

Budgeting Radiation Exposure

In their review of Tamplin and Gofman's *'Population Control' through Nuclear Pollution* (12 Feb., p. 559), Maurice S. Fox and James J. MacKenzie perceptively indicate the straw-man nature of a principal argument of those *enfant terrible* crusaders against nuclear power reactors. They say, "The failure of the authors to distinguish between the maximum allowed individual exposure and the average exposure that the general population could be expected to receive results in such distortion as to damage their credibility." That Tamplin and Gofman must know this difference, but seem to choose to ignore it in order to make their case, also raises some questions about their responsibility when speaking as scientists in public.

Although I agree with Fox and MacKenzie that we need participation by a well-informed public in the setting of environmental standards, it seems to me that they have set up their own straw man to support an inference that the present radiation standards are inadequate. They say:

In view of our limited ability to assess all the consequences of technological innovation we would be wise to exercise greater caution than has been so far manifested in setting environmental standards. Failure to do so in the case of radiation standards would be singularly irresponsible, since there is little doubt that exposure limits in the United States could be substantially reduced without forcing people to live by candlelight in caves.

On one hand this seems a call for perfect knowledge, which I suggest avails nowhere in the real world in which we have to live, to act, and to make choices. On the other hand it seems to be a call for double-locking the environmental barn door against radiation, because we have to date heedlessly left it open to the despoliations of established technologies.

In my judgment the current radiation limits, 500 millirems a year to the individual and 170 millirems a year average to the general population, are based on a greater body of scientific information and incorporate more conservative assumptions to account for the residual unknowns than do the environmental standards for any other toxic agent. However, much needless popular apprehension about possible

radiation exposures has been propagated because there has been no specific budget, within the 170 millirems, for exposures related to routine emissions from nuclear power reactors. The International Commission on Radiological Protection [ICRP Publication 6 (Pergamon, New York, 1964), p. 31] has suggested a 30-year limit of 2.0 rem for the direct exposure of the public at large from all nuclear energy programs. Allowing for exposures from other programs and for contingencies, it seems to me reasonable to allocate one-quarter of this, or 17 millirems per year, to exposures related to power plant emissions per se.

I would hope that such an allocation might diminish the current pressures for increasingly restrictive standards and for "zero-release" reactors. The crusade for absolute radiation safety regardless of cost, in an otherwise far from safe environment, seems to me both foolhardy and irresponsible.

ANDREW P. HULL

*Suffolk Scientists for Cleaner
Power and Safer Environment,
Post Office Box 413,
Upton, New York 11973*

Better Way to Go?

Although the automobile may be "the best mass transportation system for Los Angeles" (Letters, 26 March), it is in many ways the worst transportation system for genuine cities such as New York. In Manhattan, the ratio of private automobiles to people is one to eight compared to the national average of one to two. Gothamites view the automobile as follows: it generates over 70 percent (by weight) of our air pollution; creates unwanted noise; smells up our streets; clogs our traffic and kills our pedestrians. In short, it is an unnecessary, pestilential nuisance.

When I mention the fact that I do not own a car to younger people from outside New York, they usually assume that I am either too poor or that I have had my license lifted for reckless driving. But by choice I and most of my relatively prosperous friends in Manhattan use public transportation. If we must go to the hinterlands, we sometimes rent cars.

The same factors that killed the

Chicago stockyards will inevitably diminish the use of automobiles in this country: a combination of increasing urbanization, economics, and the realization that there is a better way to go.

CYRUS ADLER

*Offshore/Sea Development Corporation,
99 Nassau Street, New York 10038*

The Good Fight

Boffey's lively account of the recent science writers seminar (5 Mar., p. 874) could be read as attributing to the panelists some criticism of the role played by DuBridge in the first year of the Nixon Administration. Not so. I recall no criticism of him by any of the "statesmen and politicians of science" present. My own verdict on DuBridge is straightforward: he fought the good fight.

WILLIAM D. CAREY

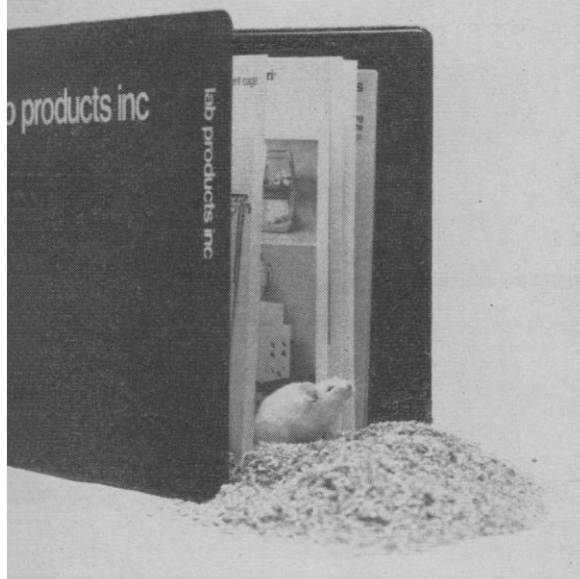
*Arthur D. Little, Inc.,
1735 Eye Street, NW,
Washington, D.C. 20006*

Science Lobbies

The recent article by Philip Handler ("The federal government and the scientific community," 15 Jan., p. 144) should, in my opinion, be read by all basic scientists. The problems he raises are extremely acute and must be faced by scientists and especially their societies. At a time of peak economic productivity, arising to a considerable extent from the past scientific and technological developments, the support for basic research is being reduced, and the voices of the critics of research are increasing and becoming dominant in policy decisions at the national level. A recent letter by Longo and Power (29 Jan.) has some additional excellent comments.

Handler points out that both political parties have expressed strong commitments to scientific research but that the American people and our political representatives can supply the funds required only if they are adequately informed. "The scientific community . . . must learn to be its own advocate and must find opportunity to make its own case." Until recently, much of this advocacy of medical research came from Lister Hill, John E. Fogarty, and James A. Shannon, to our detriment now removed from influential roles. They

free
care package
for your
small lab animal



We're talking about laboratory animal care, our new catalog and your coming needs. In our new free "care package", you can find descriptions and prices for a complete line of cages, bedding and accessories.

Lab Products is a new company, but our people are experienced in small animal care equipment, and we think you'll appreciate what you'll find inside our new catalog. For your copy, all we ask is that you make a request by letterhead, or a phone call. Write or call Lab Products, Inc., 635 Midland Avenue, Garfield, N.J., 07026, Phone: (201) 478-2535.

lab products
inc

must be replaced by active participation on a permanent basis by scientific organizations supported by their members.

This lack of participation by many important scientific organizations has arisen from the beliefs of many individual scientists that politics are "dirty," and "pure" science needs no defense. Many scientists also have no understanding of the vital role of organized groups ("lobbies") in the American political processes. They do not realize that special interest groups are a fundamental aspect of political decisions. From the information, often provided by such groups, Congress and governmental officials make the final decisions. The system fails when important groups do not present their viewpoints and point out fallacies, omissions, and consequences of proposals by other groups.

Some of the opposition to active participation by scientists arises from the implicit acceptance of the mouse trap concept: the world will find its way to the door of the person with the best mousetrap! In scientific relations this belief becomes, "If I do good work, it will be automatically accepted and supported." Unfortunately, this concept has no relation to sound and political realities.

Numerous attacks have appeared on medical research which has been described as a distraction and impediment for good medical teaching and health care. Yet, a very excellent basis exists to show that federal support for medical research has greatly improved teaching and medical care in the past two decades despite some minor abuses. Handler points out some of these benefits, but the scientific community must continually and extensively answer such criticisms on a regular basis. With only one side presented, how can congressmen make rational decisions?

The subject is too extensive to present adequately here, but one more example can be cited. The adviser to the President on scientific affairs, Edward David, Jr., in a letter to the *New York Times* (16 Dec. 1970) and in later news releases stated that the present administration has treated science better than previous ones. His facts may be basically correct, but they neglect the situation that the fields of support are being drastically shifted. Large bodies of scientists and engineers cannot be moved from one specialty to another except over long periods of time and with great losses of time and money. Highly trained molecular biologists, for



New Nalgene Tanks in linear polyethylene and translucent polypropylene . . . more rigid, higher temperature limits; hard, smooth finish and exceptional chemical resistance. Never before available for laboratory use. Cylindrical or rectangular models from 3 to 55 gallons. Also, heavy duty polyethylene tanks, cylindrical or rectangular, from 3 to 500 gallons.

Laboratory uses include marine biology, fermentation, constant temperature baths, aquaria. Also for storing distilled water or specimens, soaking and cleaning labware—and any storage or holding application.



Order from your Lab Supply Dealer. Ask for our Catalog or write Dept. 4105, Nalgene Labware Division, Rochester, N.Y. 14602.

Circle No. 74 on Readers' Service Card

example, cannot be transferred to work on environmental control or improvements in mass transportation despite the ease with which an item in a budget can be transferred from one category to another. On these bases alone, I believe that it can be shown that through inflation and the transfer of funds from the established basic science fields, the future for science has even more dismal prospects.

My suggestion, certainly not a new one, is that the major scientific societies be encouraged to establish committees on public relations. These committees should have as their functions: (i) close liaison with congressional committees and executive departments; (ii) establishment of arrangements for qualified persons to testify at hearings before congressional committees and the Office of the Science Adviser to the President; (iii) arrangements to answer unjustified attacks on science; (iv) the assembly and dissemination of information as to the current status of science in the various fields and the possibilities of immediate applications; and (v) the organization of many local subcommittees.

The last function is the most radical proposal but would greatly expand the effects of national committees. Such committees could provide the national committees with information about local effects of legislation and the executive measures. More importantly, as official bodies, their contacts with individual congressmen and local officials would be greatly more effective than action by individuals, and their press releases would be accepted much more readily.

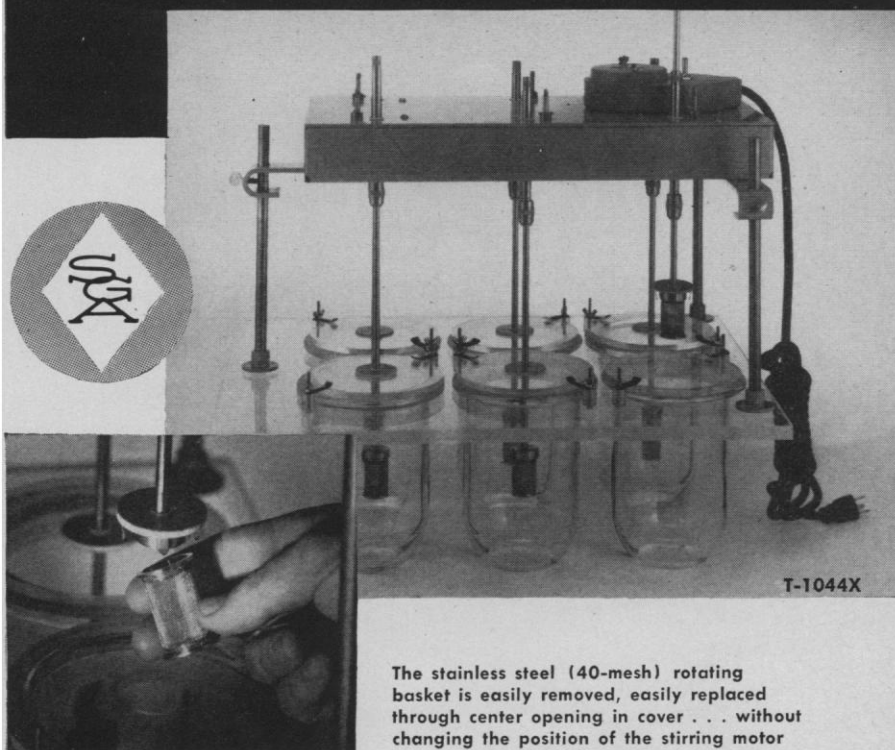
A number of scientific societies are carrying out some of these functions, but their actions need active encouragement by their membership and expansion. The possibilities of science for the improvement of mankind, and the needs of a healthy scientific effort must be emphasized. No single "voice for science" can exist but a host of "voices" at national and local levels from all scientific organizations are needed to represent the diverse needs, opinions, and possibilities of the various branches of basic and applied science. Only through such efforts on a wide scale can the call for assistance by Philip Handler be answered adequately by the scientific community.

WARD PIGMAN

Department of Biochemistry,
New York Medical College,
New York 10029

28 MAY 1971

MEETS NF XIII and USP XVIII SPECIFICATIONS



The stainless steel (40-mesh) rotating basket is easily removed, easily replaced through center opening in cover . . . without changing the position of the stirring motor

"SGA" MULTIPLE-SPINDLE DISSOLUTION TESTER ... for tablets and capsules

Testing to see how quickly a drug in tablet or capsule form disintegrates is easily carried out in this apparatus—designed to run from one to six tests *simultaneously*. The standard model has a fixed-speed stirring motor of 50, 100 or 150 rpm, providing exact speed control within 1% of the selected rpm. The research model has a variable speed motor of 25 to 250 rpm, giving exact speed control within $\pm 5\%$.

The motor and six hollow spindles are mounted on three stainless steel rods attached to an acrylic base 20"x15" which will fit most standard water baths. Included are six acrylic covers with clamps to hold the resin reaction flasks in place. Small openings in each cover allow the sample to be pumped out, or the system purged or cleaned, without removing the vessel from the water bath. Six individual clutches allow any spindle to be stopped without disturbing the others. *Ask us for details.*

T-1044X	Standard Model complete with 100 rpm fixed-speed motor, for 115 volts, 60 Hz. Price	\$733.84
T-1044-20X	Research Model with variable speed motor and indicating tachometer. Price	858.84



SCIENTIFIC
GLASS
APPARATUS
CO. INC.
BLOOMFIELD, NEW JERSEY

LABORATORY...
♦ APPARATUS
♦ INSTRUMENTS
♦ CHEMICALS
♦ GLASSWARE

Branches: Boston Mass. Danbury Conn. Elk Grove Village Ill. Fullerton Calif. Philadelphia Penna. Silver Spring Md. Syracuse N.Y.

Circle No. 31 on Readers' Service Card