

# SCIENCE NEWS

A Science Service Publication  
Volume 120/August 15, 1981/No. 7

## THIS WEEK

New yeast sweet solution for ethanol	100
Coyote control controversy	100
Test-tube birth woes	101
New light on Nijinsky	101
The three-minute-old universe	101
NASA satellite in students' hands	102
Recommended changes in Clean Air Act	102
Science and technology lobby	102
Cowbird song: Variations on a theme	103

## RESEARCH NOTES

Astronomy	104
Chemistry	104
Energy	105
Biomedicine	105

## ARTICLES

Voyager's rendezvous with Saturn	106
Cost-cutting energy conversion system	109

## DEPARTMENTS

Books	99
-------	----

**COVER:** On Aug. 25, the Voyager 2 spacecraft will hurtle past spectacular Saturn, with its complex rings and diverse satellites. For more about the upcoming mission, see p. 106. (Painting for NASA by Don Davis)

**Publisher** E. G. Sherburne Jr.  
**Acting Editor** Dietrick E. Thomsen  
**Behavioral Sciences** Joel Greenberg  
**Biomedicine** Joan Arehart-Treichel  
**Chemistry** Linda Garmon  
**Earth Sciences** Cheryl Simon  
**Life Sciences** Julie Ann Miller  
**Policy/Technology** Janet Raloff  
**Space Sciences** Jonathan Eberhart  
**Contributing Editors** Lynn Arthur Steen (mathematics)  
Kendrick Frazier  
John H. Douglas  
Michael A. Guillen  
Deborah Franklin  
Judy Klein  
Elizabeth G. Clark  
Betsy Gordon  
Jane M. Livermore  
**Business Manager** Donald Harless  
**Advertising** Scherago Associates  
1515 Broadway  
New York, N.Y. 10036  
Fred W. Dieffenbach,  
Sales Director

Copyright © 1981 by Science Service, Inc., 1719 N St., N.W., Washington, D.C. 20036. Republication 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., \$19.50; 2 yrs., \$34.00; 3 yrs., \$47.50 (Add \$3 a year for Canada and Mexico, \$4 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. For new subscriptions only call: (1) 800-247-2160.

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)  
ISSN 0036-8423

# BOOKS

BOOKS is an editorial service for readers' information. To order any book listed or any U.S. book in print please remit retail price, plus 50% handling charge for each book to **Book Order Service**, Science News, 1719 N Street, N.W., Washington, D.C. 20036. All books sent postpaid. Domestic orders only.

**ANNUAL REVIEW OF PLANT PHYSIOLOGY, Vol. 32**—Winslow R. Briggs, Ed. Articles are concerned with such topics as cell wall turnover in plant development and plant protoplasts as physiological tools. Annual Reviews, 1981, 641 p., illus., \$20.

**COSMIC DAWN: The Origins of Matter and Life**—Eric Chaisson. Explores the origins and destiny of humans, the earth, the sun and the universe. An attempt to synthesize the essential ingredients of astrophysics and biochemistry in nontechnical language, "for these two subjects more than any others are making an enormous impact on our philosophical conception of ourselves and of our place in the universe." Little, 1981, 302 p., illus. by Lola Judith Chaisson, \$14.95.

**ENERGY OPTIONS: Real Economics and the Solar-Hydrogen System**—J. O'M. Bockris. Discusses the energy options available to us with the depletion of oil and natural gas. Reaches the conclusion that the solar-hydrogen alternative "can be recognized not only as the likely ultimate but also as the cheapest among the near-future prospects." Wiley, 1980, 441 p., illus., \$38.95.

**GALILEO AT WORK: His Scientific Biography**—Stillman Drake. A biography, based on original sources only, that fully covers Galileo's scientific career and touches on other aspects of his life. Originally published in hardback in 1978. U of Chicago, 1981, 536 p., illus., paper, \$9.95.

**HUMAN SACRIFICE: In History and Today**—Nigel Davies. Human sacrifice, according to the preface, was a common heritage of the human race, present on every continent, in every era. Includes "a good many gory details, unavoidable in dealing with this subject." Rather than reciting a catalog of horrors, the author has "tried to rationalize and explain why people did these things to each other." Morrow, 1981, 320 p., illus., \$14.95.

**INTERFERON: The New Hope for Cancer**—Mike Edelhart with Jean Lindenmann. Tells the story of interferon—what it is, how it works, where it is being used now, and how some people have benefited from it. Looks at the emerging genetic engineering industry, which could turn the mass production of interferon into big business. A-W, 1981, 211 p., illus., \$11.95.

**THE MILKY WAY**—Bart J. Bok and Priscilla F. Bok. The 1981 picture of our home galaxy, the Milky Way system, presented in this 5th edition is very different from the 1974 model used when the 4th edition of this classic work on the Milky Way was published. Harvard U Pr, 5th ed., 1981, 356 p., illus., \$20.

**NATIONAL PARKS OF THE U.S.A.**—James V. Murfin. A photographic excursion through all 40 national parks, from the Great Smoky Mountains and the Shenandoah to the incomparable Yosemite and the newly founded Channel Islands, with text describing the facts, folklore and history of each park. Mayflower Bks, 1981, 320 p., color illus., \$25.

**THE ORCHIDS: Natural History and Classification**—Robert L. Dressler. An examination of the structure, classification, evolution and ecology of the Orchidaceae, the largest flowering family in the plant kingdom. Harvard U Pr, 332 p., color/b&w illus., \$27.50.

**PETROLEUM AND HARD MINERALS FROM THE SEA**—Fillmore C. F. Earney. The focus of this book is the search for and production of petroleum and other minerals in the ocean—earth's last mineral frontier. Wiley, 1980, 291 p., illus., \$32.95.

**PILLS & THE PUBLIC PURSE: The Routes to National Drug Insurance**—Milton Silverman, Philip R. Lee and Mia Lydecker. Explores the options in the regulation of prescription drugs should national health insurance become a reality. U of Cal Pr, 1981, 232 p., \$15.95.

**SCIENCE, TECHNOLOGY, AND NATIONAL POLICY**—Thomas J. Kuehn and Alan L. Porter, Eds. These readings look at technological change in relation to society and to American government. Part one is intended to provide insights into the underlying social, political, economic and international concerns in science and technology policy. Part two is an inquiry into the ways that various government institutions deal with science and technology, together with aspects of citizen participation in the process. Cornell U Pr, 1981, 530 p., charts & graphs, \$35, paper, \$9.95.

**SEEDS OF DISCOVERY**—W. I. B. Beveridge. A readable book about scientific discovery—the nontechnical aspects of research, the mental procedures that lead to discoveries. Discusses the creative process and ways of thinking, the role of chance, the test of time, science as enterprise, learning the art of research and characteristics that seem to be common to the exceptionally productive scientists. Norton, 1981, 130 p., illus., \$12.95.

**THE SILENT INTRUDER: Surviving the Radiation Age**—Charles Panati and Michael Hudson. Radiation has given us life-saving X-rays and modern conveniences like microwave ovens, CB radios and television. Radiation can also maim and kill, cause cancer in us and birth defects in our children. Discusses radiation as a major health hazard and indicates that it will become, if unchecked, the primary pollutant in our lifetime. Points up measures for achieving a delicate balance between the wise use and reckless abuse of radiation. HM, 1981, 208 p., \$9.95.

**2081: A Hopeful View of the Human Future**—Gerard K. O'Neill. The scientist who originated the space-colony concept predicts the future. This book is in four parts. The first discusses the lessons that can be learned from the colorful history of earlier attempts at predicting the future; the second describes five developments that the author believes will determine, alone and in combination, the course of the next hundred years; the third views the world of 2081; and the fourth explores the most exciting developments of a century from now that are just at the limits of possibility and some that are, perhaps, well beyond those limits. S&S, 1981, 284 p., illus., \$13.95.

**Note:** To coincide with Voyager 2's Saturn flyby (see p. 106), National Public Radio is presenting a five-day series of programs, called "Voyager-2 to Saturn... Through the Rings and Beyond." The programs, to be broadcast from Aug. 24 to Aug. 28, will feature interviews, music, press updates and "space sounds."

PBS will provide a series of daily reports, titled "Live from Saturn," Aug. 25 to Aug. 28. The programs will also include the most current photos being transmitted from Voyager 2, along with interviews and commentary by scientists involved with the mission. In addition, on Aug. 25 "NOVA" will feature a program documenting Voyager 1's findings called "Resolution on Saturn."

Please check local listings for broadcast times of all three programs.