to the editor

Emission control R&D

The article entitled "Clean air: An R&D gap" (SN: 3/13/71, p. 177) states that "APCO (Air Pollution Control Agency) has never been able to extract from the automobile industry figures on how much it has spent for R&D on emission controls and unconventional power sources."

The article then attributes to Dr. Louis Schoen of APCO's Office of Science and Technology "the possible assumption" that the industry is withholding the information because the amount is so small.

This is surprising, since on at least a dozen occasions General Motors has made public our estimated United States expenditures related to automotive emission control. This includes information publicized at the 1970 General Motors Annual Meeting in May, other public documents, and in a number of talks by General Motors executives.

One of the most recent examples of this disclosure is on page 27 of our 1970 Annual Report. We estimate our 1970 United States expenditures at $119 million, with a forecast of expenditures of at least $124 million in 1971. The expenditures were for the following types of activities: research, engineering, various types of inspection and testing, the capital equipment required to do this work, and the tooling and equipment needed to translate laboratory concepts into hardware.

The above expenditures are in addition to the sizable expenditures related to air and water pollution control at our plants.

We should point out that it is difficult to arrive at a precise figure regarding R&D, as our accounts are not recorded in this way. For example, there is a fine line that must be drawn between what we call engineering and what other firms call R&D. Expenditures in the above areas are so interwoven with our regular engineering and research efforts that the figures can never be exact. However, GM has surveyed its expenses to the best of its ability.

Another point in the article requires clarification. The article states that ". . . the automobile industry has complained that the 1975 deadline for the 90 percent improvement in auto emissions ordered in 1970 Amendments to the Clean Air Act is unrealistic with the current state of the art."

Unfortunately, this statement does not put the figures in proper perspective. It should first be noted that 1971 model cars already have achieved reductions of 80 percent in hydrocarbons and about 65 percent in carbon monoxide, compared to uncontrolled 1960 models. The new legislation would therefore be using the already substantially reduced levels achieved to date as a *base* for a 90 percent reduction. In other words, the new amendments call for reductions of 97 percent and 96 percent in hydrocarbons and carbon monoxide, respectively, for 1975 compared to uncontrolled 1960 cars, and reductions up to 90 percent for oxides of nitrogen for 1976 models compared to levels achieved in 1971 models. Simply speaking, the new law took goals formerly proposed by Health, Education and Welfare for 1980 and moved them ahead to 1975 and 1976, without benefit of a public hearing.

We think the above indicates that the new legislation is considerably more restrictive than one would be led to believe from reading your article.

General Motors agrees with the need for national clean air objectives. However, we have advised Federal officials that such stringent standards simply are not attainable with existing technology in the designated time frame. We believe that the new law goes too far too fast, imposing unnecessary cost burdens on the consumer with no appreciable benefits in terms of air quality.

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(See our news article on p. 280.—Ed.)

Concern about cloud seeding

In reference to your article, "The search for ways to suppress hail" (SN: 3/20/71, p. 200), and previous articles concerning cloud seeding, I am expressing the views of an average but concerned citizen.

According to these articles, some of the experiments were failures and some were only partially successful. The Great Lakes experimental objective is to spread the snow farther south. Your concern in the hail research article seems to be economical. The unknown effects of weather modification can be global and not necessarily beneficial.

Who suffers the consequences and accepts the responsibility in case of adverse effects? Do the scientists have a right to experiment with such a force? I feel that he is jeopardizing my life and that of my children. Our scientific technological experts have already created a world that is so polluted it can ill afford to add further to the insurmountable problem. The addition of silver iodide will only make the problem greater.

Man seems to be trying to dominate a force that was meant to be master. If scientists are successful in controlling the elements, where will his next playground be, the sun or the tidal waves? It would benefit all mankind if they would apply their curiosity and knowledge and undo the damage, if it is not already too late.

Mrs. R. J. Bertelli
Poland, Ohio

Space spin-offs

The March 20 SCIENCE NEWS (p. 192) has a letter by a Dr. K. Papadopoulos which requires rebuttal.

I find it hard to believe that anyone, much less someone with a Dr. before his name, has such a limited access to information that he could state, "Certainly, space research has helped to put better color TV's into the hands of a tiny minority of the earth's population. . . ."

Hundreds of space spin-offs have but limited everyday use only because people refuse to open their minds and make use of new technology. And until people change their attitudes and acknowledge that there are spin-offs for the people—rich and poor alike—there will be little money forthcoming for administrators to obtain the hardware derived from Space Age research.

Elmer C. Carlson
Cocoa, Fla.

Hardly British

It was very flattering to notice your excellent summary of my work on alcoholism (SN: 3/13/71, p. 182). There is, however, one point which might confuse your readers: While BEHAVIOR THERAPY is indeed an international journal, it is far from being a British journal. It is published and printed in the United States and edited from Rutger's University by Dr. Cyril M. Franks. Your readers might be interested in subscribing to this journal, which is available in this country, by simply addressing a postcard to Dr. Franks at Rutger's University. This is one of the few journals with an extremely short publication lag, which keeps the material presented within its pages from that degree of staleness which some other journals unfortunately convey.

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