

science □ news

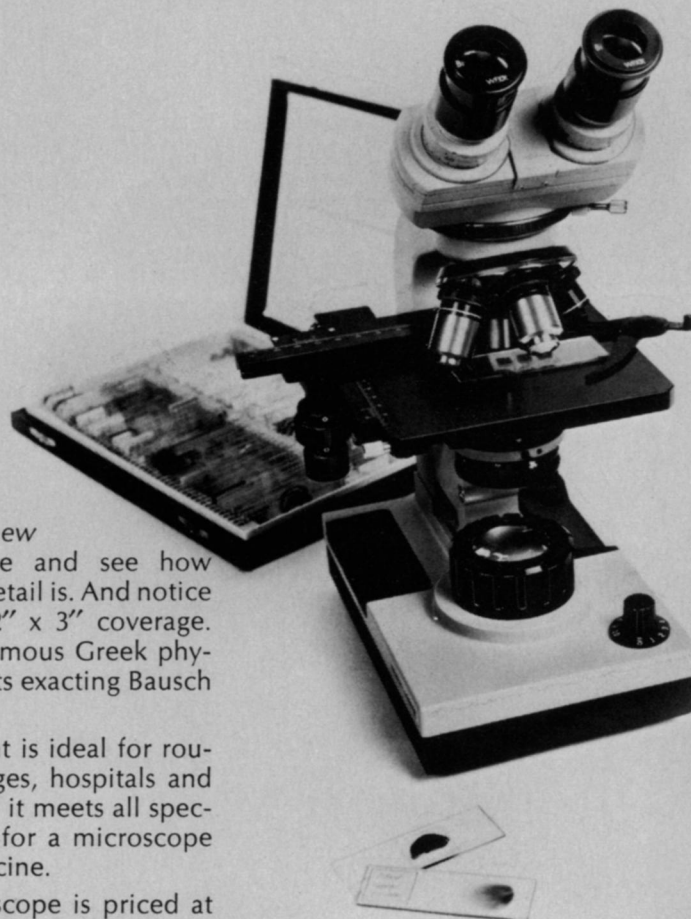
AUGUST 27, 1977
VOL. 112, NO. 9, 129-144



MONKEY LOVE

NEW GALEN MICROSCOPE

Your slides have never looked so good.



Look at your own slides through our new GALEN microscope and see how clear and fine the detail is. And notice that you get full 2" x 3" coverage. Named after the famous Greek physician, GALEN meets exacting Bausch & Lomb standards.

This fine instrument is ideal for routine work in colleges, hospitals and industrial labs. And it meets all specifications required for a microscope used to study medicine.

The GALEN microscope is priced at \$746.00*, considerably less than many microscopes that don't have all its features.

We think this is the best microscope value on the market today. But don't

take our word for it. Arrange for a free demonstration.

Look into GALEN when you're looking for a microscope:

- Parfocal, coated optics.
- 4x, 10x, 40x, 100x (oil) achromatic objectives.
- Monocular, binocular, triocular models.

- In-base, variable control illuminator (30-watt).
- Ideal for brightfield, darkfield and phase contrast observations.
- Observation body rotates 360°, locks at any point.
- Precentered substage with convenient low rack-and-pinion focusing.
- Graduated mechanical stage; low, coaxial controls.
- Immediate off-the-shelf delivery.
- Bausch & Lomb guarantee, and nationwide service.

BAUSCH & LOMB
Scientific Optical Products Division
Optics Center, Dept. 6602
1400 North Goodman Street
Rochester, N.Y. 14602

BAUSCH & LOMB 
GALEN
professional microscope

*Monocular model \$630, Binocular model shown \$799.



BAUSCH & LOMB
Scientific Optical Products Division
Optics Center, Dept. 6602
16020 North Goodman Street
Rochester, N.Y. 14602

☐ Have my B&L dealer contact me to arrange a convenient, free demonstration. ☐ Send catalog 31-2439.

Name

Title

Institution or Company

Street

City

State

Zip

GALEN. The scope of a more productive laboratory.

Available on GSA contract.
Consult the Yellow Pages
for your local authorized
Bausch & Lomb dealer.

SCIENCE NEWS®

A Science Service Publication
Vol. 112/August 27, 1977/No. 9
Incorporating Science News Letter

OF THE WEEK

Voyager heads out	132
Cellulose in space	133
Attitudes after integration	133
Chinese quake predictions	133
Fluidized-bed combustion	134
NASA's cell control patent	134
Bulb to save electricity	135
North Pole through the ice	135

RESEARCH NOTES

Botany	138
Zoology	138

ARTICLES

Infants' emotional growth	139
Mars's crust	140

DEPARTMENTS

Stars	142
-------	-----

COVER: These five-month-old rhesus monkeys demonstrate the importance of mother love in infancy. Raised together from birth, the monkeys abnormally cling to each other because, say researchers, they were reared without a mother. See p. 139. (Photo: U. of Wisconsin Primate Lab)

Publisher E. G. Sherburne Jr.
Editor Robert J. Trotter

Senior Editor and
Physical Sciences Dietrick Thomsen
Behavioral Sciences Joel Greenberg
Biomedical Sciences Joan Arehart-Treichel
Life Sciences Julie Ann Miller
Policy and Technology Janet Raloff
Space Sciences Jonathan Eberhart

Contributing Editors:

Lynn Arthur Steen (mathematics)
Kendrick Frazier, John H. Douglas

Assistant Editor Michelle Galler Riegel

Art Director Dale Appleman

Assistant to the Editor Evelyn Harris

Books Jane Livermore

Business Manager Donald Harless

Advertising Scherago Associates, Inc.
11 W. 42nd St., New York, N.Y. 10036
Fred W. Dieffenbach, Sales Director

Copyright ©1977 by Science Service, Inc., 1719 N St., N.W., Washington, D.C. 20036. Reproduction of any portion of SCIENCE NEWS without written permission of the publisher is prohibited.

Editorial and Business Offices
1719 N Street, N.W.
Washington, D.C. 20036

Subscription Department
231 West Center Street
Marion, Ohio 43302

Subscription rate: 1 yr., \$12.50; 2 yrs., \$22; 3 yrs., \$30. (Add \$2 a year for Canada and Mexico, \$3 for all other countries.) Change of address: Four to six weeks' notice is required. Please state exactly how magazine is to be addressed. Include zip code.

Printed in U.S.A. Second class postage paid at Washington, D.C. 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) TWX 710-822-9433 SCIEN NEWS.

A Goodbye . . .

With this issue, we say goodbye to an old friend, Kendrick Frazier, who has been Editor of SCIENCE NEWS for more than six years. He has decided to leave to go into the world of free-lance writing.

We will miss him. He first joined SCIENCE NEWS in 1969, became Managing Editor a little over a year later, and then was appointed Editor in 1971. In the time that Kendrick Frazier has been with us, he has been, more than any other individual, responsible for the many improvements in the coverage, in the appearance and in the editorial quality of the magazine. This change has been gradual, and from one issue to the next, it has not been too obvious. But all one has to do is to look back a few years to see how far we have come.

It will therefore come as no surprise that the circulation of the last issue that bears his name as Editor is more than 50 percent higher than that of the first issue for which he was responsible. We are now at a figure of 161,553, and all indications are that the momentum which he has given us will provide a continuing growth.

An Appreciation . . .

The Science Service Board of Trustees was particularly grateful for his accomplishments, and passed the following motion at its most recent meeting:

"The Board of Trustees of Science Service has learned with great regret of the resignation of Kendrick Frazier as Editor of SCIENCE NEWS. The Board wishes officially to express its admiration and gratitude to Mr. Frazier for the enormously effective role he has played in bringing SCIENCE NEWS to its present state of excellence. He carries with him as he leaves the best wishes of the Board, and the hope and expectation that it will be found possible for him to remain associated with SCIENCE NEWS in some mutually satisfactory way."

Ken Frazier will remain as a Contributing Editor to SCIENCE NEWS, and so we will be able to continue to use his many talents. We wish him all success in his new endeavors, and thank him again for all that he has done to make SCIENCE NEWS the outstanding publication that it is today.

. . . And A Welcome

Our new Editor is Robert J. Trotter, who is no stranger to SCIENCE NEWS. He was Senior Editor and Behavioral Sciences Editor before he left us to devote his full time to textbook writing. We all feel that we are extremely lucky to have him back with us, and under his leadership, look for SCIENCE NEWS to continue to improve in quality and to increase in circulation.

We welcome his return to join us in this effort.

E. G. Sherburne Jr.
Publisher

SCIENCE SERVICE

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

Board of Trustees Nominated by the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE: **Deborah P. Wolfe**, Queens College of City University of New York; **Bowen C. Dees**, The Franklin Institute; **Athelstan Spilhaus**, National Oceanic and Atmospheric Administration. Nominated by the NATIONAL ACADEMY OF SCIENCES: **Gerald F. Tape** (Vice President), Associated Universities; **Allen V. Astin**, Bethesda, Md.; **Glenn T. Seaborg** (President), University of California, Berkeley. Nominated by the NATIONAL RESEARCH COUNCIL: **Gerald Holton**, Harvard University; **Joseph W. Berg Jr.**, National Research Council; **Aaron Rosenthal**, Washington, D.C. Nominated by the JOURNALISTIC PROFESSION: **Edward Bliss Jr.**, Newburyport, Me.; **Julius Dusha**, Washington Journalism Center; **O.W. Riegel** (Secretary), Glasgow, Va. Nominated by E.W. SCRIPPS TRUST: **Milton Harris** (Treasurer), Washington, D.C.; **Edward W. Scripps II**, Edward W. Scripps Trust; **John Troan**, Pittsburgh Press.

Director: E.G. Sherburne Jr.; Assistant Director: Dorothy Schriver; Business Manager: Donald R. Harless; Things of Science: Ruby Yoshioka.

Use this easy way to shop for books that matter.

U.S. OBSERVATORIES A Directory and Travel Guide

By H. T. Kirby-Smith. Describes all U.S. astronomical facilities in terms of functions, locations, equipment, research, accessibility to visitors, tour possibilities, accommodations, and instances when your own equipment is usable. "An excellent new book." —*Sky and Telescope*
180 pp., illus., \$11.95

To order, circle "A"
on Reader Service Card.

BODY HOT SPOTS

By R. Dale Guthrie. An absorbing study of the social parts of the human body—the "hot spots." Reveals how facial shape, body hair, hip size, etc. determine status, attract mates and intimidate peers. "A fascinating voyage of discovery into the meaning of our physical traits." —*Ashley Montagu*
226 pp., illus., \$8.95

To order, circle "B"
on Reader Service Card.

THE VNR CONCISE ENCYCLOPEDIA OF MATHEMATICS

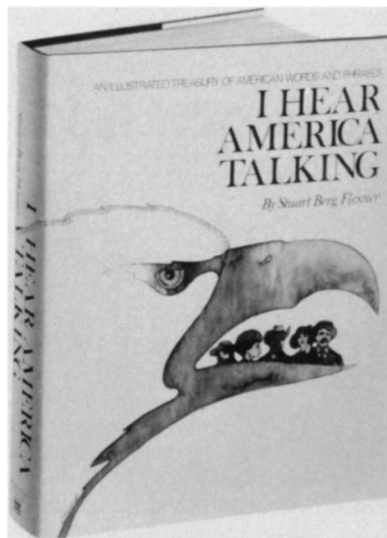
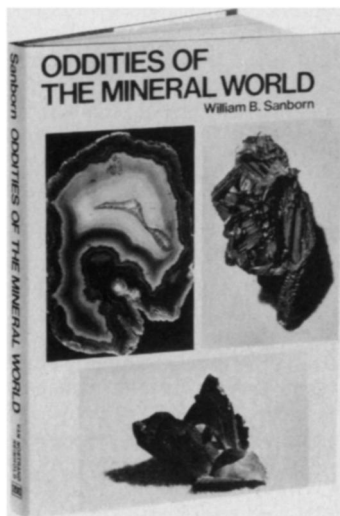
Edited by W. Gellert. Every specialized area of mathematics is lucidly explained in this giant storehouse of information. Features include hundreds of worked-out examples, use of color to highlight key points, fascinating historical information, and 950 diagrams, drawings, photographs and plates. 810 pp., 6½ x 9¼, \$14.95

To order, circle "C"
on Reader Service Card.

INSTANT FURNITURE

By Peter S. Stamberg. Build beautiful, low-cost furniture in minutes with only a hammer, nails, glue, and pre-cut wood. It's all explained here, step by step. This practical manual can pay for itself in one evening! 160 pp., 134 illus., \$12.95

To order, circle "D"
on Reader Service Card.



EVERYTHING YOU CAN GET FROM THE GOVERNMENT FOR FREE— OR ALMOST FOR FREE

By Craig & Peter Norback. A practical, easy-to-use guide to almost 1,000 programs and services available at little or no cost. "This oversized comprehensive directory of federal programs is a godsend." —*Booklist*
250 pp., illus., 11 x 14, \$7.95 paper

To order, circle "E"
on Reader Service card.

ENCYCLOPEDIA OF MINERALS

By Willard Roberts, George Rapp, Jr. & Julius Weber. Contains nearly 1,000 full-color photomicrographs. Includes chemical, physical, crystallographic, X-ray, optical and geographical data on all known and authenticated mineral species. "An authoritative and stunning book." —*Library Journal*
848 pp., 8½ x 11, \$69.50

To order, circle "F"
on Reader Service Card.

I HEAR AMERICA TALKING

By Stuart B. Flexner. An illustrated treasury of American words and phrases. Hailed by *The New York Times* as "a masterpiece," it presents the often surprising history behind the words that make our language American. This fascinating account of our native tongue "deserves a place alongside the family encyclopedia, dictionary and atlas."

—*John Barkham Reviews*
516 pp., over 500 illus., 8½ x 11,
\$18.95

To order, circle "G"
on Reader Service Card.

HANDBOOK OF APPLIED MATHEMATICS

Edited by Carl E. Pearson. Here's how to solve all your math problems quickly and easily. Includes scores of worked examples drawn from various areas of science and engineering. 1,000 pp., 200 illus., \$37.50

To order, circle "H"
on Reader Service Card

THE FINE ART OF CABINETMAKING

By James Krenov. Learn from one of the world's great masters of woodworking. Over 300 photos and detail drawings show the actual techniques Krenov uses to create his museum-quality cabinetry. 192 pp., 8½ x 11, \$14.95

To order, circle "I"
on Reader Service Card.

Grzimek's ENCYCLOPEDIA OF ECOLOGY

Edited by Bernhard Grzimek. Written by 43 leading authorities, this massive volume provides a wealth of information on the interrelationships of man, animals, and their environments. It shows how the various species have adapted to a vast diversity of habitats. Extensive coverage of the environmental crisis includes destruction of the natural landscape, contamination of the oceans, and noise, air and water pollution.

744 pp., 1,000 color & monochrome illus., 7 x 10, \$39.50

To order, circle "J"
on Reader Service Card.

HOW TO SAVE YOUR TEETH AND YOUR MONEY

By Melvin Denholtz, D.D.S., & Elaine Denholtz. A consumer's guide to better, less costly dental care. Explains how to choose and rate a dentist, compare his fees to other practitioners', and what to do if not satisfied with his work. Includes information in areas such as selecting less expensive alternative treatments and getting the most from dental insurance.

284 pp., 6 x 9, \$8.95

To order, circle "K"
on Reader Service Card.

SHORELINE AND SEXTANT

By John P. Budlong. Coastal and inland piloting offer some of the most complex challenges of sailing. No better companion for a difficult course can be had than this guide by a veteran navigator. It features hitherto unpublished methods of figuring distance with the aid of a sextant.

220 pp., illus., 7 x 10, \$11.95

To order, circle "L"
on Reader Service Card.

Van Nostrand's SCIENTIFIC ENCYCLOPEDIA Fifth Edition

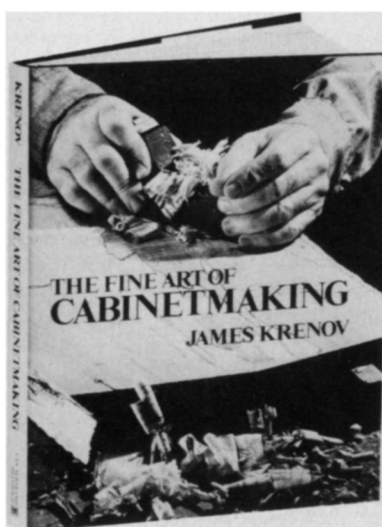
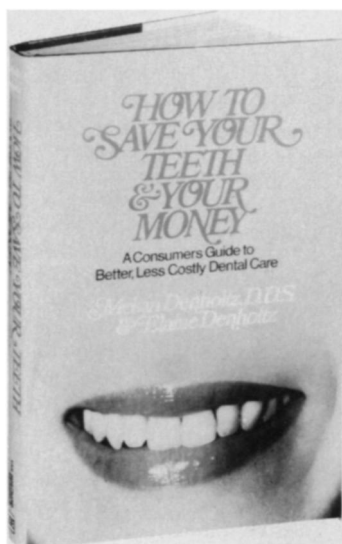
The fastest way to find the answers you want in every branch of modern science. Reflecting today's explosive growth of technical knowledge, this updated edition has been compiled by 190 experts in science and technology, and is written in easy-to-understand language. 2,382 pp., 2,500 illus., \$67.50

To order, circle "M"
on Reader Service Card.

ODDITIES OF THE MINERAL WORLD

By William B. Sanborn. Rocks displaying mysterious underwater scenes? Hollow stones filled with oil? Strange spikes that are always found pointing west? These are only a few of the puzzling oddities you'll find here. For readers starting their own personal collections, the book tells where to look for unusual specimens, how to catalog them, and what they are worth. "A must for every beginning collector."—*Gems and Minerals* 148 pp., illus., 6 x 9, \$9.95

To order, circle "N"
on Reader Service Card.



All books published
by Van Nostrand Reinhold

ASTRONOMY Tenth Edition

By Laurence W. Fredrick & Robert H. Baker. Latest edition of the classic introduction to astronomy. Utilizing metric units throughout, the book contains an up-to-date presentation of cosmological theory; detailed but non-technical explanations of the origin of stars and planets; in-depth coverage of observational and instrumental techniques; a thorough discussion of quasars, black holes and pulsars; and examinations of curiosities such as the lack of neutrinos emanating from the sun. 700 pp., illus., \$17.50

To order, circle "O"
on Reader Service Card.

THE BOOK OF HEALTH Third Edition

Edited by Randolph Clark, M.D. & Russell Cumley, M.D. Describes, in layman's language, how to treat virtually every human disease. Covers 300 recent developments in the medical field. "Intelligently written . . . easy to pick out useful information . . . outstanding in comparison with other recently published works of this nature."—*Choice*

992 pp., illus., 7 x 10, \$29.95

To order, circle "P"
on Reader Service Card.

ALTERNATIVE NATURAL ENERGY SOURCES IN BUILDING DESIGN

By Albert Davis & Robert Schubert. Geared to today's emphasis on energy-efficient building design. Discusses organic fuels, natural cooling and ventilation, solar radiation and irradiation, wind and water as sources of power, alternatives to current waste disposal methods, and more.

250 pp., illus. 8½ x 11, \$6.95 paper

To order, circle "Q"
on Reader Service Card.

Knight's MODERN SEAMANSHIP, Sixteenth Edition

Revised by John V. Noel, Jr. Here's the latest edition of the classic guide to large ships, small craft and travel on—and under—the high seas. Updated and expanded to reflect recent developments, it includes the 1977 International Regulations for Preventing Collisions at Sea.

690 pp., 255 illus., 6 x 9, \$16.95

To order, circle "R"
on Reader Service Card.