June 30, 1951

Dr. Philip Boyd
The Associated Ethyl Company Limited
Northwich Cheshire
England

Dear Doctor Boyd:

Just before leaving on a holiday which will keep me out of my office until August 1, I have an opportunity to answer your letter of June 12.

With reference to the problem of the ear drum, there are two considerations. One is that of drawing toxic or irritating materials through the Eustachian tube in quantities and concentrations sufficient to produce systemic intoxication, which is quite unlikely, and the other is that of drawing in materials which, because of their irritant effect, may well cause further damage to the middle ear structures. In any case, I consider this a significant defect. It has not given rise to serious difficulty, nor for that matter, to any difficulty at all, of which I have been aware, and from this aspect it may be regarded as theoretical. I think, however, that it is not entirely so, particularly so in view of the fact that by the use of respirators men may enter tanks or enclosed places in which there is an high concentration of gasoline vapors. It is obvious that this defect can be corrected, and in my opinion it is quite feasible to do so, and when it has been done, there should be no objection to the use of such an individual. I mean, of course, the use of ear stoppers which would prevent any of the difficulties to which I have referred. On this account it is not always necessary to reject these persons. Certainly I would have no hesitation, especially under conditions in which there is a shortage of manpower, to making provisions for the use of a man or of men with this type of defect.

In the matter of the use of British Anti-Lewisite in the treatment of tetraethyl lead poisoning the situation has been somewhat beclouded by an incident that occurred several years ago. As it happens, one of the men on Keith Fairley's staff in Australia, now no longer associated with the medical group of Associated Ethyl, used British Anti-Lewisite in two cases of tetraethyl lead poisoning. Both men recovered, and inasmuch as these were the first cases that were treated there, their recovery was regarded as somewhat unusual. As a consequence, an article was prepared for publication which was rather glowing in its representation of the benefits of the use of British Anti-Lewisite. This came to my attention, and I rather promptly discouraged its publication, at least, in the form in which it had been written, since I felt that our own group were promulgating an idea which would take hold and which would tend to convince people that we had a means of offsetting the results of serious exposure to tetraethyl lead. I would have had no objection to the article on

any other basis. In fact, I would have regarded my intrustion into the situation as both impertinent and unprofessional, had it not been that I had to accept some degree of responsibility in a situation that was capable of being misunderstood.

The present status of the matter is that British Anti-Lewisite is being used by a number of people for the treatment of lead encephalopathy in children, and with some allegedly beneficial effects. British Anti-Lewisite has also been used in the treatment of other cases of tetraethyl lead poisoning, and from the aspect of the results obtained, it cannot be said that the therapy was not beneficial. On the other hand, there is no evidence, so far as I have been able to observe, that the effects are beneficial. My own feeling, from the evidence available, is that persons have survived, despite serious and potentially fatal intoxication, when they have had everything, including good general medical care, on their side. I have not been able to see that the course of the disease has been materially influenced by the use of British Anti-Lewisite. In addition, in my opinion, the experimental evidence, as obtained on animals, strongly suggests that the use of British Anti-Lewisite is not advantageous in lead poisoning. (I am not speaking here of lead encephalopathy, which may be different in some respects.) The additional evidence lies in the clinical facts which we have uncovered here. One of my associates treated a series of more than twenty cases of practically identical character with British Anti-Lewisite. The cases were divided into two groups half of which were treated and the other half remained untreated. There were, I believe, twenty-eight cases in all, making, therefore, about fourteen in each group. A study of the outcome of the therapy indicated quite clearly that no change had been produced. There was no difference in the time required for the subsidence of symptoms, and there was no difference in the speed with which the men were able to return to their work. Moreover, and this might be regarded as strange, but is rather easily explained, the actual rate of loss of lead from the tissues, on the part of the treated cases, was not significantly different from the rate observed in the case of untreated individuals. The answer here, quite clearly, is that despite the brief dramatic outpouring of lead in the urine of the treated individuals, the total quantity so excreted, in relation to the total quantities of lead available in the tissues, was insignificant. This will continue to be the case until a preparation which will give the same effect is available for practically continuous administration. If one could maintain a high rate of lead loss from the body, assuming that the lead complex so created was essentially non-toxic, one could speed up the loss of lead from the body very much indeed, and certainly shorten the period of potential risk in relation to further lead exposure.

as judged by the decrease in the lead concentration in the blood over the entire period of observation,

In this connection I have had an exchange of correspondence with Doctor J. R. F. Williams of Boots Pure Drug Company Limited, Nottingham, indicating that they were planning to send me some BAL glucodide when their next batch is ready. This letter was dated in January, and I have not heard from them since. What I am interested

in, of course, is a preparation of BAL glucocide which is sufficiently stable and sufficiently non-toxic, therefore, that it can be used therapeutically without risk and that can be held on hand for some time without disintegration. Anything that you might be able to do to find out the status of this matter in your own country would be beneficial, since nothing seems to have been done about it here so far as I can establish.

With kindest personal regards,

Sincerely yours,

Robert A. Kehoe, M. D.

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