

chemical substances in them which are manufactured in the fuel cell in the same way that the exhaust from an automobile has chemical substances manufactured in the combustion chamber.

Mr. DADDARIO. Mr. MacKenzie, you mentioned that these antipollution devices for automobiles relate to new cars. We have, however, had some experience in California. How has this worked out? Has the device, which I understand costs \$50, been accepted by people? Do people recognize its worth? Has it gained wide enough acceptance so that buyers could be enticed to make this extra expenditure even for a used car or for cars already on the road?

Mr. MACKENZIE. The experience in California to date has not been as successful as the California authorities had hoped it would be with respect to the application of control devices to used cars.

The California law authorized a requirement for application of devices on used cars in accordance with standards and criteria that would be adopted by the California board authorities. Up to now, this has not been invoked except in a partial way about 2 years ago. That application involved a partial requirement for installation of pollution control devices on used automobiles specifically for the installation of so-called blowby devices intended to take care of the emission from the crankcase of an engine by recirculating this back to the intake of the engine where the emission is then burned as it goes through the engine again.

These devices are relatively inexpensive. They were estimated to cost not more than perhaps \$15 each when installed on a used car. The experience in installation with them, however, through the private automobile dealers, the garage mechanics, and others that were involved, was not very happy—initially. Apparently almost everything that was possible to go wrong did, I guess. Consequently, the requirement for installation of devices on used cars in California is not currently being applied. It is still being given consideration and I believe, under the present law in California, if devices are certified by the board that will meet the State's standards and criteria, these can then be required on a schedule that would be set up by California authorities. To date, however, this has not been done.

Mr. DADDARIO. Mr. Stern, you touch on the very serious problem of air pollution as a cause of disease and ill health. I wonder what research is being done in developing devices to clean up the air immediately prior to inhalation, including such things as masks, home devices, and others.

Mr. STERN. There is work going on in the area of development of improved respirators. This is not a charge of our Department. Respirator certification is and has been for some time a responsibility of the U.S. Bureau of Mines who set the standards for respirators. However, we have been supporting by research grant studies at Harvard of improvement in respirator design and studies that relate to the form and fit of face masks and to the ease or difficulty in using a respirator—how much effort the individual must expend in breathing through a respirator. In buildings, of course, air filters are used as part of the means of cleaning air entering the building. Here certification methods have been developed by the U.S. Bureau of Standards. We have not been involved in methods of development or testing of air filters for buildings.