Comet collision excites microwave emissions and perhaps lightning

**NEWS & COMMENT**

Blowup at Yucca Mountain 1836

Downsizing Squeezes Basic Research at the USGS 1840

NIH’s “Gay Gene” Study Questioned 1841

House Saves, Kills, Then Saves OTA 1842

Management Overhaul at Johns Hopkins 1842

Italy: Funding Reform Fights On Against Researchers’ Apathy 1843

Russia: Science Law Advances Despite Criticism 1844

The Netherlands: R&D Increase Targets Industry 1844

**RESEARCH NEWS**

New Alzheimer’s Gene Found 1845

Getting a Reaction in Close-up 1846

Controversy: Is KS Really Caused By New Herpesvirus? 1847

A Gentle Scheme for Unleashing Chaos 1848

**EDITORIAL**

Biomedical Research: A Vital Investment

**LETTERS**

Jovian Lightning After Comet Impacts? 1829

Vonnegut  Delaney Reform: S. M. Cohen et al.

Transgenic Plants: Effect on the Third World: P. K. Stumpf

Familial Polycythemia: J. T. Prchal, G. L. Semenza, J. Prchal, L. Sokol

Prebiotic 5-Substituted Uracils and a Primitive Genetic Code: S. Black; M. P. Robertson and S. L. Miller

Steroid Hormone- and Neurotransmitter-Induced Rat Sexual Behavior: Addendum: S. K. Mani, J. M. C.

**DEPARTMENTS**

THIS WEEK IN SCIENCE 1825

EDITORIAL 1827

Biomedical Research: A Vital Investment

LETTERS 1829

Jovian Lightning After Comet Impacts?: B. Vonnegut  Delaney Reform: S. M. Cohen et al.

Transgenic Plants: Effect on the Third World: P. K. Stumpf

Familial Polycythemia: J. T. Prchal, G. L. Semenza, J. Prchal, L. Sokol

Prebiotic 5-Substituted Uracils and a Primitive Genetic Code: S. Black; M. P. Robertson and S. L. Miller

Steroid Hormone- and Neurotransmitter-Induced Rat Sexual Behavior: Addendum: S. K. Mani, J. M. C.

**ARTICLE**

A Helical Polymer with a Cooperative Response to Chiral Information 1860

M. M. Green, N. C. Peterson, T. Sato, A. Teramoto, R. Cook, S. Lifson

**RESEARCH ARTICLE**

Crystal Structure of DNA Photolyase 1866

from Escherichia coli

H.-W. Park, S.-T. Kim, A. Sancar, J. Deisenhofer

**PERSPECTIVES**

Appropriate Partners Make Good Matches 1857

P. Karran

The Structure of Photolyase: Using Photon Energy for DNA Repair 1858

J. E. Hearst

**BOOK REVIEWS**

The Little Dinosaurs of Ghost Ranch, reviewed by L. F. Laporte

Other Books of Interest: Atlas of Compact Groups of Galaxies; Ketenes  Vignettes

Books Received

INSIDE AAAS 1931

PRODUCTS & MATERIALS 1934

QUARTERLY INDEX 1937

**BOARD OF REVIEWING EDITORS**

Frederick W. Alt
Don L. Anderson
Michael Ashburner
Stephen J. Benkovic
David E. Bloom
Phil Bourst
Henry R. Bourne
Michael S. Brown
James J. Bull
Kathryn Calame
C. Thomas Caskey
Denis W. Choi
John M. Coffin
F. Fleming Crim
Paul J. Crouzen
James E. Dahlberg
Robert Desimone
Bruce F. Edidzge
Paul T. Englund
Richard G. Fairbanks
Douglas T. Fearon
Harry A. Fozzard
Klaus Friedrich
Theodore H. Gleich
Roger L. M. Glass
Stephen F. Gough
Peter N. Goodfellow
Corey G. Goodman
Isa Hershkowitz
Eric F. Johnson
Stephen M. Kosslyn
Michael LaBarbera
Nicole Le Douarin
Charles S. Levings III
Alexander Levitzki
Harvey F. Lodish
Richard Losick
Reinhard Lührmann
Diane Mathis
Anthony R. Means
Shigetada Nakanishi
Roger A. Nicoll
Stuart L. Pimm
Yeshayau Pocker
Dennis A. Powers
Ralph S. Quinlan
V. Ramanathan
Douglas C. Rees
T. M. Risse
David C. Rubie
Erikk Ruoslahti
Gottfried Schatz
Josef Schell
Ronald H. Schwartz
Terrence J. Sejnowski
Ellen Solomow
Thomas A. Steitz
Michael P. Styrer
Robert T. N. Tjian
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Arthur Weiss
Zena Werb
George M. Whitesides
Owen N. Witte
William A. Wulf

1836
A mountain of trouble

1829, 1875, & 1879
Comet collision excites microwave emissions and perhaps lightning
A male gray seal issuing a threat. Colonially breeding gray seals are widely assumed to be typical polygynous mammals, with males competing for positions among groups of physically smaller, more numerous females. However, molecular genetic analysis reveals large numbers of full siblings. Such a pattern implies that many seals mate preferentially with previous partners. See page 1897. [Photo: P. P. Pomero/Sea Mammal Research Unit]

REPORTS

Optical Switching and Image Storage by Means of Azobenzene Liquid-Crystal Films T. Ikeda and O. Tsutsumi


Observation of Individual Chemical Reactions in Solution M. M. Collinson and R. M. Wightman

Skulls and Anterior Teeth of Catopithecus (Primates/Athropoidea) from the Eocene Anthropoid Origins E. L. Simons

A Scattered-Wave Image of Subduction Beneath the Transverse Ranges J. Revenaugh

Structure and Density of FeS at High Pressure and High Temperature and the Internal Structure of Mars Y. Fei, C. T. Prewitt, H.-k. Mao, C. M. Bertha

Managing the Evolution of Insect Resistance to Transgenic Plants D. N. Alstad and D. A. Andow

Evidence for Mate Fidelity in the Gray Seal B. Amos, S. Twiss, P. Pomero, S. Anderson

Common Virulence Factors for Bacterial Pathogenicity in Plants and Animals L. G. Rahme, E. J. Stevens, S. F. Wolfert, J. Shao, R. G. Tompkins, F. M. Ausubel


Requirement for TNF-α and IL-1α in Fetal Thymocyte Commitment and Differentiation J. C. Zúñiga-Pflücker, D. Jiang, M. J. Lenardo

Isolation of an hMSH2-p160 Heterodimer That Restores DNA Mismatch Repair to Tumor Cells J. T. Drummond, G.-M. Li, M. J. Longley, P. Modrich


Induction of Metaphase Arrest in Drosophila Oocytes by Chiasma-Based Kinetochore Tension J. K. Jang, L. Messina, M. B. Erdman, T. Arbcl, R. S. Hawley

TECHNICAL COMMENTS


AAAS Board of Directors

Francisco J. Ayala, Retiring President, Chairman
Rita R. Colwell, President
Jane Lubchenco, President-elect
William A. Lester Jr, Simon A. Levin, Michael J. Novacek

Anna C. Roosevelt, Alan Schneidem Jean E. Taylor
Chang-Lin Tien Nancy S. Wexler
William T. Golden, Treasurer
Richard S. Nicholson, Executive Officer

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005. Second-class postage (publication No. 484446) paid at Washington, DC, and additional mailing offices. Copyright © 1995 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): $97 (50% allocated to subscription). Domestic institutional subscription (51 issues): $299. Foreign postage extra: Mexico, Caribbean (surface mail): $53; other countries (air-assist delivery) $53. First class, airmail, student and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Printed in the U.S.A.

Change of address: allow 6 weeks, giving old and new addresses and 11-digit account number. Postmaster: Send change of address to Science, P.O. Box 2033, Marion, OH 43306-2033. Single copy sales: $7 each unless prepaid also includes surface postage, bulk rates on request. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that $3.00 per article is paid directly to CCC, 27 Congress Street, Salem, MA 01970. The identification code for Science is 0036-8075/85/53 $3.00. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.

SCIENCE • VOL. 268 • 30 JUNE 1995 1823

Indicates accompanying feature

Downloaded from http://science.sciencemag.org/ on April 10, 2017