

October 16, 1947

Mr. J. M. Campbell,
Research Division,
General Motors Corporation,
Detroit, Michigan.

Dear Mr. Campbell:

Your letter of August 12 concerning the smog situation in Los Angeles, came while I was on a vacation in Colorado. It proposed some action on our part which we had discussed in some measure with Mr. I. A. Deutch, and which we had turned down as impossible of accomplishment at the present time. Accordingly no one in the Laboratory was prepared to reply in my absence. By the time I returned home it seemed likely to me that your investigation in Los Angeles had come to an end and that the urgency of a reply had passed long since. Accordingly under the immediate pressure of other matters I allowed your letter to go unanswered. For this, I owe you an apology. Perhaps, in view of the nature of this situation, my failure to reply sooner might appear to be careless and neglectful rather than mere discourtesy. However, I should like to assure you that neither discourtesy nor neglect was intended. The fact is, that this problem has been coming at me from a number of different angles, and I do not know what to do with it. In my feeling the only way that it can be solved is by a prolonged investigation which will have as its purpose the collection of data over a rather wide area and at a number of different times. The composition of the smog requires careful analytical examination, while the meteorological conditions require simultaneous investigation over some periods of time. This, in my feeling, is not a job which can be carried on at a distance. In order not to be extravagantly expensive a program of sampling and analysis should be carried on in conjunction with other work. Nothing could be accomplished so far as I can see in a few days or a few weeks.

Prior to the war we began a program of investigation on a moderate scale in Cincinnati where this same problem exists in slightly different form. We made certain observations, and then with the outbreak of the war it was necessary to discontinue it. We resumed the work again at the end of the war and now we are carrying on an investigation, which, I hope, will elucidate certain of the features of the situation with which Cincinnati is presented. Unfortunately we do not have the meteorological information, nor have we applied methods comparable to those used in Los Angeles, as described to me by Mr. Deutch. I am very much interested in the whole subject of the pollution of the atmosphere of modern communities. This is a country-wide problem. A few points of difference in the City of Los Angeles have brought one or two matters to the attention of the public and have made for immediate difficulties. This, however, is a mere incident in a much larger situation. Eventually we shall be compelled to understand in detail what is happening to the atmosphere

Mr. J. M. Campbell - (2) - October 16, 1947

surrounding our cities. There is, without any question whatsoever, a necessity to institute measures for the control of industrial wastes thrown into the air just as we are having to take measures against the pollution of streams. In our present civilization, with its highly complicated community life these things are completely inevitable, and unless we learn more about the problem the eventual cost to us will be enormous. Just where the automobile will come into this picture is not predictable. However, there is evidence which suggests that we are very close to the threshold of danger with respect to the accumulation of carbon monoxide in city streets and certain poorly ventilated areas of automobile traffic. At present carbon monoxide would seem to be the worst offender, and therefore if control is required, it would seem to be based on the behavior of carbon monoxide. Therefore, I think you are quite right in saying that danger from carbon monoxide in the atmosphere should be recognizable, if any significant part of the problem in Los Angeles is due to exhaust gases. However, your idea that carbon monoxide poisoning should have been found, is not so good, since such poisoning in its milder forms is much too likely to be overlooked. As a matter of fact, we have carbon monoxide poisoning with us all of the time without paying much attention to it. In the colder parts of the United States, as we have observed in the course of our investigations, the garage mechanic goes home at the end of the day with a mild to severe headache due to the absorption of carbon monoxide because of the restricted ventilation of garages. Therefore, this situation in the population might well be ignored. The proof of the pudding would have to be found in a comprehensive analytical survey of the carbon monoxide concentration in the atmosphere at various times and places.

Another problem, of course, arises from the use of diesel engines and motors. The exhaust gas from these engines, which have only negligible quantities of carbon monoxide, are relatively high in vile-smelling and irritant compounds. The situation here is probably less hazardous than that of carbon monoxide, but it is certainly much more troublesome. It is also possible that certain remote hazards, not at present appreciated, exist. I refer here to the possibility, referred to by a number of observers but never proved, that certain materials in the exhaust gases of these engines are capable of producing malignant tumors of the lung as a consequence of prolonged exposure to quite low concentrations in the atmosphere. There are those who believe very firmly in the existence of such a hazard. The evidence, however, is of a very ambiguous type, and it is acceptable, at least to me. All of these considerations, however, make it rather perilous for us to go on without an increasing volume of information on what we have to face. The problem is a very difficult one, and its solution will be very costly indeed. While I am interested in it, I can see no point in tackling it on a fragmentary and momentary basis. If it is to be tackled at all, funds should be made available on a rather sizable scale, and a comprehensive investigative approach should be made. Our approach here is related to a few contaminants in which we happen to have very serious interest. Thus we shall know a great deal about the distribution of lead compounds in the atmosphere under a variety

Mr. J. M. Campbell - (3) - October 16, 1947

of conditions, and we shall also know something of the distribution of other metals, certain acid gases, and last but not least, the distribution of fluorine. These are matters of immediate consequence in relation to the public health, and they are also of interest to industries and groups of industries who are sponsoring our investigative program. We cannot lay these programs aside in order to take on a larger and much more complicated problem at such a distance as Los Angeles. On the other hand, if we were to find it possible to take some part in a comprehensive investigation, we should be glad to do so, even at considerable inconvenience and at such a considerable distance. In any case, we should be glad to discuss the matter with those who have reason to be interested. To the best of my knowledge and belief, there are a number of political factors which enter into the California situation. I now understand that Mr. Deutch has been fired and that somebody else has taken his place. As I gathered from Mr. Deutch the pressure was on him to take immediate action. This, of course, was stupid, since nobody knows what to do or can know without adequate investigation. In any case, I should not want to be involved in any such pulling and hauling, since I know full well that it would take time and patience to get the answers to any of the questions that have come up.

I think you will see from the field covered rather inadequately by my remarks, why my reply to you has been somewhat delayed. Nevertheless I am interested in this problem, and I repeat if we can do anything that is useful, we shall be happy to do so.

Very kindest personal regards,

Cordially yours,

Robert A. Kehoe, M. D.

RAK:el

KE 0004336