

suggest oat bran has a positive effect. But the results of other studies were marginal."

There is an important lesson here, Olkin maintains: Scientific studies should be subjected to tough scrutiny, using the rigorous methods of science. More than 9,000 scientific studies of various kinds are carried out each year. Through the application of sophisticated statistical techniques, he says, what has come to be called "meta-analysis" can provide "a quantitative synthesis of data from a group of studies on a given question" and thereby yield "a conclusion based on a much larger sample than any single study." In this way, he contends, the weaknesses of individual studies often will be exposed, and patterns sometimes will appear that were invisible to the original investigators. "Virtually all studies have flaws or biases," Olkin says, "and it may well be that the only way to ascertain the truth is to search for patterns in an aggregate of studies." Call it the Oat Bran Rule.



Wellness Update: Thirty-year-old man starting on the twenty-five-thousand-pound oat-bran muffin he must consume over forty years in order to reduce significantly his risk of death from high cholesterol

America's muffin days: The health-minded among us just could not get enough oat bran to eat during the late-1980s craze.

Global Warming— Just Hot Air?

"Warming Theories Need Warning Label" by S. Fred Singer, in *The Bulletin of the Atomic Scientists* (June 1992), Educational Foundation for Nuclear Science, 6042 S. Kimbark Ave., Chicago, Ill. 60637.

A treaty to ward off catastrophic global warming by requiring nations to control emissions of carbon dioxide and other greenhouse gases was the main agreement to emerge from the "Earth Summit" in Rio de Janeiro earlier this year. The pact, however, set no deadlines for the nations to act. That toothlessness was much deplored, but it may not, in reality, have been a defeat for the global environment. University of Virginia environmental scientist S. Fred Singer points out that there is no scientific consensus that a greenhouse warming threat even exists.

The Washington-based Science and Environmental Policy Project (SEPP), a research group Singer directs, surveyed more than 120 U.S. atmospheric scientists in the summer of 1991. Of the more than 50 who responded, an over-

whelming majority (85 percent) agreed that there is no clear evidence that any greenhouse warming resulting from human activities has occurred during the past 100 years. Moreover, nearly all of the respondents doubted the adequacy of the models used to predict future changes in the global climate.

Other surveys of scientists who are actively involved in global-climate research have told a similar story. A November 1991 Gallup poll of 400 members of the American Meteorological Society and the American Geophysical Union, for example, found that only 19 percent believed that human-induced global warming has taken place during the past 100 years.

As such surveys indicate, Singer says, most climate scientists believe that while some

global warming may be occurring, "catastrophic predictions are unsupported by the scientific evidence." It will take years, perhaps a decade or more, before a definite climatic trend can be established with satellite data.

In the view of many scientists and most agricultural specialists, greenhouse warming may well be beneficial if it occurs, since crops need both warmth and carbon dioxide to flourish. Global warming would be especially welcome if, as some scientists expect, the current interglacial period, which began about 11,000 years ago, comes to an end relatively soon and the Earth enters a new ice age.

But what if the environmentalist doomsayers, despite the current lack of evidence, are right?

"Delaying action," Singer maintains, "is not an invitation to disaster, as [is] often claimed." Calculations by University of Illinois atmospheric scientist Michael Schlesinger, Singer says, "clearly demonstrate that postponing controls on carbon dioxide for even a decade would have no noticeable impact on the next century's temperature trends." By contrast, drastic steps to curtail carbon dioxide emissions, as an SEPP statement signed by more than 50 atmospheric scientists warned, could have "catastrophic" economic effects, "with the most severe consequences falling upon developing countries and the poor." That such steps were not taken in Rio, it appears, may not have been so terrible a failure after all.

The Pill's Precursors

"Oral Contraceptives in Ancient and Medieval Times" by John M. Riddle and J. Worth Estes, in *American Scientist* (May-June 1992), Sigma Xi, The Scientific Research Soc., P.O. Box 13975, Research Triangle Park, N.C. 27709.

Historians puzzling over sudden population declines in ancient and medieval times usually conclude that infanticide or other nonmedicinal methods of family planning were involved. But Riddle and Estes, historians of pharmacology at North Carolina State University and Boston University School of Medicine, respectively, contend that "the archeological and written record is sprinkled with evidence that drugs were a trusted way to prevent conception or induce early-term abortions."

Ancient medical authorities regularly prescribed antifertility preparations made from plant secretions. The sap from silphion, a plant grown exclusively in the hills near Cyrene, an ancient Greek city-state in North Africa, may have been the ancient world's most effective antifertility drug—it was finally harvested to extinction. As professional medicine developed during the Middle Ages, antifertility lore came to be almost exclusively the property of midwives; in time, much of it was lost.

Western scientists have long regarded the ancient antifertility prescriptions as belonging to "the realm of magic and superstition." But in 1960, chemists D. B. Bounds and G. S. Pope,

following up on a report that Thai women took an extract of the root of *Pueraria mirifica* to induce abortion, isolated an estrogenic compound from the plant. (It is by keeping estrogen concentrations in the blood at a high level that modern oral contraceptives work.) Subsequent reports in Indian and Chinese journals provided further evidence that crude traditional antifertility drugs made from indigenous plants were effective.

"It is possible . . . that women of ancient and medieval times were fooled by physicians, witch doctors, herbalists, witches, midwives, village wise persons and charlatan medicine-show salesmen into taking birth-control potions that did not work," Riddle and Estes write. If so, women were fooled for a very long time. "We've so many sure-fire drugs for inducing sterility!," said the Roman satirist Juvenal—and six centuries later, priests were asking women in confession if they had drunk any *maleficium* (herbs or other agents) to prevent conception. Modern scholars, in Riddle and Estes's view, have too quickly dismissed the possibility that the ancients' antifertility preparations actually worked.

The R&D Deficit

"Redesigning Research" by Elizabeth Corcoran, in *Scientific American* (June 1992), 415 Madison Ave., New York, N.Y. 10017.

U.S. companies long ago proved their excellence in basic scientific and technological re-

search. Back in the 1950s, they often advertised their scientific prowess. The Radio Corporation