Letters

Educating the Public

Sherburne's criticism of the meager allotment in the National Science Foundation budget to the furtherance of public understanding of science (Editorial, 23 July, p. 381) touches on a general condition that applies to private as well as government agencies. The need for widespread scientific literacy has become a national maxim and is dutifully reiterated at scientific conferences every year. Despite this recognition, public-information projects are hard put to find support. Funds are available to "confer on the need for" or to "discuss the possibilities of" bringing scientific information to the public. With the notable exception of the Alfred P. Sloan Foundation, there is scarcely an agency which will support the *execution* of such programs. . . . Happily, growing numbers of scientists acknowledge an obligation to devote a portion of their time to responding to this public need. But they need the support and encouragement of government and private organizations, nationally and locally.

It may be that the granting agencies harbor doubts about the possibility of presenting complex information in understandable terms to laymen. The 7-year experience of the 21 local science-information committees associated with Scientists' Institute for Public Information should allay these fears. In giving thousands of lectures to diverse lay groups, we have found that ordinary citizens quickly grasp information on subjects that closely touch their lives. In the New York committee, which has given more than 2000 lectures on air pollution, radiation, race, automation, and population control, we found that (i) we consistently underestimated the level of comprehension in our audiences and consequently had to revise our lectures; (ii) we could make our audiences accept that we had come to offer information and not our social views, and thus we could resist temptations and pressures to offer private opinions; and (iii) our own perspective on these problems was broadened by face-to-face contacts with the public.

These volunteer efforts, however effective, are no more than demonstrations of what scientists can do, given the proper encouragement. There is need for many more programs and continuing experimentation with communication techniques to establish a lasting liaison between the scientist and the citizen. Increasing the NSF budget would be of aid to ongoing programs and would foster the formation of new ones. Perhaps its most important contribution would be to stimulate local agencies to support community projects, which is where the public understanding of science must be effected.

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. . . Our present methods for reaching the public with science information suffer from what might be called centripetal reinforcement. There is some fine science writing in the newspapers; and it is read by those already interested in science. A great deal of time, planning, and money is put into science seminars; and they are attended by those who are already convinced it's important to go. As far as ETV science programs are concerned, I reluctantly suggest that educational television reaches everyone except those who need education.

When it comes to reaching the tens of millions of people who are not responding to our present efforts—whose knowledge of science is restricted to Ben Casey and Cape Kennedy—network television is the only answer. And for this to succeed we must begin by thinking in terms of what the public *will* watch, not what it *should* watch. Let me begin by suggesting three rules: (i) The word *science* should never appear in the title of any science TV program. (ii) A science TV program should never begin with science. (iii) The appearance of scientists on science TV programs should be kept to an absolute minimum. . . .

Because those who are interested in reaching the public with science information are themselves interested in science, it is difficult for them to imagine the attitudes and interest levels of those who are not. We depend on eviscerated versions of programs developed by and for the scientific community instead of designing them specifically to fit the characteristics of the desired audience. One of the major problems to overcome is the assumption that scientists and the public understanding of science constitute some sort of awesome and inviolate union.

Let me give a specific example of the type of TV science program that I think ought to be tried. Consider this hypothetical listing in TV program guides all over the United States: "The Beverly Hillbillies Visit Brookhaven." You may think I'm pulling your leg, but I'm not. Give me a good commercial TV writer and a physicist-consultant with imagination and a sense of humor, and I'll teach ten million Americans more about the fundamentals of high-energy physics in half an hour than science writers and seminars can get across in the next 50 years. Give me a program called "The Man from UNCLE and the Universe," and I'll do the same thing for astronomy. These programs would undoubtedly generate a howl of anguish from the scientific community. But are we concerned with making scientists happy, or are we interested in reaching the public? . . .

The notion that NSF would consider putting up the money for such a project must be assigned to the realm of fantasy-fiction. So I offer a second and possibly more palatable suggestion: in two words, Walt Disney. . . .

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Reprint-Request Format

. . . Of course it is desirable that a letter accompany a request for a reprint but perhaps a postal card is permissible in the interest of time-saving. In spite of this time-saving device, we all agree that the time expended for mailing reprints is well-

nigh prohibitive. Moreover, deciphering illegible signatures adds to the agony. In order to alleviate some of the inconvenience and to add a touch of courtesy, I propose the following format:

Dear_____

I would very much appreciate a copy of your article entitled_____

_____

_____

which appeared in _____

_____

Thank you for this courtesy.
Yours sincerely,

Cut and use stub for address

Department of Biochemistry
University of Atlantis
Shangrila, Alaska, USA

The requester is expected to print his name legibly on the return address stub in addition to signing his name above the stub. The stub can be cut off and pasted on an envelope containing a reprint. The stub should be kept small for ease in cutting and pasting; the postal card is therefore printed vertically. For the sake of stamp collectors, the stub should be at the opposite end from the stamp.

This idea is not new. D. Hammer of the Max-Planck-Institut für Immunbiologie (and probably others also) has been using a similar but more elaborate card, from which the stub can be readily detached along perforations. I advocate a wider use of his thoughtful format.

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Windshield-Washing Hazard?

I have recently returned from a vacation in western United States during which I traveled several thousand miles by car. Two or three times each day, depending upon how frequently I stopped at gas stations, my windshield was carefully washed of the hundreds or thousands of splattered remains of the-Lord-knows-how-many different insect species. In most cases the attendant had some sort of container of water into which he plunged a cloth or one of those rough-surfaced bug-removal sponges, sometimes immersing his arm to the elbow in the dirty, debris-laden water. . . . Having viewed this procedure for the past several summers, I have begun to wonder whether some of those splattered winged creatures have carried viruses, bacteria, or other microorganisms which are, or could be, pathogenic to man. One might argue that the high speeds of the car, and sunlight beating on the windshield, would inactivate any virus, etc., that happened to arrive there via its unfortunate vector. But a pathogen might well be resistant to such desiccation and heat, and moreover one might drive into a station immediately after obliterating its vector so that these physical effects would not have had time to come into play. Moreover, continual use of the same water, car after car, could easily lead to some sort of concentration of agents.

I submit that if any such danger does exist, it exists on a very large scale. How many millions of bug-encrusted windshields are washed daily, especially in the summer vacation months? Think of what must be scores of thousands of people washing windshields, hundreds (thousands?) of times daily—people who, I suggest, have many lesions on their hands and arms as a result of their activities around machinery. Are these people exposing themselves to infectious diseases through their occupation? . . . Do we know enough to dismiss this concern out of hand?

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Narrow Escape

Having almost succumbed to the siren song of mathematics, I appreciate Donald R. Weidman's letter, "Emotional perils of mathematics" (3 Sept., p. 1048). I wonder how many of the people who now proselytize for mathematics in search of the next Gauss give thought to those they catch but do not need?

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