Laboratory Decontamination

I read with great interest the article "Prudent practices for disposal of chemicals from laboratories" by Robert M. Joyce (4 May, p. 449). I fully agree that the first step in reducing the problems of disposal is sound planning of every experiment, including minimizing the amount of chemicals ordered to conform with the quantities required. I also agree that the second step is planning of laboratory destruction of the wastes. The problem of disposal is especially acute in the field of cancer research. At the International Agency for Research on Cancer (IARC), we are acutely aware of this and organized a meeting of experts in 1978, at which the participants reached the same conclusions (*1*).

On the recommendation of this group, to conduct "research into methods for the destruction and disposal of chemical carcinogens," the IARC in 1979 initiated, with the support of the Office of Safety of the National Institutes of Health of the United States, a project to test published methods and to elaborate methods for those compounds for which no published method was available (*2*).

The following criteria were established for a method to be considered acceptable.

1) A degradation technique should lead to disappearance of the carcinogen, as analyzed by conventional analytical techniques.

2) The products of degradation should have no adverse biological effect. Although it was recognized that long-term animal experiments are the ideal method for testing such effects, short-term testing using the Ames *Salmonella typhimurium* mutagenicity assay was selected in order not to impede research.

3) The method should be reproducible and applicable in all laboratories. It was decided, therefore, to organize collaborative studies for the validation of all the proposed methods. The groups taking part in these collaborative studies were convened in small meetings with the task of discarding or amending, as required, all the methods they had tested and ranking them with respect to ease of utilization, danger of the reagents used, efficiency, and manpower involved.

So far, seven classes of chemical carcinogens have been investigated, and five volumes have been published on, respectively, aflatoxins, nitrosamines, polycyclic aromatic hydrocarbons, hydrazines, and nitrosamides (*3*); two volumes, on haloethers and aromatic amines, are in press.

Pooling efforts in this field will help solve the problem of waste disposal in small-scale laboratory investigations, as well as the acute problem of the treatment of spills, which has also been looked into in these publications. These monographs can be obtained through the Oxford University Press in New York or Oxford, United Kingdom.

M. CASTEGNARO
Unit of Environmental Carcinogens and Host Factors, International Agency for Research on Cancer, 150 Cours Albert-Thomas, 69372 Lyon Cédex 08, France

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2. E. A. Walker and M. Castegnaro, *Nature (London)* **284**, 210 (1980).
3. M. Castegnaro *et al.*, Eds., *Laboratory Decontamination and Destruction of Aflatoxins B_1, B_2, G_1, G_2 in Laboratory Wastes* (Scientific Publ. 37, International Agency for Research on Cancer, Lyon, France, 1980); *Laboratory Decontamination and Destruction of Carcinogens in Laboratory Wastes: Some* N-*Nitrosamines* (Scientific Publ. 43, International Agency for Research on Cancer, Lyon, France, 1982); *Laboratory Decontamination and Destruction of Carcinogens in Laboratory Wastes: Some Polycyclic Aromatic Hydrocarbons* (Scientific Publ. 49, International Agency for Research on Cancer, Lyon, France, 1983); *Laboratory Decontamination and Destruction of Carcinogens in Laboratory Wastes: Some Hydrazines* (Scientific Publ. 54, International Agency for Research on Cancer, Lyon, France, 1983); *Laboratory Decontamination and Destruction of Carcinogens in Laboratory Wastes: Some* N-*Nitrosamides* (Scientific Publ. 55, International Agency for Research on Cancer, Lyon, France, 1983).

Science and Technology Awareness Month

During the past 3 years I have been director of the Office of Energy Research, I have testified before several congressional committees on various aspects of some of the Department of Energy's (DOE's) science and technology programs. A recurrent theme of the questions asked by the members of these committees has been, "What are we getting for our money by supporting basic research?" In reply, I have used what I now call the "standard argument." I usually cite some of the federally supported basic and applied research conducted 10 or 20 years ago. I then point out how many of our present goods, services, products, health care benefits, and so forth can be traced to that support. For DOE it is an impressive list that includes nuclear power, nuclear medicine, and radiation processing. It is clear that some substantial portion of our gross national product comes from this kind of activity. Unfortunately, this ex-