October 12, 1938

Mr. E. E. Thum
Editor - Metal Progress
7016 Euclid Avenue
Cleveland, Ohio

Dear Mr. Thum:-

I have your letter of October 7th with its enclosures and I am very glad to give you such advice as I can in connection with the questions raised. Incidentally I have made some pencil notations on the copy of your proposed editorial for November Metal Progress. These notations were made rather hastily and perhaps somewhat curtly, though I trust not discourteously. It is certainly not my intention to be discourteous in the consideration of your questions.

A further word of explanation might be useful. I can scarcely express an opinion as to the possible magnitude of the dangers of lead exposure which might be associated with the low lead content of steel for I have not enough detailed knowledge of the manner in which such steel is likely to be handled to entitle me to any opinion as to the probable hazards. Offhand I should be inclined to doubt that the small concentration which you have mentioned would be significant. On the other hand it would be necessary to have measurements either of the lead concentration in the atmosphere of workrooms or the lead excretion of exposed workmen in order to have any very precise basis for an opinion. I believe you are right to this extent that you advise the steel industry not to take a chance on the introduction of an additional and unnecessary hazard. I am assuming, of course, that there are no very profound technical advantages to be gained by the inclusion of small quantities of lead. If I am wrong in this last assumption, then I should think the whole problem would have to be examined rather carefully.

It is necessary to think in quantitative terms in relation to lead hazards since it is now well known that lead is an unavoidable constituent of most of our food, and if it is an inevitable constituent of the human body and its excretions, it is obviously impossible to regard that as a poison unless one speaks in quantitative terms. It is for this reason that I have queried the title of your editorial, and it is for this same reason that I have indicated the incorrectness of your paragraph at the top of Page 2. Our present evidence is that when the

lead concentration in the atmosphere of workrooms is beneath 1.5 mgs. of lead per 10 cubic meters of air, the likelihood of lead poisoning among any of the workmen is exceedingly remote. If this concentration is as low as 1 mg. per 10 cubic meters of air, then it seems quite certain that cases of poisoning will not develop. In this connection I may say that we are all of us taking into the body approximately 0.25 mgs. of lead per day in the food, and that we are excreting an equivalent amount in the feces and in the urine. Under these conditions there is no progressive accumulation of lead, and poisoning does not take place. This is apparently true also at considerably higher levels of lead intake, and it is for this reason doubtless that lead poisoning does not occur within the limits of respiratory exposure that I have indicated.

I believe your point of issue in your editorial would be better taken if you were to say that in your opinion the steel industry should sponsor a thorough investigation of this problem before undertaking the risks involved. In advising this tone on your part, I am not suggesting that you will create more work for this laboratory to do, nor do I have it in mind that this would be a desirable outcome of your editorial, since at the present time we are so swamped under an avalanche of work that it would be very difficult for us to undertake more work. I merely mean that to me the logical approach to this type of problem is through the avenue of experimentation. If this point of view is adopted and if it becomes clear that the industry should make fundamental changes in procedure only after experimental investigation of the hygienic consequences, there will be a considerable hesitation in entering into unnecessary difficulties.

Very truly yours,

RAK:is

Robert A. Kehoe, M.D.

METAL PROGRESS

PUBLISHED BY THE AMERICAN SOCIETY FOR METALS

7016 EUCLID AVENUE

CLEVELAND, OHIO

October 7, 1938

Dr. Robert A. Kehoe
College of Medicine
University of Cincinnati
Eden Avenue
Cincinnati, Ohio

Dear Dr. Kehoe:

In an attempt to check up on some ideas about the possibility of danger arising from a new leaded steel which is being promoted by the steel industry, I wrote the attached letter to a former associate, Sidney D. Kirkpatrick, Editor of Chemical and Metallurgical Engineering. (A copy of my proposed editorial is also enclosed.)

Mr. Kirkpatrick, however, tells me that he has been away from the problem for so long, he is unable to give any useful information and suggests that since you have made some studies for the Ethyl Gasoline Corporation, you would undoubtedly have much specific information which would be helpful to me.

If you could ~~do~~ send me this, I certainly would be obliged.

Very sincerely yours,

E. E. Thum

E. E. Thum
Editor - Metal Progress

EET:MR

P.S. It so happens that I taught metallurgy in Dean Snyder's Engineering College during the War years. Perhaps you know my brother-in-law who is still there, Edward S. Smith, in the mathematics department of the Engineering College.

E.E.T.

KE 0007507

N 7927.01

METAL PROGRESS

COPY

October 4, 1938

Mr. S. D. Kirkpatrick, Editor
Chemical & Metallurgical Engineering
330 West 42nd Street
New York City

Dear Kirk:

I have lately become interested in the subject of steels containing sizable quantities of lead, and have drawn up the attached first draft of an editorial for the November issue of Metal Progress.

While it seems to me that the hazard in the billet cleaning department, hot saw, and other departments in the rolling mill is considerable, the real trouble will commence when turnings and borings of this material get back into the circulating load of scrap. Not all of it will come back to the plants where it originated, of course, with the result that steel plants everywhere will be charging a certain amount of lead-bearing scrap without realizing it. At the high temperature of steel refining, practically all of this is eliminated. Assume that a hundred-ton furnace got 25 tons of borings from this new material in a single charge (not an unfavorable assumption) and the result would be 125 lb. of lead put into the surrounding atmosphere.

Just how much of a hazard this would be I do not know, but I assume it would be rather serious, knowing what I do know about precautions taken at our lead smelters.

I think you have some more direct information about this from your former contacts with the Ethyl Gasoline Corporation. As I recall it, the City of New York at one time had a prohibition on the sale of this material within the city limits, thinking that the air at the street intersections would be so polluted with lead oxide that it would be unsafe for traffic officers, for instance, to remain continually in that locality. Evidently, this was shown to be an unfounded supposition.

Perhaps you have some idea as to how much lead is put into the atmosphere at 42nd Street and Fifth Avenue, for instance, in the average twenty-four hours, and also whether traffic officers have developed any symptoms of lead poisoning.

Any such information as this which you could send me would be highly appreciated.

Very sincerely yours,

KE 0007508