

June 30, 1959

Mr. J.L. Cooley, Vice President
California Research Corporation
200 Bush Street
San Francisco 20, California

Dear Mr. Cooley:

Let me first acknowledge, with thanks, your Company's check for \$562.42. I am glad that you consider my allocation of charges fair and proper.

I enclose herewith an assembly of the analytical findings in the urine of the employees of the Yellow Cab Company during Phase I of the present investigation. These have been treated statistically in a very simple manner which reveals their general significance, and I believe that my comments on the data will be sufficient for present purposes. It is reassuring to find these results in essential agreement with those obtained by us previously in the investigation of larger numbers of the same general type of employed person. As I have indicated, I believe the observations have provided a satisfactory base line for our further observations.

Perhaps you will recognize, in my treatment of these data, how difficult it would be to make comparisons with our former findings, and how impossible it would be to compare the results of the three phases of these observations, except for the certainty that the results, in themselves, are comparable.

I mention this point, since it seems not to be clear to anyone, outside of this Laboratory, why I insisted on having the analytical work on the urine and blood done here. I do not like to be considered unreasonable or arbitrary, and perhaps you will be prepared to accept my statement that the failure on the part of the others to understand my position is sufficient evidence of their failure to understand the problem. I should not have had to argue this point otherwise, for it is both simple and fundamental to the method of investigation. I regret that this imposes additional expense upon your people, and I suppose that the duPont people there have taken the view that they should not have to pay for our work, when they were ready to do it themselves. In any case, I'd prefer to pay it out of my own pocket than to have to rely upon results that have no absolute verification in relation to our own, since I cannot afford to be wrong in this matter at this stage.

I shall look at the further results as they come through, in the light of the findings of Phase I. I anticipate that there will be no significant change in the data that come through out of the conditions of Phase II in

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the time allotted to these observations. I shall be greatly surprised if the difference in the level of exposure is sufficient to produce such a change in three weeks.

The situation during Phase III may be sufficiently different to result in a measurable change, and this is the crux of the issue; and this is why I wished to extend the length of these observations somewhat. That is, I wish to make sure - or as sure as I can - that we do not have a border-line result that leaves us in doubt. There is no way of anticipating the outcome of such a situation, for which there is no precedent. You will remember, however, I suspect, that I pointed out to the group, that a slight increase in the exposure - a two - or three-fold increase - would have little significance, but that a twenty -, thirty - or forty-fold increase could be expected to give rise to a prompt excretory response. It is the promptness of the response, more than its quantitative proportions, which is the source of doubt in this experiment.

Our problem - yours and mine - from the aspect of industrial and public health, has little to do with whether or not the handling of this product is dangerous within the period of a few weeks. I have felt quite certain that no danger resided in the test itself, and therefore I have not concerned myself with the results as they are obtained - except, of course, to confirm the correctness of my prediction. The question, rather, is that of whether under the conditions of the test, there is prompt evidence of a valid increase in the absorption of lead. The speed of the response is, at this time, the best test of its severity.

I trust that you will not misunderstand me, and believe that I am complaining about the pressure which you have applied to me. This is not the case, I am only attempting to explain that no amount of pressure on me will alter the facts which we must have in order to exercise judgment in this matter. Unfortunately, all we can do to anticipate the outcome and to circumvent the time factor, is to obtain evidence which we can put side-by-side with the data of our long-term observations of the responses of men to known levels of lead exposure and absorption. There are no other data with which comparisons can be made.

I trust that we shall have carried out our observations for a long enough time, and I believe we shall have done so. However, no one could be sure that such is the case, for, as I have said above, there is no precedent.

But so much for these matters. We shall have to wait and see. We shall have to rely upon our own data for the statistical comparisons, but I anticipate that the additional data obtained by Dr. Gerlach's analytical laboratory will be useful.

I am also sending you copies of a brief report of our work of years ago

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on the alkyls in which we - and you - are interested. We have restudied these experimental findings and have drawn such conclusions from them as seem justified. As is the case generally, the information as to the lethal conditions lacks relevance, to some considerable extent, to the problem of prolonged exposure. Other copies of this report are available as desired, and if you wish to give them a wider distribution among your own people, let me know. I am supplying Mr. Sabina with copies for their group, and I'm sending other copies to the representatives of Ethyl Corporation.

I'll be glad to have any comments or questions which arise in connection with either of the reports.

Cordially yours,

RAK:SS

Robert A. Kehoe, M. D.

Enclosures

P.S. In response to your authorization of additional expenditures for further analytical services in connection with this survey, I am afraid this is not feasible. Our analytical staff works under pressure continually, and our output of such work is at its peak. The increment of samples from this survey is only a small proportion of our regular load, and while these samples have a high priority, we cannot put them through the mill in utter disregard of more serious problems. For example, this is the season during which the crop of cases of lead poisoning among very small children reaches its peak. These are desperately ill children - the mortality among them approximates 25 to 30 percent - they create a small stream of samples that have the first priority. We have other problems as well, that, in general, maintain a demand for some ten thousand analyses for lead in the course of a year.

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