November 13, 1970

To: Dr. E. C. Foulkes

From: Dr. Robert A. Kehoe

Dear Ernest:

Concerning your note of November sixth, my work has not, so far as I know, had anything to do with the Center Grant, but you may have reason either formally or informally, to know what is being done.

At the end of last year we finished, at least for the present, the work specifically concerned with the determination of a tolerable concentration of lead in the ambient air for human subjects who also take lead into the alimentary tract in their personally chosen food and beverages.

We undertook to initiate another experiment with another experimental subject, on a different tack. Having overcome the difficulty of finding a suitable subject, this experiment was not initiated until May 1, when Mrs. Brown (of the technical staff of the Laboratory) offered herself wholly voluntarily to be the subject. This experiment is a continuation of our earlier plan to investigate the effect of the size of the particles, in a dispersion of particulate lead in air, upon the relative rate of the pulmonary absorption of air-borne lead (actually the overall absorption of inhaled lead).

We have the data on subjects who have inhaled lead sesquioxide dispersed (in air) in particles of 0.05 micron in mean diameter, 0.75, and 1.1, and we wish to obtain information about particles of intermediate size, i.e., 0.5 micron. The problem here is of practical, but also of physiological, importance. It would be nice also to include an experiment on particles of approximately 0.1 micron. I doubt that finer differences could be dealt with by this method, but, if time and money were to be available, further investigations could be pursued. (This could be done, presumably by someone like Emil Pfitzer who could inherit the equipment and responsibility. I've talked to him about this and find him willing, if associated with a physician to take the responsibility for the subjects.) I had hoped also to investigate the effect of the compound of lead on its absorption, as, for example, the sulphide and the silicate and, perhaps, the basic sulphate. There are other candidates. The questions, here, among other variables, are also the particulate size, and the mechanism of absorption in relation to aqueous solubility, solid solubility, membrane phenomena, etc. We need to know the important factors in this matter for purposes of interpretation, if possible (probably not approachable by this method), but there is a vital need to know the facts so as to develop suitable and <u>effective</u> measures of protection.

I hope what I have said will be useful and productive of future work, whether or