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6 April 1979
Volume 204, No. 4388

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Female northern fur seal (*Callorhinus ursinus*) nursing her newborn pup at St. Paul Island, Alaska, in July 1975. See page 87. [A. S. Blix, Institute of Arctic Biology, University of Alaska, Fairbanks]

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4. Select Committee on GRAS Evaluation of the Health Aspects of Tannic Acid as a Food Ingredient (SCOGS-48, Federation of American Societies for Experimental Biology, Washington, D.C., 1977).

Antibiotics in Feeds

Eliot Marshall (News and Comment, 23 Feb., p. 732) indirectly quotes Richard Novick and others as saying that they agreed to join the CAST (Council for Agricultural Science and Technology) task force on antibiotics in animal feeds because "we were naïve." This is scarcely true in Novick's case: while the preliminary deliberations of the task force were in progress, he published a long article in the *Journal of Commerce* (1) devoted to claims that agricultural use of antibiotics was dangerous and ineffective. James McGinnis telephoned Novick on 18 October 1977 and furnished him with information about the continued efficacy of antibiotics in the state of Washington ever since 1949. Novick subsequently wrote to the *New York Times* (2) and stated that "frequently these days little or no effect can be obtained."

Concerning the ABC news documentary on antibiotics in animal feed, American Cyanamid purchased a full page in the *New York Times* to refute it, and the head of Cyanamid, James Affleck, appeared on ABC television in rebuttal. Accuracy in Media also protested. One statement in the ABC documentary was that their reporters had seen a "whole barrel of chloramphenicol" (CM) in a feed mill in North Carolina. This turned out to be chlortetracycline. The use of CM in animal feeds is illegal; it would foster development of CM resistance in *Salmonella*.

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1. R. Novick, *J. Commer.*, 23 Sept. 1977, p. 4.
2. ———, *New York Times*, 21 Nov. 1977, p. 36.

Pert and the Lasker Award

The National Institute on Drug Abuse (NIDA) Division of Research played a significant role in the events leading up to the flurry of current questions concerning the 1978 Lasker Award for Basic Medical Research to Hughes, Kosterlitz, and Snyder (News and Comment, 26 Jan., p. 341; Letters, 2 Mar., p. 834) (1).

At the 1977 39th Annual Scientific Meeting of the Committee on Problems of Drug Dependence, the NIDA Pacesetter Research Award was given to Avram Goldstein, John Hughes, Hans Kosterlitz, Eric Simon, Solomon Snyder, and Lars Terenius for the rapid development of the concept and characterization of the structure and function of enkephalins and endorphins, the endogenous morphine-like substances produced in the central nervous system. All six of the awardees had received NIDA support for the investigations leading to these discoveries.

In retrospect, we feel that it was a significant omission on our part that Dr. Candace Pert was not included. Her graduate student role was the issue at the time; subsequent increased awareness of her major contribution has led us to this revised conclusion.

Selecting recipients for prestigious awards is a complex social process in which "scientific merit," unfortunately, is often only one of many considerations. Sometimes, serious mistakes are made. This should not detract, however, from the satisfaction we can all share at the continuing dramatic progress in the opiate receptor and peptide research area.

WILLIAM POLLIN

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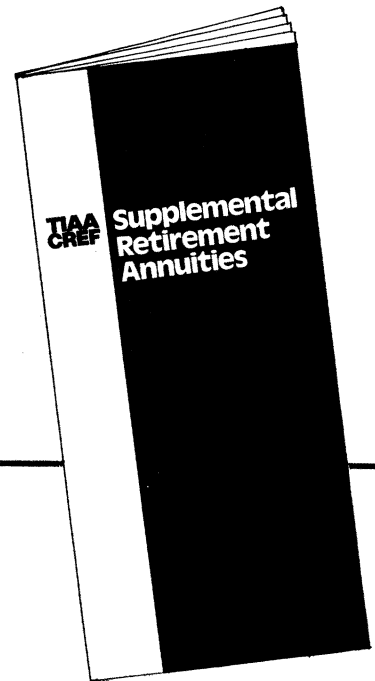
1. J. Arehart-Treichel, *Sci. News* 115, 120 (17 February 1979).

Erratum: In the reply by J. W. Holaday and B. H. Natelson to the technical comment entitled "Ultradian cortisol rhythms in monkeys: Synchronized or not synchronized?" (1 Dec. 1978, page 1001), the second sentence of the last paragraph should have read: "Tannenbaum and Martin (6) have reported a light-entrained, synchronized ultradian growth hormone rhythm in rats."

Erratum: The article "American Physical Society panel gives a long-term yes to electricity from the sun" (News and Comment, 16 Feb., p. 629) contains an error in the fourth paragraph. The first sentence in the paragraph should read: "Ehrenreich portrayed the future of solar cells as bright, calling attention to a decrease in their costs by a factor of 5 in the past 5 years and citing the prospects for further advances."

Erratum: William Beaver was erroneously identified in a recent story about Darwin (News and Comment, 2 Mar., p. 857) as a professor at George Washington University; he is actually a professor at Georgetown University.

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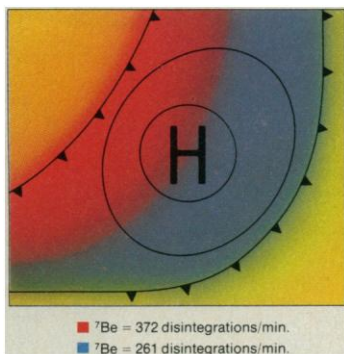
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When the Environmental Protection Agency (EPA) originally set the standard for ozone in air at 0.08 parts per million, it assumed that this major smog ingredient is formed primarily from man-made hydrocarbons and nitrogen oxides reacting in sunlight.

Since then, however, air quality studies have revealed frequent rural violations of that standard. The suspected sources of ozone are the stratosphere, drift from urban areas, and, indirectly, natural vegetation. To evaluate each source, scientists at the General Motors Research

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Laboratories analyzed air at five rural sites.

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This evidence refutes the assumption that stratospheric ozone contributes only near the leading edge of these systems, where measurements show lower ozone levels. And it thus indicates that the stratospheric contribution to ground-level ozone has been seriously underestimated.



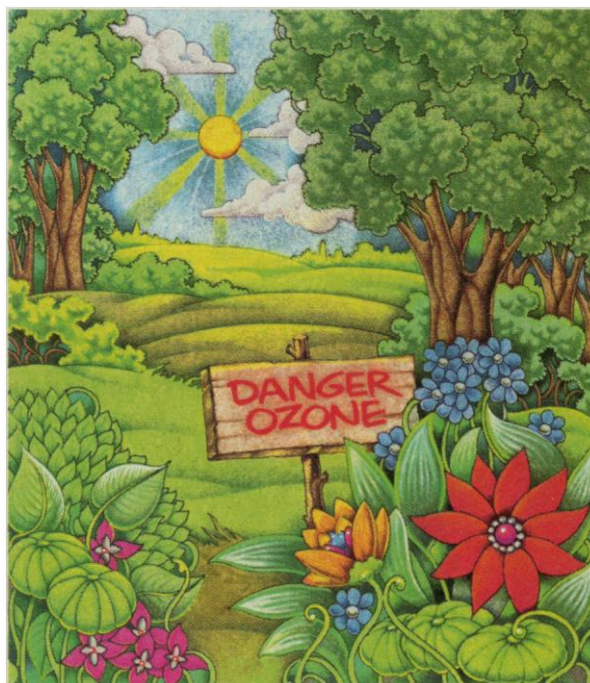
The results aren't all in. But enough has been learned to question a goal requiring cleaner air than what nature itself provides.

Recently, based on a reassessment of health effects data, the EPA raised the ozone standard to 0.12 ppm — a level still very close to the natural ozone level.

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Informed Consent May Be Hazardous to Health

Before human subjects are enrolled in experimental studies, a variety of preliminary rituals are now required. These include an explanation of the nature of the experimental procedure and a specific elaboration of possible adverse reactions. The subjects, in turn, can either withdraw from the experiment or give their "informed consent." These rituals are said to increase the subjects' understanding of the procedures but, perhaps more important, they came into existence because of a strong belief in the fundamental principle that human beings have the right to determine what will be done to their minds and bodies.

Some, on the other hand, consider that the purpose of informed consent is not protection of subjects, but rather protection of investigators and sponsoring institutions from lawsuits based on the charge of subject deception should a misadventure result. But lawsuits arise in any case; subjects simply claim that they did not understand the rituals. It is reasonable, then, to ask whether the putative beneficiary, the subject, might be harmed rather than helped by the current informed consent procedure.

A considerable body of psychological evidence indicates that humans are highly suggestible. Information has been found to change people's attitudes, to change their moods and feelings, and even to make them believe they have experienced events that never in fact occurred. This alone would lead one to suspect that adverse reactions might result from information given during an informed consent discussion.

An examination of the medical evidence demonstrates that there is also a dark side to the placebo effect. Not only can positive therapeutic effects be achieved by suggestion, but negative side effects and complications can similarly result. For example, among subjects who participated in a drug study after the usual informed consent procedure, many of those given an injection of a placebo reported physiologically unlikely symptoms such as dizziness, nausea, vomiting, and even mental depression. One subject given the placebo reported that these effects were so strong that they caused an automobile accident. Many other studies provide similar data indicating that to a variable but often scary degree, explicit suggestion of possible adverse effects causes subjects to experience these effects. Recent hypotheses that heart attack may follow coronary spasm indicate physiological mechanisms by which explicit suggestions, and the stress that may be produced by them, might prove fatal. Thus, the possible consequences of suggested symptoms range from minor annoyance to, in extreme cases, death.

If protection of the subject is the reason for obtaining informed consent, the possibility of iatrogenic harm to the subject as a direct result of the consent ritual must be considered. This clear cost must be weighed against the potential benefit of giving some people an increased sense of freedom of choice about the use of their bodies. The current legalistic devices, which are designed in part to limit subject recourse, intensify rather than solve a dilemma.

The features of informed consent procedures that do protect subjects should be retained. Experimental procedures should be reviewed by peers and public representatives. A statement to the subject describing the procedure and the general level of risk is reasonable. But detailed information should be reserved for those who request it. Specific slight risks, particularly those resulting from common procedures, should not be routinely disclosed to all subjects. And when a specific risk is disclosed, it should be discussed in the context of placebo effects in general, why they occur, and how to guard against them. A growing literature indicates that just as knowledge of possible symptoms can cause those symptoms, so can knowledge of placebo effects be used to defend against those effects. A move in this direction may ensure that a subject will not be at greater risk from self-appointed guardians than from the experiment itself.—ELIZABETH F. LOFTUS and JAMES F. FRIES, *Center for Advanced Study in the Behavioral Sciences, Stanford, California 94305*

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