dards of the Occupational Safety and Health Administration entail lifetime cancer risks as high as 1 percent to 2 percent (10^{-2}), which is completely out of balance with the attempts to control environmental exposure to lifetime risk levels of 10^{-6}. Regardless of the acceptability of this particular approach, the main point is that we need something like it.

I think the federal regulatory agencies under the aegis of the Office of Science and Technology Policy will have great difficulty in effectively formulating an overall cancer regulatory policy because they represent only one of the many groups that are involved with cancer regulation. I suggest that Congress commission the National Academy of Sciences to develop a comprehensive and unified program for the regulation of carcinogens of all types and by all modes of exposure: food, water, air, drugs and cosmetics, consumer goods, and so forth. The Academy is the only body with sufficient stature and detachment to carry out the task; the effort should include the participation of all the concerned parties: academia, labor, industry, the environmental groups, regulatory agencies, and so forth. The program should deal with all aspects of regulation, including risk assessment and the mechanisms required to separate scientific evaluations from the regulatory decision process. This program could be translated by Congress into appropriate legislation that would override all other legislation in the area of carcinogen regulation.

If we cannot achieve a unified and comprehensive system that reflects a reasonable balance among the various views about carcinogen regulation, the whole regulatory enterprise will continue to be bogged down in endless polemics and legal warfare.

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In evaluating government regulatory policies, it is often difficult to separate scientific judgments from policy decisions. Marshall's article addresses several good examples. A congressional staff investigation of the pesticide regulatory program in the Environmental Protection Agency (EPA), under way since last June, analyzed the scientific basis for several recent regulatory actions taken by the EPA in an effort to sort out legitimate scientific refinements in regulatory decision-making from changes in policy. The investigation's findings, conclusions, and recommendations are contained in a staff report presented in December 1982 to the members of the department operations, research, and foreign agriculture subcommittee of the House Committee on Agriculture ("Regulatory procedures and public health issues in the EPA's Office of Pesticide Programs").

Chapter 6 of the report focuses on regulation of pesticides shown to produce cancer in laboratory animals. An in-depth review of several case studies, along with dozens of interviews with staff scientists responsible for analyzing available data on pesticide oncogenicity, led subcommittee staff to conclude that significant changes had indeed been incorporated in the way the EPA balances and juxtaposes experimental evidence under the aegis of "weight-of-evidence" decision-making. The unstated, but observable, changes from past risk assessment policies and procedures described in the report are comparable to those discussed by Marshall—that is, less concern for oncogenic pesticides thought to be nongenotoxic, markedly higher levels of tolerable risks, and greater skepticism in evaluating whether toxic effects observed in animal experiments pose sufficient hazard to man to warrant consideration of restrictive regulatory actions in light of the benefits from use of the pesticide.

Officials of the EPA have disputed the notion that cancer policy has changed in the pesticide program. In a letter dated 22 December 1982 to subcommittee chairman George E. Brown (D–Calif.), Assistant Administrator for Pesticides and Toxic Substances John Todhunter argued that recent decisions are a logical extension of policies established in past pesticide regulatory decisions involving suspect carcinogens. Independent scientists contacted by the subcommittee are currently evaluating these issues and will be called upon to help the subcommittee determine the advisability of alternative risk assessment procedures. Because of his desire to widen the debate on generic cancer policy issues to include the expertise of scientists outside the regulatory community, Chairman Brown plans to hold hearing focusing on the cancer policy issues addressed in the report early in the new session of Congress.

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Fluidized Bed Technologies

Hans Landsberg's article "Relaxed energy outlook masks continuing uncertainties" (3 Dec., p. 973) provides the incidental information that "fluidized bed technologies" are an example of "nonpolluting ways of coal combustion." This is simply not true.

There are some indications that low levels of pollutant emissions with fluidized bed combustion may be achieved at somewhat lower cost than competing technologies. Even this remains to be proved in commercial applications.

Although no method of coal combustion can be considered nonpolluting, emissions of significant pollutants can be reduced to acceptable levels by installing expensive control equipment.

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Shapiro is correct in saying that the description of fluidized bed technologies as "nonpolluting ways of coal combustion" overstates the performance of fluid beds with respect to reduction in air pollutant emissions. His statement that fluidized beds can be operated with lower pollutant emissions than other competing technologies is a more accurate description of the present state of the technology. Fluidized beds do have lower nitrogen oxide emissions and can be operated so that sulfur oxide emissions can be greatly reduced. Particulate control should also be less costly than for conventional pulverized coal boilers.

To date fluidized beds have received only limited application and then only in relatively small installations. The comparative economics of combustion of coal in fluidized beds and in conventional large boilers, both meeting air pollution emission standards, is yet to be demonstrated. I appreciate Shapiro's calling attention to these facts.

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Erratum: In the article "Breast-feeding patterns in low-income countries" by B. M. Popkin *et al.* (10 Dec., p. 1088), Table 2 was printed incorrectly. The data for "Peru, 1978" and "Guyana, 1975" should have been listed under "*Latin America*." The data for "Nepal, 1976" and "Bangladesh, 1976" should have been listed under "*Asia and the Pacific*." The data for "Lesotho, 1977" should have been listed under "*Africa and the Near East*."

Erratum: In the report "Taste flashes: Reaction times, intensity, and quality" by S. T. Kelling and B. P. Halpern (28 Jan., p. 412), an error appeared in Table 2 on page 413. The magnitude estimate for the 1000-millisecond sodium saccharin pulse obtained during the last 100 milliseconds of the pulse duration was 16 ± 1.4, not 1.6 ± 1.4.