Cancer and Environment

Cecil H. Fox's pessimistic view that "cancer *is* inevitable in most people" and that "most people will develop cancer if they live long enough" (Letters, 8 Oct., p. 108) seems unnecessarily discouraging in the light of increasing evidence that cancer is largely caused by avoidable bad habits and occupational exposures.

The open-minded cannot escape the implications in the findings of the National Institutes of Health that "The Mormons of Utah are one of a number of groups—Aleuts and Seventh-Day Adventists among them—being studied for their low cancer rates. Mormons have cancer death rates 20 percent below the U.S. average. Church doctrine prohibits smoking, alcohol, tea, coffee" (*1*).

Yes, cancer of the prostate is an "old man's disease," but age is not necessarily the only factor. To test an apparent link in southeastern South Carolina between esophageal cancer and occupational exposure to airborne particles, particularly sawdust, I was asked by the National Cancer Institute to make an occupational analysis of prostate cancer victims in the same geographical area and over the same 32-year period.

Victims of prostate cancer lived, on the average, 10 years longer than the laborers who succumbed to cancer of the esophagus, and they were mainly people with sedentary occupations. What with more on-the-feet leisure-time activity—jogging, tennis, golf, handball—and gym facilities provided by many large employers, one might predict a decline in prostate cancer. Anthropologists may agree that man was not meant to sit down.

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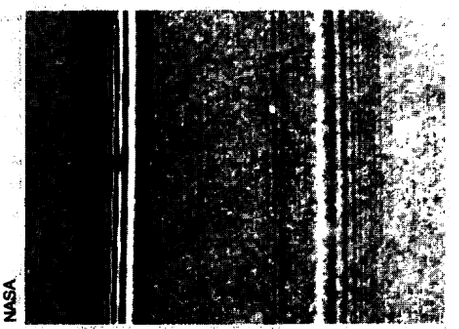
Saturn's Rings

I would like to point out a misprint in Richard A. Kerr's 8 October article on Saturn's rings (Research News, p. 141). The photograph of the Mimas 5:3 bending waves on page 142 was upside down; the bending waves were on the right, while the density waves were on the left. Bending waves are vertical warps in the disk and appear as high-contrast features due to the low elevation angle of the sun



(similar to the slopes of barren hills near sunset). Density waves do not possess vertical relief and are thus of lower contrast (corrected photo above).

I also wish to comment further on estimates of the thickness of Saturn's rings from the observed bending waves. Ring particles in orbit about the center of Saturn must cross the central ring plane twice each revolution, thus a thicker ring implies faster particle random motions. These random motions produce interparticle collisions, which act to damp bending waves propagating within the rings. Frank Shu, Jeffrey Cuzzi, and I have used the observed spatial extent of the Mimas 5:3 bending waves to estimate the local full thickness to be 60 meters (*1*). This value should not be confused with the ~ 1-kilometer warp of the ring plane due to the bending waves (*2*), which look like ripples in a flag flying on a windy day. These ripples may, however, contribute to the apparent thickness of the rings when they are viewed edge-on from Earth.

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2. F. H. Shu, J. N. Cuzzi, J. J. Lissauer, *Icarus*, in press.

Cryptography Research and Security

In "Intellectual property: The control of scientific information" (14 May, p. 704), Dorothy Nelkin paints a misleading picture. She says "The mathematicians concerned about the control of cryptography have established a system of voluntary restraint. Researchers have agreed to submit their papers to NSA [the National Security Agency] for review prior to publication, and NSA in turn has agreed that, if there are potential security problems, it will consult an advisory group before blocking publication." The true situation is quite different.

Following the proposal of the Public Cryptography Study Group (*1*), NSA invited all who study cryptology to submit papers on this subject in advance of publication to NSA for a review of their possible security implications. The invitation was published in the *Federal Register* (*2*) and was sent to various professional societies. The text in the *Federal Register* states, "In making this interim proposal, NSA recognizes that the entire prepublication review procedure is voluntary." The invitation (*3*) received by the American Mathematical Society repeats this statement.

As far as I know, no organized group of mathematicians or computer scientists has agreed to submit papers to NSA. The American Mathematical Society, an organization with thousands of foreign members, has formally adopted a neutral position (*4*). Each author must decide whether or not to seek NSA's advice on the security implications of his or her papers. In the presumably rare case that NSA requests modification or suppression of a paper, the author must decide whether or not to comply. This puts responsibility for the implications of research where it ought to be—on the researcher.

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2. *Fed. Regist.* **47**, 8704 (1981).
3. *Not. Am. Math. Soc.* **29**, 322 (1981).
4. *Ibid.*, p. 213.

Polish Scientist Not Interned

In my letter of 30 July (p. 398), I stated that A. Paszewski was among those scientists who have been interned or arrested in Poland. I was happy to learn that this is incorrect; I would like to apologize for this error.

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Erratum: The address in the letter from Richard A. Staley (24 Sept., p. 1204) was incorrectly printed. It should have read "*1221 South Buchanan Street, Arlington, Virginia 22204.*"

Erratum: In the article "Reexamination of acoustic evidence in the Kennedy assassination" by the Committee on Ballistic Acoustics, National Research Council (8 Oct., p. 127), the probability given on page 130, column 1, line 17, was incorrectly printed. It should have been "$P = .044$."