

May 7, 1940

Dr. D. W. Bronk
Maloney Clinic
30 and Spruce Streets
Philadelphia, Pa.

Dear Doctor Bronk:

Some time ago I was informed that you made the request through your purchasing agent for the purchase of some tetraethyl lead for experimental purposes. A safety engineer of the Ethyl Gasoline Corporation has reported to me that he has looked into the uses to which you wish to put tetraethyl lead and in his words he has stated that you "wish to produce chronic lead poisoning in cats, rats or other similar small animals", by exposing these animals in a respiratory chamber to known concentrations of tetraethyl lead.

My opinion has been asked as to whether the tetraethyl lead should be supplied for this purpose. I may say that I see no reason why it could not be supplied for experimental work. I do have certain reservations, however, as to whether you will accomplish the purpose for which you wish to use the material. Accordingly I am writing to you on this point before arriving at any conclusion as to whether some supply of tetraethyl lead should be provided.

We have done a very large amount of experimental work with animals involving exposure to tetraethyl lead. We have also studied the distribution of this lead compound within the animal organism, and, as you probably know, have published some of our observations on this subject. The initial distribution of tetraethyl lead in the tissues of experimental animals is totally different from that of inorganic lead compounds. Subsequently, however, the tetraethyl lead is decomposed in some fashion and finally is distributed in the tissues in the same way as inorganic compounds. Meanwhile, however, a considerable proportion of the lead is lost from the body by various routes, and it is not easy, therefore, to produce the picture of chronic lead poisoning. As a matter of fact, we have never succeeded in the case of experimental animals, in producing lead in-

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toxication of a chronic type. I do not say that this can not be done, but it is quite possible that it can not be done. It seems very likely that this is the case. As a matter of fact, if you use large enough daily exposures to cause considerable accumulation of lead, you will probably produce acute toxicity effects upon the nervous system, since the first point of distribution of tetraethyl lead is in the fatty tissues.

It seems probable to me that with the above information at hand, you will wish to use some other lead compound than tetraethyl lead for your purposes. I have no wish to hinder your experimentation, but on the contrary I would prefer to give you every possible assistance. Accordingly if you will tell me what you have in mind, and what you are attempting to do, I shall probably be able to give you some suggestions out of our experience which will save you a great deal of time and trouble. Only a small portion of our toxicological work on this subject has been published for the reason that the more important practical facts have been published, and there seemed no justification for writing a long paper filled with further minute and practically unimportant experimental results. However I shall be glad to give you any information which we have.

Very truly yours,

RAK:is

Robert A. Kehoe, M.D.