

# SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication  
Volume 136, No. 10, September 2, 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,	Life Sciences/ Biomedicine
Rick Weiss,	
Ingrid Wickelgren	
Ivars Peterson	Mathematics/Physics
Jonathan Eberhart	Space Sciences
Liz Marshall	Editorial Assistant
Ron Cowen,	Science Writer
Stephen Hart,	Interns
Diane E. Loupe	
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

## Letters

### Anthropocentric arrogance?

Allen Forkum's argument that humans are the only species capable of comprehending the concepts of "self" and "sacrifice" (Letters, SN: 7/29/89, p.67) would be merely laughable were it not so prevalent among the scientific community.

If he is so positive of his position, let him go one-on-one with the average tiger. That tiger is not only perfectly aware of itself as a unique individual; it will, with precise Aristotelian logic, conclude that Mr. Forkum is a threat to that unique self . . . and provide him a painful lesson in ontology and epistemology.

I'd be willing to bet ten bucks no honeybee ever read Schopenhauer, but it is certainly willing to die for the good of the hive. If that isn't sacrifice, there ain't a cow in Texas.

The real problem with most theories of animal behavior is not anthropomorphic but anthropocentric.

## This Week

- 148 'What a Way to Leave the Solar System'
- 149 Cystic fibrosis gene and protein identified
- 149 Recombinant rodents, human hemoglobin
- 150 Depression and cancer: No clear connection
- 150 Pumping gas to fuel a galaxy's active core
- 151 Hepatitis C may spread heterosexually
- 151 Multiplying computer memories into 3-D
- 151 Southeast waterways will face an acid test

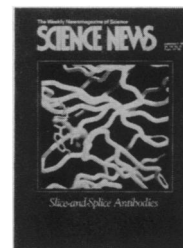
## Research Notes

- 159 Earth Sciences
- 159 Physics

## Articles

### 152 Teaching Antibodies New Tricks

Cover: The molecular backbone of a newly developed "catalytic antibody" twists and winds in this computer image. On the left, structural details of four of the antibody's constituent amino acids help form a site, shown here in green, that binds a chemically complementary molecule, or antigen. Scientists have learned how to make antibodies that not only bind to molecules but also chemically transform them. New industrial, medical and scientific tools are in the offing. (Image: Peter G. Schultz/University of California, Berkeley)



### 154 The Two Faces of Ozone

## Departments

- 146 Books
- 147 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.; Business Manager: Donald R. Harless.

To apply philosophic concepts to animal behavior is not to imply anthropomorphism but simply to acknowledge the theory of evolution. The animal kingdom is a continuum of which man is an integral part. It is not a big amorphous gob of dumb beasts with a discontinuous man stuck, like a cherry, on top.

The most logical explanation of animal behavior is that their thought processes, while less complex, are much the same as ours. If we weren't so blinded by our own arrogance we'd be able to see that.

Dennis R. Blalock  
Thurmont, Md.

**Self-awareness in animals** is well documented in many species, and any modern animal behaviorist or behavioral ecologist who designs experiments without being aware of this fact does so at considerable risk to the interpretation of his or her results.

Mr. Forkum's flat-earth view of a total separation between humans and other species implies a rather weird view of evolution. Are we to believe that there are two courses of evolution, one for humans and another for the rest of the animal kingdom, or that humans somehow made a quantum leap in evolution that put them into a totally separate category of cognition vs. innate response? I would have thought that this "Skinner box mentality" — the idea that you cannot study cognition and its various manifestations in animals — would have disappeared long ago, along with the mind-body dichotomy that was finally buried philosophically when I was a graduate student at Oxford 40 years ago, though it hung on long after that because it provided homeocentric satisfaction.

Richard S. Miller  
Oastler Professor of Wildlife Ecology  
Yale University  
New Haven, Conn.

SEPTEMBER 2, 1989

147