LETTERS

Air Pollution: EPA Standard

An article entitled "EPA smog standard attacked by industry, science advisers" appeared in the 1 December 1978 issue of *Science* (News and Comment, p. 949). In that article, author Eliot Marshall, discusses the previous Environmental Protection Agency (EPA) photochemical oxidant standard of 0.08 part per million, the proposed EPA standard of 0.1 ppm ozone, and the scientific basis for these. Marshall implies that American industrial interests pressured EPA into relaxing the standard against the advice of EPA's Science Advisory Board. Unfortunately, the article is both confusing and misleading and appears to reflect a serious misunderstanding concerning the standard-setting process employed by EPA and the rationale underlying the proposed revision in the oxidant standard.

EPA's standard-setting process typically includes the following three distinct steps: (i) preparation of a criteria document representing a critical assessment of the scientific literature concerning the effects of a given agent on human health and welfare; (ii) preparation of other documents estimating the magnitude or extent of risk associated with varying exposure levels for the agent and detailing one or more rationales underlying different standard-setting options; and (iii) consideration by the Administrator of EPA of the different options before recommendation of a standard.

It is very important to note that, at each step of the above sequence, consultation and advice are sought from other government agencies and the academic community, as well as the general public and environmental and industrial interest groups. This includes aid in (i) preparation of the pertinent documents; and (ii) public external review of the documents and the proposed standard that they support. Comment on the initial document in the sequence, that is, the criteria document, has thus far been the main type of input provided by EPA's Science Advisory Board.

Nowhere in Marshall's article is there any indication that he is referring to two distinct sets of documents: (i) a criteria document entitled "Air quality criteria for ozone and other photochemical oxidants"; and (ii) other documents used in the development of the proposed oxidant standard. The criteria document was prepared under the supervision of EPA's Office of Research and Development and is a critical evaluation of the effects of ozone and other oxidants on human health and welfare (vegetation and materials). It should be noted that this document was not the effort of EPA scientists alone: 12 scientists from the academic community who are recognized for their research in the study of photochemical oxidants reviewed and contributed to the presentation of the scientific information in the criteria document. With the aid of these scientists from various universities, EPA prepared two preliminary drafts of the criteria document, each of which was submitted for public review and consideration by a subcommittee of EPA's Science Advisory Board.

The two preliminary drafts of the criteria document were criticized by the board as being inadequate in certain areas; apparently, Marshall is referring in his article to that criticism of the preliminary drafts. Marshall, however, does not state that, in each case, revisions of the two drafts were undertaken to incorporate changes suggested by the board before a third and final preprint version of the document was prepared and resubmitted to members of the review subcommittee; nor does Marshall indicate that the final preprint version of the document received general endorsement or statements of "no major objections remaining" by the Science Advisory Board oxidant subcommittee members contacted individually by EPA. In view of the mainly minor revisions that remained to be made in the second draft of the criteria document, contact with individual subcommittee members was made by phone or mail, as they had been dissolved as a standing committee by the parent Science Advisory Board.

The criteria document mentioned above was drawn on, in part, in the preparation of further documents discussing various standard-setting options. The latter documents consist of one entitled "Control techniques for volatile organic emissions from stationary sources" and staff papers pertaining to the form of the ozone standard, risk assessment method, secondary standard, and health panel assessment. These are all listed in the *Federal Register* of 22 June 1978, part II, to which Marshall was referred by EPA staff members.

The final standard of 0.12 ppm ozone, which was established by EPA Administrator Douglas M. Costle on 26 January, was based entirely on the scientific record discussed above. In his announcement of the standard, Administrator Costle stated that, "In establishing a health-based ambient air quality standard, the Clean Air Act requires that the standard be set at a level that protects

the public health with an adequate margin of safety. The language of the Act and its legislative history clearly indicate that consideration of cost is not germane to a determination of the level of the standard." In describing his use of the scientific record, he stated

> Our medical review of this standard has been underway for nearly two years. . . . I believe it is crucial that all air pollution standards be based on the best medical and scientific information available. The integrity of the entire environmental program depends upon standards that represent the best science available to us, and the best judgments we can make about that evidence. For those who tend to view these issues in black and white terms—for those who say never give an inch to anyone and those who say costs are more important—I reiterate my commitment to the scientific integrity of these standards.

STEPHEN J. GAGE
Office of Research and Development, Environmental Protection Agency, Washington, D.C. 20460

Although I disagree with much of Gage's statement, I wish to respond only to his central assertion that the EPA secured a "general endorsement" of its criteria document for smog from the scientific advisers after "they had been dissolved as a standing committee by the parent Science Advisory Board." I have three objections. A review body which has been dissolved by definition cannot give its approval of something. The EPA cannot document the statement that the committee voted its "general endorsement" of the work in hand. The chairman of the committee, James Whittenberger, told me he did not give his approval.—ELIOT MARSHALL

Effects of Anesthesia

In Gina Bari Kolata's article regarding tetratogens acting through males (Research News, 17 Nov. 1978, p. 733), she makes the statement, "The best evidence comes from a 1974 study of operating-room personnel exposed to anesthetic gases." She goes on to write that the wives of these men had significantly increased rates of spontaneous abortions, and their babies were more likely to have congenital defects than the offspring of unexposed men.

The American Society of Anesthesiologist's ad hoc committee report concerning occupational diseases in operating room personnel includes the finding, contrary to Kolata's statement, that the rate of spontaneous abortion among wives of anesthesiologists was lower than the rate found in a control group (wives of pediatricians) (*1*, p. 331). The committee did report a higher rate of congenital abnormalities among children of male anesthesiologists than was found in the control group (*1*, p. 332). Comments expressed in two subsequent critiques (*2*) raise questions as to the true significance of the latter finding.

LEONARD F. WALTS
Department of Anesthesiology, School of Medicine, University of California, Los Angeles 90024

References

1. Ad Hoc Committee on the Effect of Trace Anesthetics on the Health of Operating Room Personnel, *Anesthesiology* **41**, 321 (1974).
2. L. F. Walts, A. B. Forsythe, J. G. Moore, *ibid.* **42**, 608 (1975); L. L. Ferstandig, *Anesth. Analg. (Cleveland)* **57**, 328 (1978).

The conclusions reached in Gina Bari Kolata's article on behavioral teratology (Research News, 17 Nov. 1978, p. 732) are not substantiated by the data she cites. The belief of a number of social scientists that the type and dosage of obstetrical medication is not related to the requirements of an individual patient does not appear to be substantiated in fact. It is true that the obstetrical medications used in various hospitals vary and that some physicians do commonly issue standing orders for anesthesia. However, many physicians do not leave such standing orders, and those who do may increase the dosage of anesthesia as indicated in the course of labor. Thus, the women who received the highest dosage of anesthesia may well be the woman who had the most difficult labor. The behavioral deficits noted in the article may, thus, not be related to the medication but, instead, to some other factor related to the difficult delivery.

SAMUEL I. MILES
Department of Psychiatry, School of Medicine, University of California, Los Angeles 90024

Erratum: In the article "Yearly report on carcinogens could be a potent weapon in the war on cancer" (News and Comment, 9 Feb., p. 525), the second line of the second column on page 525 should read ". . . testing *for* carcinogens." The last two lines of the first column on page 526 should read ". . . *nearly 70,000* chemicals already used commercially." The sixth line of the second column on page 527 should read ". . . program in viral *oncology*. . . ."

Erratum: Articles about Fermilab by William D. Metz (News and Comment, 13 Oct. 1978, p. 195; 17 Nov. 1978, p. 725) contain references to Norman F. Ramsey as chairman of the board of trustees of Universities Research Association. The chairman of the URA board of trustees is Milton G. White of Princeton University. Ramsey is the president of the association.

Erratum: In "Chemical carcinogens: The scientific basis for regulation" (Research News, 29 Sept. 1978, p. 1200), a list of substances known to be human carcinogens was erroneously attributed to David P. Rall. The list was actually compiled by investigators at the International Agency for Research on Cancer [L. Tomatis *et al.*, *Cancer Res.* **38**, 817 (1978)].