

August 27, 1943

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Dr. Joseph C. Aub,
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Boston, Massachusetts.

My dear Aub:

I have sent in the bibliography to be printed after making use of the criticisms and suggestions of members of the Committee as far as it was possible to do so. In order to keep the record clear, I think I should reply in some detail to your letter of July 28, particularly because I was not able to accept all of your suggestions. You are certainly entitled to as full an explanation as I can give, and therefore, I am expressing myself much more frankly and directly than I would wish to do.

I was very glad to include your article on the "Biochemical Behavior of Lead in the Body" in the references on "Treatment." I was also glad to include Fairhall's article in the American Journal of Public Health on "Precision Methods in the Determination of the Heavy Metals." Further, I was glad to accept your suggestions with reference to a number of references included under the heading "The Natural Occurrence of Lead in Soil, etc."

On the other hand, I could not see my way clear to the inclusion of Fairhall's two articles on the methods of analyzing lead in biological material. Nor did I consider it advisable to include the article written by you with Dr. Minot on "The Distribution of Lead in the Human Organism." I also excluded Fairhall's article on "The Significance of the Excretion of Lead in the Urine." These were not arbitrary decisions, and despite the fact that there would seem to be a certain arbitrary character to my failure to accept your recommendation, I believe it is fair to say that in my position as Chairman of this Committee, it was my duty to act as I have done. At least, I have done so in good faith and for reasons which I consider adequate. However, it is necessary to explain the basis for my action.

It has been my feeling in connection with this report that because of the difficulties which have developed around this subject, it was necessary to make every possible effort to clarify the various issues and to bring out the facts in clearest and cleanest fashion without reference to personalities, institutions, and the like. In selecting references, therefore, I felt it necessary to exercise a highly critical function and to eliminate consideration of arti-

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cles that were factually incorrect, incomplete, and ambiguous. Applying these criteria, I could not include the papers referred to above.

As for your paper on "The Distribution of Lead in the Human Organism," I believe it is fair to say that both the data and the discussion are such as to confuse the issue rather than to clarify it. As one looks through the lists of data, one finds numerous examples of bones that are said to have contained no lead. In terms of more recent experience, this simply cannot have been true, and it is therefore apparent that the analytical methods used in connection with these data were inadequate in terms of modern methods. The discussion in general indicates that lead is not to be expected in the soft tissues of the body. This also is untrue. In view of the available information, there is no reason, therefore, for perpetuating these deficiencies due to understandable technical weaknesses in method at the time this work was done. It is necessary for us to leave these ambiguities behind us. The article has great historical interest. However, in this report, as I see it, we must deal with technically accurate information so far as such information is available.

After what I have said in the preceding paragraph, I believe you will understand why we as a committee cannot sponsor the use of Fairhall's chromate method for diagnostic or investigative work at the present time. The method as described in the two articles to which you refer is at present obsolete. Moreover, these articles do not give a complete and detailed, step by step, description of the method. Therefore, it cannot be duplicated precisely, and this fact leads to confusion rather than to clear and specific advice to persons who are working or propose to work in this field. You will note that I made no reference to the various modifications of the Fairhall method which we included in a method which we described in minute detail. The latter method was a great improvement over Fairhall's method, and it gave reliable results with a uniform loss which could be estimated. However, none of the modifications of the chromate method, with the possible exception of that of Letonoff (which has a difficult step in it), are suitable for working with small quantities of blood and urine. Therefore, for this reason if for no other, these methods cannot be recommended for diagnostic work. You will remember that in 1933 we made certain criticisms of the Fairhall method, which Fairhall himself apparently resented in a personal way. There was nothing personal in our criticisms, and they were just, as subsequent experience has shown. For these reasons, as a Committee we simply cannot afford to recommend the use of the chromate method.

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With reference to Fairhall's article on the "Significance of the Excretion of Lead in the Urine," published with Dr. Sayers, I would take the position under ordinary circumstances, that the less said the better. This article published in 1939 was about six years out of date when it was written. It failed to include the most important physiological information on the urinary excretion of lead. It ignored much of the literature on the subject, and it represented the private and (I think) prejudiced opinions of Lawrence Fairhall, which have since been shown to be incorrect in a number of respects. The article should not have gained publication, and probably would not have except for the easy access of workers in the Public Health Service to "Public Health Reports." You may think that I am being nastily critical in these comments, and I hate to lay myself open to such an opinion on your part. Therefore, I suggest to you that you examine this article carefully in the light of what we now know about the urinary excretion of lead. I believe you will conclude that I am not unduly severe. Perhaps you will also accept my further word for it that much of what is known at the present time was either suspected or fairly well demonstrated at the time Fairhall wrote this article. I called Dr. Sayers seriously to task at the time this article was published, not only for its weaknesses but also for its failure to refer to or even to consider a number of published articles which bore importantly upon the discussion.

And now that I have said my say, let me conclude by thanking you for your patience and your help in connection with the work of this committee. I am indeed grateful to you.

With kindest personal regards,

Cordially yours,

Robert A. Kehoe, M. D.

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