

The Automobile Industry in Los Angeles is faced not with one but with a variety of problems, none of which can be ignored and few of which seem readily solvable. The problems referred to, of course, all stem from the general smog problem of the area and come about by the general accusations of investigators, and others, that it is the automobile which is responsible for (1) precipitating the fog from an otherwise favorable meteorological situation and (2) contributing or furnishing the essential elements which cause (a) the real eye irritation associated with the smog and (b) the non-demonstrated but none the less at present non-answerable deleterious effect on general health and well being of inhabitants of the area and (c) plant damage or "retarded" plant growth or quality.

Since it is not the automobile per se that is indicted but rather the fuel it uses or the products of combustion of the fuel alone or in combination with other material factors, the broad problem is one for the Automobile Industry and the Petroleum Industry. Future reference to the problem will refer to this joint responsibility. It goes without saying that cooperative investigation and pooling of resources and effort is essential in any serious investigation of the problem.

As has been pointed out before, air pollution is a problem that industry will have to live with from here on and it may be obliged to devote substantial time and resources in doing its share to "control" air pollution. Before adequate control, it is necessary to have the basic fundamental knowledge on which to base control measures. It seems wise, therefore, to face the problem squarely and make such long time commitments as are necessary to obtain the basic data as well as any information of immediate value in defense of unwarranted or unsubstantiated accusations.

Removing the cause of anything, of course, eliminates the problem and so it may be in this case. The investigation of modifying or eliminating exhaust gases would be such a corrective measure and, no doubt,

work is already underway on this important aspect of the problem.

As regards contribution to the development of smog itself. It is not at all clear just how either the gasoline vapor or products of combustion contribute to the formation or persistence of smog, other than in the general sense of furnishing necessary condensation nuclei (per se, or by reactions involving ozone, oxygen, oxides of nitrogen, particulate or other matter). Further basic research is needed to further develop facts. The findings should contribute materially in appraising the physiological eye irritation problem or other alleged health problems. Therefore, any investigation of the latter problem should be coordinated with findings as to the causes of smog.

Since the eye irritation problem is one which is acute in the area and, perhaps, to a degree peculiar to the area, a thorough investigation of basic factors and physiological mechanism causing lacrimation is indicated and perhaps offers more likelihood of early solution than other aspects of the overall problem. Laboratory experimental work on animals and humans is feasible. Since there is already some evidence that the eye irritants may be transients, some on the spot subjective testing should be contemplated. Close liaison and cooperation with others presently investigating this aspect should be maintained. That any positive results forthcoming from such investigation may well be of importance in appraising other possible physiological deleterious effects has been suggested.

The physiological effects of products of combustion should be thoroughly investigated. This involves separation and identification of products formed under various operating conditions from various fuels and oils. Since the industry is best prepared to furnish the products and a physiological laboratory is best prepared to appraise their toxicity, it is recommended that such a cooperative scheme be inaugurated. This should be tied in with air analysis designed to accumulate and identify the products

in urban air. This should in turn be tied in with cancer investigation.

The objection that such a program dealing with "soup" and therefore involving many variables should not exclude it. Rather this preliminary screening should be considered as a means of defining the breadth of the problem and pointing a way to arrive at specific materials of importance for later study in a purer state. The gathering of epidemiological information both in the Los Angeles area and in a suitable control area will be necessary to form a base line of present status and indicate subsequent changes. To the extent possible, past records on older inhabitants should be investigated.

The lead problem. A survey of the lead in air in the Los Angeles area correlated with CO and possibly other materials should be a part of the program. The size distribution of the particulate matter should be compared with laboratory data on this aspect of the problem. Lead excretion of persons variously exposed might help appraise the "exposure" to exhaust and would also be of use in lead studies of this laboratory.

Plant damage. All the above findings which apply should be coordinated with persons investigating the plant damage aspect of the pollution.

It is impossible to arrive at anything like a complete or adequate program for the industries involved without an up to date appraisal of the work already done, the work being done and contemplated by others. I do not believe it will be necessary to sell the industries on the need for a program, rather it is necessary to sell them on the long time approach to a problem they would greatly like to have answers to tomorrow - providing we are convinced of the necessity of the long time approach.

The problem is bigger than Los Angeles and should be thought of as a step and a program designed ultimately to answer some of the

problems of London, Donora and the Meuse Valley. It must be cooperative in nature and any commitment made now should be flexible to include investigations into new fields as they develop.

Lester B. Roberts

3-22-1955

KE 0003018