

# SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication  
Volume 135, No. 13, April 1, 1989

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
Kathy A. Fackelmann, Rick Weiss, Ingrid Wickelgren	Life Sciences/ Biomedicine
Ivars Peterson	Mathematics/Physics
Jonathan Eberhart	Space Sciences
Susan Arns	Assistant to the Editor
Faye Flam	Science Writer Intern
Wendy McCarren	Books/Resource Manager
Donald R. Harless	Advertising/Business Manager

Copyright © 1989 by Science Service, Inc.,  
Editorial and Business Offices,  
1719 N St., N.W., Washington, D.C. 20036.  
Republication of any portion of SCIENCE NEWS  
without written permission of the publisher is  
prohibited.

Subscription Department  
231 West Center Street, Marion, Ohio 43305

Subscription rate: 1 yr., \$34.50; 2 yrs., \$58.00.  
(Foreign postage \$6.00 additional per year.) Change of  
address: Four to six weeks' notice is required. Please  
state exactly how magazine is to be addressed.  
Include zip code. For new subscriptions only call  
(1) 800-247-2160. Printed in U.S.A. POSTMASTER:  
Send address changes to Science News, 231 West  
Center Street, Marion, OH 43305. Second class  
postage paid at Washington, D.C., and additional  
mailing offices. Title registered as trademark U.S. and  
Canadian Patent Offices. Published every Saturday by  
SCIENCE SERVICE, Inc., 1719 N St., N.W.,  
Washington, D.C. 20036. (202-785-2255)  
ISSN 0036-8423

## This Week

- 196 Fusion Claim Electrifies Scientists
- 197 Supercurrent decay in high magnetic fields
- 197 New accord would control waste exports
- 198 Iraqi dig uncovers Mesopotamian city
- 198 Cocaine mothers imperil babies' brains
- 199 Fetal AIDS mimicked in brain-cell culture
- 199 Chemically fingerprinting DNA damage

## Research Notes

- 204 Environment
- 204 Nutrition
- 207 Physical Sciences

## Articles

- 200 Scanning the Surface

Cover: Scanning tunneling microscopy is rapidly becoming one of the most important techniques for studying the atomic, chemical and electronic properties of surfaces. Pictured is a computer-processed image showing the characteristic pattern made by rows of liquid-crystal molecules lying side by side on a graphite surface. Each molecule consists of a phenyl-pyrimidine head (green) and a hydrocarbon tail (red). (Photo: IBM Almaden)

- 202 Muscle Melodies and Brain Refrains

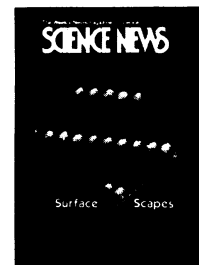
## Departments

- 194 Books
- 195 Letters

**Science Service** Institution for the public understanding of science founded 1921; a nonprofit corporation.

Board of Trustees — *President*, Glenn T. Seaborg; *Vice President*, Gerald F. Tape; *Treasurer*, Willis Harlow Shapley; Joseph W. Berg Jr.; Edward Bliss Jr.; Robert W. Fri; David A. Goslin; J. David Hann; Milton Harris; Leon M. Lederman; Elena O. Nightingale; Ben Patrusky; H. Guyford Stever; Deborah P. Wolfe.  
Honorary Trustees — Bowen C. Dees; O.W. Riegel; John Troan.

Director: E. G. Sherburne Jr.; Assistant Director: Dorothy Schriver; Business Manager: Donald R. Harless.



## Letters

### Holocaust or baby boom?

According to "The hidden lives of massive stars" (SN: 2/11/89, p.88), we are witnessing a holocaust of massive stars — they're dying in supernova explosions 20 times faster than they're being born in molecular clouds. Such a death rate can continue only for another half-million years, when the estimated 20,000 massive stars will be dead.

What's going on? Was there a "baby boom" in massive stars a few million years ago, or is there a typographical error in your published birth/death rates?

Michael A. Pelizzari  
Sunnyvale, Calif.

The researchers established a lower limit on the formation rate of massive stars. That estimate is based on the number of sources identified in an Infrared Astronomical Satellite survey. However, each source may consist of one or more massive stars. Therefore, the actual formation rate of massive stars is likely to be much higher, matching the death rate. — I. Peterson

In "The hidden lives of massive stars," you report that "10 to 20 percent of all massive stars are surrounded by clouds. This implies that a typical massive star spends a like fraction of its lifetime inside a molecular cloud."

Something is missing. Twenty to 25 percent of all human beings are surrounded by mainland China, but that does not imply that a typical human being spends a like fraction of his/her lifetime inside China.

Richard Dachler-Wilking  
Charleston, S.C.

Astronomers assume all massive stars are born surrounded by molecular clouds. The best way to account for the absence of clouds around many such stars is to postulate that the clouds were driven away or disrupted earlier in the star's lifetime. Although some stars may spend a longer time enveloped in clouds than others, the average massive star would spend about 10 to 20 percent of its lifetime in such a state. — I. Peterson

### First things first

"First light at an Irish tomb" (SN: 2/11/89, p.88) implies that while "earlier scholars [before Tom P. Ray] had suggested the possibility of astronomical alignments," these suggestions were somehow poorly considered or unsubstantiated.

Martin Brennan's book, *The Stars and the Stones: Ancient Art and Astronomy in Ireland* (1983, Thames & Hudson) describes a number of astronomical alignments for Newgrange, as well as for other mounds in the Boyne Valley and in the Longcrew Mountains. Archaeologist Michael J. O'Kelly's observation of the 1969 winter solstice from inside the Newgrange mound is also described.

Archaeoastronomy seems to be slowly becoming legitimate in the eyes of the archaeological establishment. Surely its early investigators deserve recognition for having spoken their truth in the face of ridicule and derision.

Andrew I. S. Vaughn  
Towson, Md.

APRIL 1, 1989

195