June 21, 1963

Daniel M. Murphy, M.D.
399 East Church Street
Marion, Ohio

Dear Doctor Murphy:

I have been in indirect correspondence with you, and to a lesser extent, with Dr. Imbus, in connection with the hygienic problem of the Goodrich plant at Marion, through Dr. Wilson, and yesterday with Mr. McCormick. Sooner or later we meet (at a distance) in relation to some problem of occupational exposure to lead. Your letter of June 14th to Dr. Wilson, with a copy to me, calls for a comment or two, I believe, and I submit these, with a copy of this letter, to Dr. Wilson.

I think it pertinent to call attention to the fact that the levels of the concentration of lead in the urine and blood of the men about whom you (and the Goodrich people) are concerned, have not, at any time, been remarkably high. On the contrary, all have been at or very near the threshold value. Only one of them it seems, has had a type and degree of illness that was regarded (by Dr. Imbus) as being compatible with the diagnosis of plumbism. This is not to suggest that one is not justified in being concerned for these men and for the occupational conditions which are productive of such findings as have been obtained. On the other hand, this is not a very serious situation as these matters exist in the lead-using industries, and the one thing about it which gives me the greatest concern, is the apparent fact that no such problem was seen previously. It suggests that the housekeeping is not so good as it was, or that the care exercised by the men is less than adequate, or that something of this type (or some let-down, generally) has entered into the picture. On this account, I have advised that there be a systematic investigation of the analytical data, especially that relating to the men, in order to determine whether there has been some progressive increase in the findings on individuals or in the group of men, generally. I'd like to see these data and convince myself of their trend or lack of trend. This is highly important in considering what may be the nature and significance of the present issue.

The importance of the fact to which I have called attention above, arises out of the variability of the methods of analysis, whether one considers those of this Laboratory or those obtained in the

Goodrich Laboratory. It is always difficult to be sure of the significance of results that are at this point, since the analytical error is of the order of ± 0.01 mg. per 100 grams, in the blood, and therefore, a result of 0.08 may be 0.07 or 0.09. For the purposes of industrial hygiene this is, admittedly, too high, but for diagnostic purposes it is always dubious, so that the clinical evidences of intoxication must be convincing. When the issue is one of compensation under the laws of the State, the doubt is resolved, of course, in favor of the employee.

From the aspect of the industrial physician there are two other issues. One relates to the adequacy or inadequacy of the control of the environmental exposure, as well as the individual performance of the workmen in the face of a hazard which they may be able to avoid or, on the other hand, to cultivate. The other involves the handling of the workmen in removing them from exposure at the appropriate time and in returning them to further exposure, also at the proper time. This problem of returning the men to work is a difficult one, only when one is not sure of the means by which the employee came to grief. If the reason for the trouble is clear, and if it can be eliminated, there is no need for concern. If the situation is not fully understood, on the other hand, one fears that the individual will get back into the same state that caused his removal within a comparatively short time. It is wise, therefore, to satisfy one's self, if possible, how the difficulty arose, and to take the steps that are necessary to dispose of it. This is why I think it advantageous to tabulate all of the analytical data, to examine them carefully and to determine, if possible, from them, what has occurred to give rise to excessive absorption of lead. This may not be possible, but I suspect that it will.

With some assurance as to the nature of the situation, and the means of handling it, the men under consideration could be returned to work without any anxiety, and they and the others could be assured of their safety.

It is my present opinion, after examining the information which both Dr. Wilson and yourself furnished me, that you are a bit more reluctant to return these men to work than you need be, and also that you have underestimated the extent to which they have responded to the termination of their occupational exposure. This is certainly erring in the right direction, if it is an error, and I am not advising you to take the matter lightly. I am merely putting some emphasis on the general trend in the reduction of the levels of lead concentration in the blood, and disregarding, to some extent, the findings which appear, from time to time, to indicate that there has been some recurrence of exposure (from some unknown source), or that the individual has failed to return to normal. Moreover, I do not believe that you are justified in waiting until the individual

man has returned to the mean normal concentration of lead in the blood (0.03 mg. per 100 grams), and remains there for several months. When a man has been subjected to occupational exposure to lead over a period of many years (4 or 5 up to 10 or 15) it may take many many months and more than one year, certainly, to reach such a level. This in my experience is unnecessary. I am content to get them back into the normal range, if I can be sure that the exposure to which they will be subjected is within reasonably safe limits. They must be checked, periodically, by analytical means, to make sure that the judgment was correct, but it is not as though it is impossible to follow what is occurring.

In making the foregoing comments, I realize fully, that I am taking on faith, the efforts that have been made to find the source of the additional exposure to which the men with high values have been subjected. In this, I may be mistaken, for I have not been on the spot to observe. Let me cover my tracks, therefore, by saying that if I am correct in this, I am correct in my conclusion. If I am incorrect, then the source of such exposure must be found and eliminated by appropriate means, before you follow my advice. I am convinced that if there is some presently obscure source of exposure it can be found, and when it is found, it can be brought under control.

Sincerely yours,

Robert A. Kehoe, M. D.

RAK:ss

cc: Dr. Rex Wilson