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Mr. O. P. McComas  
Mr. J. F. Cullman, 3rd  
Mr. George Weissman  
Mr. W. H. Hatcher  
R. N. Dufnis

July 20, 1956

Some new product advantages for ventilated cigarettes have recently been discovered in this laboratory. These lead to the possibility of an aggressive counter-attack on the health charges which have been made against cigarette smoking.

You are familiar with the advantages formerly determined for ventilated cigarettes such as decreased smoke solids and nicotine, non-filter smoke flavor, longer burning, negligible increase in cost, easy draw and believability of product claims because of visible change in the paper.

The new advantages are a proved decrease in carbon monoxide and carbon dioxide plus an increase in oxygen content of the smoke, and subjectively decreased irritation by the smoke.

Decreased carbon monoxide and nicotine are related to decreased harm to the circulatory system as a result of smoking. Decreased smoke solids give the advantage of filter cigarettes in reduction of exposure to any undesired effect of smoke on lungs.

Further than this, however, decreased carbon monoxide indicates more complete combustion of the cigarette, and would be expected to result in destruction of part of any undesirable hydrocarbons which might be present in smoke, specifically polynuclear hydrocarbons. In automobile exhaust, for instance, engine settings which give minimum carbon monoxide also give minimum hydrocarbons such as benzpyrene.

Increased oxygen content, according to the Warburg theory, means less chance of depriving cells of oxygen and of starting a possible chain of events leading to the formation of a cancer cell. Carbon dioxide, although non-toxic in small amounts, is a respiratory contaminant, and its reduction in smoke is desirable.

Decreased irritation is desirable not only from the subjective viewpoint but also as a partial elimination of a potential cancer hazard. Irritation of lung cilia can decrease or eliminate the ability of cilia to remove foreign substances such as deposited smoke solids from the lung. Extreme irritation may also lead to damage to lung cells, with increased chance of successful attack by foreign substances in the lung.

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As you know, I have discussed with Dr. Paul Kotin and his associates at the USC Medical School the possibility of their determining in the laboratory by chemical and biological means whether any of the above indicated advantages of ventilated cigarettes are provable. Dr. Kotin feels that there is a good chance that these properties will be demonstrable, and has submitted a research protocol and a budget of \$30,130 for one year's work, which should be ample time for carrying out the necessary experiments. His group is capable and interested, and the funds needed are modest for this type of work.

I would not want to trust a commercial laboratory with this job, although if Kotin's results are favorable we might want a commercial laboratory to repeat the work if we should want to make use of the data in promotion or advertising.

Results of Kotin's work would presumably be published, since that is academic practice. However, the cigarettes used would be identified by a code letter only. The hazards of publication might be a statement that certain undesirable constituents and properties such as benzpyrene, toxic materials and irritants are present in cigarette smoke. Most of such information is already available in the literature, and Kotin's group has strong indication that smoke contains benzpyrene. This work was done under a TIRC grant and will presumably be published.

It would be a substantial advantage to have this work done under Kotin's direction, although he has given some indication that he may leave USC within a year.

Even if successful, it is probable that ventilated cigarettes would give only a partial reduction in undesirable properties of smoke. However, I feel that it is important to know this, so that we can progress further in the future.

It is not clear to me how we might use any technical data showing health advantages of ventilated cigarettes in advertising and promotion, but again I feel that the data should be obtained first, and the use of the data considered thereafter.

The funds required for the USC work are covered in our 1956 budget, and I propose to authorize them to proceed unless you object.

I am enclosing a copy of Dr. Kotin's letter of July 9th and his proposed research protocol.

Enc.

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