

and used in ways that rapidly lead to insect resistance, but we do not think the fate of engineered plants can be predetermined at present.

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2. F. Gould, *Am. Sci.* **79**, 496 (1991).

As a participant in a National Audubon Society workshop on insect resistance to *Bacillus thuringiensis* (*Bt*), I came away with a significantly different view from that expressed by your reporter Ann Gibbons. As the representative of the Monsanto Company, I described our development of insect-resistant transgenic crop plants expressing *Bt* genes; I did not express a "worry" that the cotton bollworm will become resistant to *Bt* soon after we commercialize our *Bt* cotton plants. I described several of our recommended strategies for resistance management that we believe will ensure that this does not happen. I believe there was a general consensus in the workshop that (i) *Bt*-containing crop plants will have great benefits in agriculture; (ii) with proper management *Bt*-containing crops will have a long and useful life in agricultural insect control; and (iii) we are well along the way to developing resistance management programs for *Bt* crops that will work and can be implemented by farmers.

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Response: For the record, Fischhoff told me that he was "concerned" that farmers would manage Monsanto's *Bt* cotton plants properly to prevent resistance. In fact, that

was the focus of the meeting, convened by the National Audubon Society because they are "concerned that the use of delta-endotoxin products by farmers will be short-lived if insect resistance develops quickly." I also noted that "researchers have designed strategies to prevent—or at least slow down—the onset of resistance," and described several of those strategies, although there was disagreement about how effective they would be.—ANN GIBBONS

Cancer and the Environment

The otherwise excellent article by Brian E. Henderson *et al.* "Toward the primary prevention of cancer" (22 Nov., p. 1131) disregards opportunities for primary prevention of cancer in the workplace and in the general environment. They state that "[t]he widespread public perception that environmental pollution is a major cancer hazard is incorrect" and that occupational factors "are not likely to account for more than 4% of cancers in the United States. The actual percentage may be substantially lower."

These statements, while correct, show a disregard for workplace and environmental pollution that is inconsistent with the attention given by Henderson *et al.* to other primary preventable causes of cancer. Workplace-induced cancers are fully preventable. Henderson *et al.* devote much discussion to tumors such as those of the endometrium (3% of total cancer) and ovary (2% of total cancer), detailing factors such as diet and hormone use, which are smaller targets for primary prevention than are occupational cancers. Similarly, radon—even at the lower range of the estimates of exposure—while not nearly as important as tobacco, still produces more preventable lung cancer deaths than many of the carcinogens discussed by Henderson *et al.* Radon is not mentioned in the paper. Henderson *et al.* mention only diagnostic x-rays as a cause of leukemia. Yet benzene, a proven cause of human leukemia, is widely distributed in the air and water. Preventable workplace exposure to benzene still continues. The authors note that ultraviolet light (UV) is a cause of malignant melanoma, yet do not mention the role of environmental pollution in the thinning of the ozone layer. This preventable event will result in an increase in UV exposure and thus a higher incidence of all types of cancer.

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Response: We agree with Goldstein that every effort should be made to prevent cancers that are induced in the workplace. We did not mean to "disregard" the contribution of occupational exposure to cancer occurrence but, with the possible exception of asbestos-induced lung cancer, we are unaware of any particular occupational exposure that would be considered a *major* cause in the general population of any of the specific cancers that we discussed.

We agree with Goldstein that ozone depletion may have an effect on cancer incidence, not just on melanoma occurrence but also on other skin cancer. However, ozone depletion is a relatively recent phenomenon and is still mainly confined to polar regions, so any measurable increase of cancer would occur in the future (1). Even so, such an increase may be preventable through lifestyle changes aimed at avoiding severe sun exposure, particularly during childhood, which is true for all forms of skin cancer.

Radon is a known cause of human lung cancer in occupational settings, and it has been estimated that indoor radon exposure might result in as many as 16,000 lung cancer deaths annually in the United States (mainly in smokers) (2). However, numerous assumptions, regarding both exposure assessment and dose-response curves, must be made in order to derive such a conclusion, and no convincing epidemiologic study has yet been performed. This is an important issue that is being actively studied.

To our knowledge, no estimates have been made of the contribution of current ambient benzene exposure to the risk of acquiring leukemia in the general population (occupational benzene exposure is an established cause of myelogenous leukemia).

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1. T. M. Mack and B. Floderus, *Cancer Causes Control* **2**, 401 (1991).
2. A. V. Nero, *Cancer Prev.* **89**, 1 (December 1989).

Erratum: In the article "Benefits and costs of HIV testing" by D. E. Bloom and S. Glied (28 June, p. 1798), the Americans with Disabilities Act of 1990 should have been described as Public Law 101-336.

Erratum: In the Research News article "Is nitric oxide the 'retrograde messenger'?" by Marcia Barinaga (29 Nov., p. 1296), in the illustration on page 1297, the word "citrulline" should have read "citrulline".