as a portal of entry "in the case of artifactual lead." Your meaning here is subject to misinterpretation, in that it might be thought to convey the idea that the respiratory portal of entry is much more important than the alimentary in relation to artifactual lead. This, as I suspect you are aware, is not the case, for the ingestion of contaminated food and beverages is still the largest feature of the general situation. It would be well, therefore, to clarify this sentence by some such a change as the following: "~~While~~-In the case of artifactual lead, the respiratory route assumes primary importance in some instances, while sharing this role in others."

2. In the last full paragraph on this same page, you speak of "measuring the lead content of ancient bones" as a means of assessing the extent of the absorption of lead by persons who lived "thousands of years ago." While this, under certain very rare circumstances may conceivably be true, it leads you into the trap provided by Gilfillan's enthusiasm and naivete in the case of the Roman patricians. We carried out his analyses, in order to get a look at the facts and to help him interpret the results. The fact is that human bones, in the ordinary environment of the centuries, are subject to such a degree of gross contamination, that no analytical result can be related to the lead content of the bone of a living man unless it is found in a place and under conditions that free it from the possibility of contamination. No one, yet, has found skeletal remains under such condition, and it is unlikely that such remains will be found, except by a meticulous and educated search. If you feel that this potentiality may eventually be exploited, you should, at least, say (line 3) that it (may be found to be) possible.*

3. In the third line at the top of page 2, you say that "as an air pollutant, lead is solely of interest because of its possible effect on human health." To the contrary, air-borne lead (as differentiated from that which remains air-borne for a long time, and therefore can be breathed) has been, in the past, and still remains a threat to herbivorous animals, through its deposition on forage. This, in fact, is what has led to the setting of standards that are said to relate to ambient air, but in fact provide for the prosecution of offenders in the form of the owners and

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operators of lead smelters (Pennsylvania, Montana, Texas).

I might suggest elsewhere in the text certain editorial alterations, but these cannot be credited with significance. Only one of them bothers me enough to speak of--namely, on page 4, first line of last paragraph--and I have no doubt this will have been noted by you. I mention it, however, "isolated measurements of air lead values have some value"--might well be altered to say that such measurements "of lead in air have some value" etc.

I hope you will forgive the last suggestion. It is a weakness of mine, for which years of editorial experience are responsible, that I find it difficult to ignore things of this type.

With best regards,

Cordially,

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

RAK:wp

* Postscript. I have just learned from George Roush that a new publication is out giving information on early dwellers in the Peruvian mountains. I should wish to look carefully at these data before saying anything about them. The site, however, is favorable for the purpose of establishing the facts.

RAK