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THE NAVIGATION CLINIC

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August 9, 1956

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Dear Dr. Kehoe:

Surprised I was, yes, to receive your letter, but certainly not displeased. I make no apologies for some of my activities in the field of industrial hygiene in the lead trades. I realize that our interests in industrial hygiene here in the south lag behind those in the north, but our period of industrialization has only recently begun and we are trying to make progress.

We are not as far apart in our viewpoints as you are trying to make me believe. I do not believe in the prophylactic use of EDTA and have never recommended the prophylaxis of EDTA in any plant over which I have any control. I believe in the installation of adequate ~~cross~~ ventilation. You suspect that I say this with "tongue in cheek" and you state that it is only an easy gesture of dissolution from responsibility on my part. This is not true. I am not the Oracle of Delphi, and therefore have associated myself with an industrial hygiene engineer, Mr. Hanson. H. Tix. Mr. Tix is a registered professional engineer and I am enclosing with this letter a copy of a letter which is self explanatory.

I fully agree that there is no excuse for the present high incidence of lead poisoning in American industry. I can also tell you, without any fear of contradiction, that there is no excuse for the present carnage on our highways. Neither is there an excuse for the tremendous amount of mortality and morbidity existing at this time in this country from the accepted use of alcohol. There is also no excuse for the recent airline disasters nor for the Andrea-Doria. I believe these incidents are an expression of almost incredible ignorance combined with intolerable technical sloppiness. I mention these matters, not out of facetiousness, but only to bring our little tempest into its proper perspective in our society.

It is my opinion that a triple approach is needed to solve the individual in-plant lead problem. It is impossible to completely safeguard man against himself. I believe that biological evaluation of each worker should continue, even though all possible technical engineering methods are used to prevent contamination of the worker's environment. I was taught to believe that biological threshold limits tests are of value, even under perfectly engineered situations, to detect workers abnormally sensitive to small amounts of lead, to detect early any possible breakdown of ventilation equipment, and to detect previously unsuspected or overlooked sources of exposure. The engineer shall never be able to

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protect the human animal against himself.

Due to circumstances completely beyond my control I am unable to take advantage of your kind invitation at this time. May I use the mail in order to obtain your help and knowledge in solving an industrial hygiene problem with which I am now faced? The problem concerns a lead smelting, refining and fabricating plant. Partial preliminary data are enclosed, along with a crude sketch of the plant.

The exhaust system is based on retention in a cyclone where water is used to increase its efficiency. It was installed by the Chemical Construction Company and is functioning at all times. This system has been engineered by a competent company and installed by competent people, and at the present time is exhausting the blast furnace, three reverberatory furnaces and the melting pots, as diagrammed. A water sample from sedimentation tank No. 3 of the fume and dust recovery system contains approximately 20 mg. of lead per liter. I will gladly furnish detailed facts and figures concerning this cyclone installation if you desire it.

For the sake of the problem, let us assume that a recent industrial hygiene study has shown the following atmospheric lead values:

Sample No. 1	.50 mg. of lead per cubic meter of air.
Sample No. 2	.15 mg. of lead per cubic meter of air.
Sample No. 3	.37 mg. of lead per cubic meter of air.
Sample No. 4	.12 mg. of lead per cubic meter of air.
Sample No. 5	.14 mg. of lead per cubic meter of air.

Let us assume that these samples were collected in an exacting fashion at the breathing levels of the workers at the positions indicated in the enclosed diagram. Let us assume that the chemical analyses were determined correctly, using the September, 1948 draft of the Dithiozone mixed color method as proposed by the American Conference of Governmental Industrial Hygienists. Enclosed also you will note a list of workers with urinary lead findings and their positions in the plant. Please assume that the urine specimens were collected correctly and were of adequate volume and specific gravity. The urines were also analyzed by the standard mixed color Dithiozone procedure, as approved by the American Conference of Governmental Industrial Hygienists.

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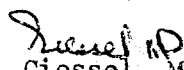
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The assumption is also made that each man listed in the attached sheet was given a periodic re-examination which was recorded and performed according to the enclosed pink sheet labeled "Preventive Medical Armor". It was the opinion of the medical examiner that none of the workers showed overt evidence of clinical lead poisoning, as would be evidenced by nausea and vomiting, wrist drop, severe abdominal pain, constipation, headache and evidence of encephalopathy etc. It was the feeling of the medical examiner, though, that those workers with urinary lead levels over .2 mg. of lead per liter of urine were showing some signs of excessive lead absorption such as vague digestive complaints, a lead line on the gums, a feeling of lethargy and lack of total well-being. It was felt that the difference between "incipient lead poisoning", "excessive lead absorption" and "clinical lead poisoning", was a question of semantics only and that direct action of some type should be taken, in view of the fact that evidence of definite clinical lead intoxication would soon appear in some of these workers; (that is, assuming none had already occurred!).

I will not accept as a solution to this problem the dismissal of those workers showing high urinary lead values. If these workers were to be dismissed, they would undoubtedly file suit against our imaginary plant and thus aggravate an insurance situation which at the present time is shaky, to say the least. I realize that this industrial hygiene survey is rudimentary, fragmentary, and incomplete. Please consider this only an outline of the problem. Any additional information that you might desire shall be furnished, if available. If not readily available, it shall be obtained and forwarded to you.

In view of your letter, I do not feel that I am imposing excessively on your store of knowledge concerning the lead trade.

Very sincerely yours,


Wm. U. Giessel, M. D.

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