

April 15, 1963

A further economy which is now possible because of our wealth of data, is that of shortening the preliminary period of the observations on 2 new subjects to 4 months. These two men are being followed in parallel observations designed to demonstrate the least incremental increase in the concentration of lead in the atmosphere (above the usual level in Cincinnati) which will just barely induce an increase in the output of lead in the urine, (the latter being the most sensitive evidence of an increase in the rate of absorption of lead). In following these men, we shall also be able to dispense with the collection and analysis of the food (which is now known to have a definitive statistical relationship to the lead in the feces).

By these combined economies we shall reduce our expenditures by about \$10,000.00 per year (probably a bit more than this), and since we shall not take on any other new subjects within the year, we shall save at least an additional \$7,200.00.

I am sure you will not be interested in these details and I mention them only to demonstrate the care with which I have gone over the design of experiments which I consider to be crucial to the issue with which the lead antiknock industry is now confronted. We have beaten down and delayed, I believe, the impetus to set a statutory limit on lead in the ambient air. This will come again, however, and we must be prepared to meet it. I am confident that this can be done by means of the information which the last two experiments (the one now nearing completion, and the new one just beginning) will add to our present store of knowledge.

The design of the present experiment is such that it will take about 2 years to complete, if the data fall in line as we have reason to anticipate. This, I believe, means that the financial support provided by Ethyl Corporation for this work should continue through (and a bit beyond) the calendar year 1964. The support of the Public Health Service can be counted on, and that of Lead Industries Association seems assured.

With the completion of these experiments, the present major problem of the lead antiknock industry will have been solved, and while I should like to feel that some (at least token) support for further work on lead will be forthcoming from this source, I have been assured by representatives of Lead Industries Association that they will pick up the tab for the prosecution of the work on another highly important factor in the pulmonary absorption of lead - namely, the role of the chemical compound (such as the sulfide, silicate and the basic sulfate). I would like to be assured, as far as one can be assured of anything in this unpredictable world of ours, that this phase of the work will be investigated, for while there are other physiological problems, the elucidation of this one would round out the objectives of this experimental program as I have visualized them for the past fifteen years.

Mr. J. H. Kirby

- 3 -

April 15, 1963

With respect to the further interests of Ethyl Corporation (and of du Pont and other units of the lead antiknock industry here and abroad), I think I should also say, for the record, that the significance of the lead in the air of American cities will probably need investigation from time to time, especially in step with further technological developments in this industry or in others, that may result in an increase in the lead in the air, (for the total problem is the important issue, regardless of how and by whom it may be altered). Because of this, and because of the necessity of maintaining an awareness of this problem within the industry, as well as the preservation of the competence required to deal with it, Ethyl Corporation, in my judgment, would be well advised to encourage the Kettering Laboratory to continue its investigations in this field and to maintain its expert position in this field of knowledge and research.

I have little doubt that these matters will be dealt with wisely and well, without any continuing advice or reminder from me, but I should be less than faithful to my responsibilities, as well as less than properly appreciative of the personal and professional relationships of very nearly a lifetime, if I were to rely wholly upon assumptions. That is why I take the trouble to express myself in some detail at this time.

I am sure that you will not be interested in the manner in which our experiments have been designed and conducted. I doubt very much that Mr. Perdue will be much concerned either. On the other hand, Dr. George Kirby will be concerned about both the problem and our mode of attack upon it, and I would like for him to see this letter and to know that it is available for his consideration.

Sincerely yours,

Robert A. Kenna, M. D.

RAK:ss

cc: Frank Princi, M.D.

Enclosure: Request Sheet

KE 0003400

ETHYL CORPORATION
TOXICOLOGICAL PROJECT REQUEST

No. 2

Date 4/15/63

Title: METABOLISM OF LEAD-IN-AIR

State of Development: CONTINUING

Proposed Use: BACKGROUND PHYSIOLOGICAL DATA

Requested by: ETHYL CORPORATION
Department

NEW YORK
Location

Purpose of Project: Investigation of the basic physiology of lead absorption, excretion and retention. (Present experiments directed toward establishment of limits of safety for lead content of ambient air.)

Description:

Discussion: Since 1950, a study of the behavior of inhaled, particulate lead in human subjects has been conducted in respiratory chambers at the Kettering Laboratory, under carefully controlled laboratory conditions. Nine human subjects have been or are being investigated over extended periods (over 5 years continuously in some cases). During this period of time, careful baseline data on various physiological functions and on the intake and output of lead have been obtained from each subject over periods of 6 or more months, followed by respiratory exposure to a carefully controlled concentration and dispersion (size of particles) of finely divided lead - in the air of the chamber, over a period of a year or more, after which, comparable data have been gathered over variable periods of time until the subject returned to his original state, with respect to the intake and output of lead.

To be Assigned to: THE KETTERING LABORATORY
(Laboratory)

CINCINNATI
(Location)

Estimated Cost: \$ \$25,000.00

Estimated Completion Date: 1963 (This request)

Approvals:

Medical Director

Department Head

Operating Committee
(Over \$10,000)

KE 0003401