

SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication
Volume 137, No. 6, February 10, 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, Rick Weiss	Life Sciences/ Biomedicine
Ivars Peterson	Mathematics/Physics
Jonathan Eberhart	Space Sciences
Jennifer L. Miller	Editorial Assistant
Caroline C. Decker	Science Writer Intern
Wendy Smith	Books/Resource Manager
Donald R. Harless	Advertising/Business Manager

Copyright © 1990 by Science Service, Inc.
Editorial and Business Offices:
1719 N St., NW, Washington, D.C. 20036.
Republication of any portion of SCIENCE NEWS
without written permission of the publisher is
prohibited.

Subscription Department:
231 West Center St., Marion, OH 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 St., 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., NW,
Washington, D.C. 20036. (202-785-2255)
ISSN 0036-8423

Letters

Monoxide mechanism

In "Monoxide heart risk" (SN: 11/25/89, p.342), you state that carbon monoxide inhibits the release of oxygen from red blood cells to body tissues. Carbon monoxide does interfere with the distribution of oxygen to tissues, but it does so by a different mechanism, based on hemoglobin's greater affinity for carbon monoxide than for oxygen. This means hemoglobin will preferentially take up carbon monoxide and will ignore oxygen, forming fewer molecules of oxy-hemoglobin. Thus, less oxygen becomes available in red blood cells for distribution to tissues.

F.A. Johnson
Durham, N.C.

As a chemist I would say carbon monoxide combines with hemoglobin in red blood corpuscles, reducing the total number available to carry oxygen to all the cells in the body and

This Week

- 84 Diet and Cancer: Timing Makes a Difference
- 84 Collaring the gene for impurrfect ears
- 85 Microchip power from a shrunken fuel cell
- 85 Releaf for greenhouse? Don't cut old forests
- 85 Flowers for the dinosaurs
- 86 MS researchers find missing immune link
- 86 Additional human gene transfers sought
- 86 Artificial life: Stepping closer to reality
- 87 Extra DNA causes Mendel's peas to pucker
- 87 Droopy plants drop hints of enzyme's role
- 87 If not cold fusion, try fracto-fusion?

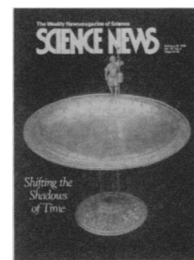
Research Notes

- 92 Biomedicine
- 92 Earth Sciences
- 95 Environment
- 95 Physics

Articles

- 88 Expanding the Genetic Alphabet
- 91 Turning Back Time

Cover: Renaissance craftsman Christopher Schissler created this remarkable sundial in 1578 to simulate a biblical miracle in which the prophet Isaiah commands shadows cast by the sun to move backward. A 19th-century reconstruction of the sundial erred by putting the sundial's indicator string in the wrong position, as shown in the photograph. A new reconstruction puts the string in its rightful place and demonstrates the ingenious method Schissler used to make shadows go backward. (Photo: Owen Gingerich)



Departments

- 83 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.; 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.
President: E. G. Sherburne Jr.; **Business Manager**: Donald R. Harless.

thus causing chemical asphyxiation. Logically, any gases that behave similarly will have the same effect — whether hydrogen cyanide, hydrogen sulfide, higher levels of carbon dioxide or lower levels of oxygen (at high altitudes). Even donating blood could produce the effect.

The maximum allowable concentrations set for the workplace are for healthy people; anyone with coronary disease should be told their tolerance may be lowered.

J. Alden Erikson
Gibsonia, Pa.

'Abuse' ambiguous

I have noticed that media reports implicitly define "abuse" differently for different drugs: For alcohol, it means physical addiction or inebriation while on the job or driving; for any illegal drug it means "use"; and for tobacco it is never used. While such inconsistent use of a term may have propaganda value,

it renders the word "abuse" useless in any objective description.

For this reason, I found "Marijuana mangles memory" (SN: 11/18/89, p.332) much less informative than previous SCIENCE NEWS articles on the subject of drug effects. Those suffering memory loss were "marijuana abusers in a drug treatment program," but since quantity and frequency of consumption vary widely among users, and since "abuse" is an imprecise term, this tells us little. Quantity and frequency of use and other drugs used should have been specified.

Russell Williams
San Jose, Calif.

All nine teenagers in the marijuana group met the criteria for drug abuse as set forth by the Diagnostic and Statistical Manual of Mental Disorders III, Revised, the standard reference for psychological diagnosis. Subjects smoked marijuana an average of 5.9 times per week.

— A. McKenzie

FEBRUARY 10, 1990

83