

SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication
Volume 138, No. 24, December 15, 1990

E. G. Sherburne Jr.	Publisher	
Patrick Young	Editor	
Laurie Jackson	Managing Editor	
Janice Rickerich	Production/Design Director	
Bruce Bower	Behavioral Sciences	
Ivan Amato	Chemistry/ Materials Science	
Richard Monastersky	Earth Sciences	
Janet Raloff	Environment/Policy	
Ron Cowen	General Science	
Kathy A. Fackelmann,	Life Sciences/ Rick Weiss	Biomedicine
Ivars Peterson	Mathematics/Physics	
Jonathan Eberhart	Space Sciences	
Jennifer L. Miller	Editorial Assistant	
Ingfei Chen,	Science Writer	
Robert N. Langreth	Interns	
Liz Marshall	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 \$34.50 for 1 year or \$58.00 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, 231 West Center Street, Marion, OH 43305. Change of address: Four to six weeks' notice is required — old and new addresses, including zip codes, must be provided.

Copyright © 1990 by Science Service, Inc. Title registered as trademark U.S. and Canadian Patent Offices. Printed in U.S.A.

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:
231 West Center St., Marion, OH 43305
For new subscriptions only, call 1-800-247-2160.

This Week

- 372 Astro Eyes New Signs of Black Holes
- 372 Milk from engineered hormone: Udderly safe
- 373 Asthma drug may do more harm than good
- 373 Risky business: Tackling computer security
- 374 Did Earth give clues prior to Bay quake?
- 374 Meaty findings about colon cancer and diet
- 375 AIDS: Long research road still looms ahead
- 375 College classes spur lifelong math memory

Research Notes

- 380 Anthropology
- 380 Earth Sciences
- 382 Materials Science
- 382 Space Sciences

Articles

- 376 Zona Blasters
Cover: Scientists are developing a host of micro-methods — including drilling, blasting and cracking — to give disadvantaged sperm a better shot at penetrating the tough outer shell of a human egg. Although experimental, such techniques may eventually provide some infertile couples with renewed hope of conceiving a child. (Illustration: Mary Seton Puglisi)
- 378 Budget '91: Civilian Gains at Defense's Expense

Departments

- 370 Books
- 371 Letters

Science Service Institution for the public understanding of science founded 1921; a nonprofit corporation.
Board of Trustees — *Chairman*, Glenn T. Seaborg; *Vice Chairman*, Gerald F. Tape; *Treasurer*, Willis Harlow Shapley; *Joseph W. Berg Jr.*; *Robert W. Fri*; *David A. Goslin*; *J. David Hann*; *Milton Harris*; *Leon M. Lederman*; *Shirley M. Malcom*; *Elena O. Nightingale*; *Ben Patrusky*; *H. Guyford Stever*; *Deborah P. Wolfe*.
Honorary Trustees — *Edward Bliss Jr.*; *Bowen C. Dees*; *O.W. Riegel*; *John Troan*.
President: E. G. Sherburne Jr.; *Business Manager*: Donald R. Harless.

PF

Letters

Radon, cancer and nonsmokers

The New Jersey Department of Health report on radon and lung cancer is not nearly as definitive as your article would suggest ("Home Radon Hazards: All Too Real," SN: 10/27/90, p.260). Smoking, both active and passive, is accepted as the leading cause of lung cancer in both men and women. Smokers who are exposed to high concentrations of radon have a still higher rate of lung cancer. However, only 12 percent of the 994 cases of lung cancer among women over the 1982-88 period cited in this report were nonsmokers, and even fewer (4 percent) were nonsmokers living with a nonsmoking spouse. Among the 61 nonsmoking lung cancer cases out of the 433 included in the radon substudy, no correlation was found with their home radon exposure levels. Indeed, only one of the nonsmoking woman with lung cancer was exposed to a moderate level of radon, and the report indicates that her husband smoked.

Jordan R. Nelson
Pennington, N.J.

Study leader Janet B. Schoenberg replies: "We agree that smoking is the major risk factor for lung cancer and that radon-related lung cancer risk at low, residential exposure levels is modest in comparison with smoking-related risk. Nonetheless, our study suggests that smokers (particularly light smokers) who have been exposed to moderate residential radon do have higher lung cancer risks than smokers who have been exposed only to very low radon levels."

"Our research reports clearly indicate that radon-risk results for lifetime nonsmokers were inconsistent. However, the absence of a significant finding for nonsmokers in our study does not mean that there is no radon risk for nonsmokers, because of the small numbers in this subgroup in the study. There are several studies underway that will include larger numbers of nonsmoking lung cancer cases, which, when pooled, should have sufficient power to address this important issue."

Magnetic turnoff

Your brief explanation of magnetic resonance imaging ("MRI provides glimpse into

ancient bones," SN: 10/20/90, p.244) left out one important point. Along with the strong magnet aligning the spin axes, an oscillating magnetic field, or radio-frequency pulse, is necessary to bring the spin axes out of alignment with the main magnetic field. When the oscillating field is turned off, it is the radio waves emitted as the axes fall back to their initial alignment that are detected. The main magnetic field is never turned off in the process. No radio waves worth any information are emitted if the main field is turned off and the axes become disordered.

Peter A. Bandettini
Graduate Student, Biophysics Dept.
Medical College of Wisconsin
Milwaukee, Wis.

Address communications to:

Editor, SCIENCE NEWS
1719 N St., NW
Washington, D.C. 20036

Please limit letters to 250 words.
All letters subject to editing.

DECEMBER 15, 1990

371