April 9, 1962

Mr. John H. Ludwig
Department of Health, Education, and Welfare
Public Health Service
Robert A. Taft Sanitary Engineering Center
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Dear John:

I have gone over the material on Lead, which was delivered to me by Mr. Xintaras, at your request.

In general I find it not unsatisfactory. This is a little less commendatory, you will realize, than if I had described it as satisfactory. In practical terms this is an academic difference, but a degree of dissatisfaction (perhaps uneasiness is a better term) arises out of some points which in my view are overemphasized. I have referred to these in the order of their importance below:

1. There may be justification in leaning over backward in the direction of public safety, to speak always of the high values that have been found in the air (since the severest, rather than the commonest severity of exposure, is the point of greatest concern). Nevertheless, the impression is conveyed that the lead in the air is several times more than present investigators, including USPHS personnel, are finding. We shall have to back off from these figures shortly, and it will not be the easiest thing in the world to do without embarrassment.

2. The evidence available to demonstrate that the lead in the air of various areas is the main factor, or any factor at all, in the differences between the several groups of persons investigated, is exceedingly weak at best, and I consider it negligible, in view of the uncontrolled variable of the lead intake in food and beverages of the individuals and groups. The differences between the groups, statistically, are quite small. Physiologically they are insignificant. We are prejudging these data, in my view, and again, we are likely to find ourselves in an embarrassing position. It would be much better policy to soft-pedal these interpretations.

3. The reference to automobile exhaust in connection with lead poisoning among children in Philadelphia is absurd, being a composite of two areas of ignorance, one concerning the nature of the problem of lead poisoning among children, and the other, concerning the quantitative aspects of lead in the air derived from the exhausts of automobiles, as a contribution to the lead exposure of children. Two incredible speculations do not combine algebraically to create a

plausible hypothesis. This records the stretching of the credulity of your people in USPHS beyond its elastic limit, and the only justification for mentioning this somewhat silly matter, is that it contributes to the belief that this subject needs investigation, which all of us agree to without being frightened by the "boogie man".

4. As I have indicated previously, the concern about smoking in relation to lead absorption is based on a false hypothesis concerning the concentration of lead in the smoke drawn from a cigarette into the respiratory apparatus. The cards here have been overplayed, and while there is justification for further investigation, this factor is likely to turn out to be embarrassingly small. Moreover, the present manner of investigating it is not a satisfactory one.

These on the whole, are minor objections, in the factual sense, to this summarization of the available information on this subject. I could not suggest minor revisions that would eliminate such objections even if it were possible to introduce such revisions - and I gather that this is not possible. The difficulty is one of attitude, which is betrayed by subtleties of language. I appreciate fully, the position of some of the people in the Service who cannot be criticized too severely if they make a strong a case as possible for continuing to expend public funds on this problem. I must maintain, however, since it is a valid fact of life with which we investigators have to live, that we dare not prejudge our problems in the public mind, if for no other reason than that our initial view of these matters is the one which is likely to persist. One of the most frustrating things in the world is that of establishing the true facts in any matter, once they have been distorted. The first news is what attracts attention.

I call attention to two sentences in the text that should be changed. The first is advisable but may not be entirely necessary. The second, in my view, is mandatory, since many misguided physicians have been seeking X-ray evidence of lead absorption in the bones of adults, on the basis of similarly unsatisfactory reference to this matter in the literature:

1. P.146 - line 5 from bottom - should read "fumes and combustion products of leaded gasoline" instead of "ethyl gasoline fumes".

2. P.155 - paragraph 2, line 1 - should read "long bones of young children" instead of "long bones". This sentence is further incorrect - referring to "deposits of lead", for the increased density is not a "deposit", but a pathologic density of the osseous tissue, which is produced by the absorption of a number of other substances and is also seen in healing ricketts. This sentence may do no harm, but it is nevertheless an unfortunate assembly of incomplete, and therefore, misleading, information.

Forgive me for dealing in generalization when you are in need of a flat and brief statement of my opinion. I shall meet your need by saying

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that I have no firm basis for objecting to the report as it is. I think it covers the factual ground reasonably well, and that the things in it to which I object are not serious obstacles to the sound elucidation of the entire series of problems under investigation.

Sincerely yours,

Robert A. Kehoe, M. D.

Dictated but not read.

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