# Science

### American Association for the Advancement of Science

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Publisher: Richard S. Nicholson

Editor: Daniel E. Koshland, Jr.

Deputy Editor: Ellis Rubinstein

Managing Editor: Monica M. Bradford

Deputy Editors: Philip H. Abelson (Engineering and Applied Sciences); John I. Brauman (Physical Sciences); Thomas R. Cech (Biological Sciences)

#### EDITORIAL STAFF

Senior Editors: Eleanore Butz, Martha Coleman, Barbara Jasny, Katrina L. Kelner, Phillip D. Szuromi, David F. Voss Associate Editors: R. Brooks Hanson, Pamela J. Hines, Kelly LaMarco, Linda J. Miller Letters Editor: Christine Gilbert Book Reviews: Katherine Livingston, *editor*; Teresa Fryberger Contributing Editor: Lawrence I. Grossman Chief Production Editor: Ellen E. Murphy Editing Department: Lois Schmitt, *head;* Julianne Hunt, Patricia L. Moe, Barbara P. Ordway Copy Desk: Joi S. Granger, Margaret E. Gray, MaryBeth Shartle, Beverly Shields Production Director: James Landry Production Director: Julie Cherry Graphics and Production: Holly Bishop, Catherine S. Siskos Systems Analyst: William Carter

#### **NEWS STAFF**

Managing News Editor: Colin Norman Correspondent-at-Large: Barbarà J. Culliton Deputy News Editors: John M. Benditt, Jean Marx News and Comment/Research News: Ann Gibbons, David P. Hamilton, Constance Holden, Richard A. Kerr, Eliot Marshall, Joseph Palca, Robert Pool, Leslie Roberts, M. Mitchell Waldrop European Correspondent: Jeremy Cherfas West Coast Correspondent: Marcia Barinaga Contributing Correspondents: Barry A. Cipra, Robert Crease

BUSINESS STAFF Marketing Director: Beth Rosner Circulation Director: Michael Spinella Fulfillment Manager: Marlene Zendell Business Staff Manager: Deborah Rivera-Wienhold Classified Advertising Supervisor: Amie Charlene King

ADVERTISING REPRESENTATIVES Director: Earl J. Scherago Traffic Manager: Donna Rivera Traffic Manager (Recruitment): Gwen Canter Advertising Sales Manager: Richard L. Charles Marketing Manager: Herbert L. Burklund Employment Sales Manager: Edward C. Keller Sales: New York, NY 10036: J. Kevin Henebry, 1515 Broadway (212-730-1050); Scotch Plains, NJ 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); Hoffman Estates, IL 60195: Jack Ryan, 525 W. Higgins Rd. (708-885-8675); San Jose, CA 95112: Bob Brindley, 310 S. 16th St. (408-998-4690); Dorset, VT 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581); Damascus, MD 20872: Rick Sommer, 11318 Kings Valley Dr. (301-972-9270); U.K., Europe: Nick Jones, +44(0647)52918; Telex 42513; FAX (0647) 52053.

Information for contributors appears on page XI of the 29 June 1990 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005. Telephone: 202-326-6500. Advertising correspondence should be sent to Tenth Floor, 1515 Broadway, New York, NY 10036. Telephone 212-730-1050 or WU Telex 968082 SCHERAGO, or FAX 212-382-3725. Subscription/Member Benefits Questions: 202-326-6417.

28 SEPTEMBER 1990

## The Dirty Air Act

hile Washington concerns itself with drawing lines in the sands of Araby, and deciphering the opinions of an enigmatic nominee to the Supreme Court, an argument affecting millions of people, in fact, every new arrival on this globe, is raging. The battle, over the use of cloth or disposable diapers, has clearly resulted in washing a lot of dirty linen in public.

One enormous difficulty in this debate is the lack of a clear moral advantage identified with either side. That deficiency has forced an unpleasant need to examine the facts in the case, an activity for which Americans lack experience and find to be boring. Anyone regarding this problem as frivolous, however, should be apprised of the monumental fact that some 18 billion disposable diapers are discarded annually here, and they account for an estimated 2% of all municipal solid waste.

Although cloth diapers actually account for 1/100th the amount of solid waste of disposable paper diapers, they consume a great deal more detergents and hot water, which requires energy, thereby contributing to environmental stress. If a professional diaper service is involved, then there is gasoline consumed in delivery, to say nothing of exhausts contributing to the air pollution problem. In fact, use of a diaper service appears to consume three times as much fuel and cause nine times as much air pollution as use of disposable diapers. A scientist from the Natural Resources Defense Council has pointed out, in addition, that pesticides are used in cotton fields. To add further confusion, there is little doubt that disposable diapers, being quicker and more efficient, are an enormous help for parents who work. The ability to blame corporations is difficult in this case, because corporations make not only the disposable diapers but also the trucks that provide diaper service.

A related health problem also should be mentioned. To minimize environmental pollution and incidentally provide some respite to harried parents, there is a tendency to use double diapers to increase their absorption capacity and lengthen the time between required changes. Those who have experienced such techniques know that the conspiracy to make safety pins extremely dull and cloth extremely compacted after washing means that considerable force must be exerted to get the pin to pierce the diaper. Any conscientious parent will insert a finger between the baby's tender skin and the stubborn pin, with the obvious consequence that a large number of thumbs are impaled during the hazardous business of applying a cloth diaper. Most mothers and fathers bear their wounds heroically and with great modesty, never requesting medals of honor or other civic recognition for this unselfish act. This extraordinary danger of exposure to puncture wounds is ignored by most parents with the stoicism of a fighter ace going into battle. Clearly, there is an unquestionable loss of moral fiber by the descent to a paper diaper with a snap-on grip requiring little skill and no courage.

This problem involves the great complexity of water consumption, detergent pollution, habitat destruction, pesticide use, energy consumption, exhaust emission, and waste disposal. The battle is being fought out on the basis of facts, figures, and cost-benefit analysis without the usual charges and countercharges of villainy and conspiracy. It is intriguing to contemplate the unlikely possibility that other environmental dilemmas could be approached in the same manner. One might consider the cost of converting all glass bottles to one or two types of glass so that recyclability would become easy. Adding the cost of shopping bags to grocery purchases to increase the incentive of bringing your own reusable cloth bag could also be contemplated at this level of objectivity. Zoning to aid public transportation and limits on gas guzzlers could be similarly analyzed.

Of course, there is still the possibility that the diaper problem may be elevated to yet a higher level of indignation. There are some who would rather smell ozone than a dirty diaper. When this dilemma gets to Congress in the form of a Dirty Air Act it seems inevitable that diapers will precipitate a highly partisan debate. Yet at the moment the policy controversy seems unique as a model for avoiding lofty philosophical principles and concentrating on the bottom line.—DANIEL P. KOSHLAND, JR.