

SCIENCE NEWS®

The Weekly Newsmagazine of Science

Science Service Publication
Volume 146, No. 13, September 24, 1994

Alfred Scott McLaren	Publisher
Patrick Young	Editor
Blair Burns Potter	Managing Editor
Dan Skripkar	Production/Design Director
Greg W. Pearson	Associate Editor
Janet Raloff	Senior Editor Environment/Policy
Ron Cowen	Astronomy
Bruce Bower	Behavioral Sciences
Richard Lipkin	Chemistry/ Materials Science
Richard Monastersky	Earth Sciences
Tina Adler	General Science
Kathy A. Fackelmann,	Life Sciences/ Elizabeth Pennisi Biomedicine
Ivars Peterson	Mathematics/Physics
Larry Norland	Editorial Assistant
Cait Anthony	Books/Resource Manager
Donald R. Harless	Advertising/Business Manager

SCIENCE NEWS (ISSN 0036-8423) is published weekly on Saturday, except the last week in December, for \$44.50 for 1 year or \$78.00 for 2 years (foreign postage \$6.00 additional per year) by Science Service, Inc., 1719 N Street, N.W., Washington, D.C. 20036. Second-class postage paid at Washington, D.C., and additional mailing office. **POSTMASTER:** Send address changes to SCIENCE NEWS, P.O. Box 1925, Marion, Ohio 43305. Change of address: Four to six weeks' notice is required — old and new addresses, including zip codes, must be provided.

Copyright © 1994 by Science Service, Inc. Title registered as trademark U.S. and Canadian Patent Offices. Printed in U.S.A. on recycled paper. ♻️

Editorial and Business Offices:
1719 N St. N.W., Washington, D.C. 20036
(202-785-2255)
Republication of any portion of SCIENCE NEWS without written permission of the publisher is prohibited.

Subscription Department:
P.O. Box 1925, Marion, Ohio 43305
For new subscriptions only, call 1-800-247-2160.
For customer service, call 1-800-347-6969.

Letters

No apocalypse now?

The report of the debate between Michaels, Singer, and Knappenberger and Kerr and McElroy concerning the putative 35 percent per year increase in wintertime ultraviolet (UV) radiation from 1989 to 1993 ("Tangling over Toronto's ozone," SN: 7/23/94, p.61) overlooks an important point.

As Kerr and McElroy are careful to point out in their original paper in SCIENCE (11/12/93, p.1034), "The observed, large increases in UV-B radiation near 300 nm in winter are large fractional increases in small values." A look at one of the figures in that paper reveals that their 35 percent per year increase amounts to a total change in the wintertime integrated radiation flux over 5 years of about 0.005 joule per square meter per day. The normal seasonal change in the flux at 300 nm is shown to be about 0.1 joule per square meter per day, or an increase each year from winter to summer of about 5,000 percent.

Placed in this perspective, Kerr and

This Week

- 196 Tots Take Rhythmic Stock Before Talk
- 196 A comet's enduring impact on Jupiter
- 197 Homing in on inherited breast cancer genes
- 197 BRCA 1 plays no role in most breast cancer
- 198 Alzheimer's causes unique cell death
- 198 Consensus reached on climate change causes
- 198 Pacific hints of new El Niño
- 199 Putting atoms in the balance, one by one
- 199 Accounting for missing airborne ozone

Research Notes

- 200 Behavior
- 200 Biomedicine
- 206 Environment
- 206 Physics

Articles

- 202 Prying into Prions

Cover: This computer image models the innocuous structure of a prion protein. Interactions between particular amino acids (green) help maintain this twisting conformation. Disruption of these interactions can lead to an infectious agent capable of destroying brain tissue. (Image: Z. Huang *et al.* PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES)

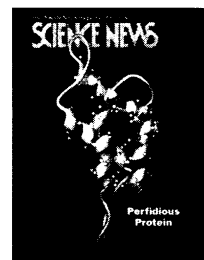
- 204 Controlling Life's Gateway

Departments

- 195 Letters
- 207 Books

Science Service, which publishes SCIENCE NEWS, is a nonprofit corporation founded in 1921. It gratefully accepts tax-deductible contributions and bequests to assist its efforts to increase the public understanding of science, with special emphasis on young people. More recently, it has included in its mission increasing scientific literacy among members of underrepresented groups. Through its Youth Programs it administers the International Science and Engineering Fair, the Science Talent Search for the Westinghouse Science Scholarships, and publishes and distributes the *Directory of Student Science Training Programs for Precollege Students*.

Board of Trustees — *Chairman*, Glenn T. Seaborg; *Vice Chairman*, Gerald F. Tape; *Secretary*, David A. Goslin; *Treasurer*, Willis Harlow Shapley; Joseph W. Berg Jr.; Robert W. Fri; J. David Hann; Dudley Herschbach; Shirley M. Malcom; Elena O. Nightingale; Ben Patrusky; Peter H. Raven; H. Guyford Stever; Sanford J. Ungar; Deborah P. Wolfe. *Honorary Trustees* — Edward Bliss Jr.; Bowen C. Dees; O.W. Riegel; John Troan. *President*: Alfred Scott McLaren; *Vice President and Business Manager*: Donald R. Harless.



McElroy's 5-year wintertime trend in harmful UV radiation "bathing Toronto" not only becomes less dramatically apocalyptic, it borders on the trivial.

Kenneth M. Towe
Department of Paleobiology
Smithsonian Institution
Washington, D.C.

Solar UV peaks at solar noon, not necessarily at noon standard time. Depending on the longitude and time of the year, solar noon and standard clock noon can differ by as much as an hour or so.

Forrest M. Mims III
Seguin, Texas

Analyzing avoirdupois

Recent reports concerning the surprising increase in the number of overweight Americans ("U.S. Adults: A weighty lot," SN: 7/23/94, p.53) seem to ignore the dramatic changes in the U.S. diet over the same period as a possible cause.

The desire to reduce cholesterol and fats in general has led to an increase in overall carbohydrate consumption. While fats have more than double the calories of carbohydrates per given unit, they are also more satiating. Carbohydrates, on the other hand, can cause the release of insulin, lowering blood sugar concentrations and stimulating appetite.

With this in mind, the increase in overweight Americans is not all that surprising.

Mitchell Carucci
Great Neck, N.Y.

Might not the "surprise weight gain" be directly related to the fact that the last decade has ushered in the beginning of the end of the love affair between Americans and tobacco? Smoking keeps the average person 8 to 10 pounds lighter.

Jolene D. Huffman
Jacksonville, Fla.

Studies that controlled for smoking have found it didn't explain increases in the number of overweight people.
— T. Adler

SEPTEMBER 24, 1994

195