This Week in Science

Editorial
9 Retrieval of Scientific and Technical Data

Perspective
13 Molecular Defects in Insulin Action: C. R. KAHN and B. J. GOLDSTEIN

Letters

Policy Forum
16 The Third Generation of the Space Age: G. A. KEYWORTH II and BRUCE ABELL

News & Comment
20 Science Advisers Need Advice ■ Ethics by the Book
23 NIH Grapples with Conflict of Interest
24 Representative Roe Rides to the Rescue
25 House Approves SSC Construction
Europe Says No to Animal Patents

Research News
26 Chaos Theory: How Big an Advance? ■ Art Imitates Chaos ■ Everywhere You Look, Everything Is Chaotic
29 Brown Dwarf Candidates Abound
30 Do Sperm Spread the AIDS Virus?
31 Random Samples: What Are You Worth? ■ Counting Heads ■ Cold Fusion Couture

Articles
32 Number of Siblings and Educational Attainment: J. BLAKE
37 Explosive Molecular Ionic Crystals: W. L. FAUST

Reports
43 Smectic Liquid Crystal Monolayers on Graphite Observed by Scanning Tunneling Microscopy: D. P. E. SMITH, H. HÖRBER, C. GERBER, G. BINNIG
45 Scaling Body Support in Mammals: Limb Posture and Muscle Mechanics: A. A. BIEWENER
48 Scale Invariance in Food Web Properties: G. SUGIHARA, K. SCHOENLY, A. TROMBLA

SCIENCE is published weekly on Friday, except the last week in December, and with an extra issue in February by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005. Second-class postage (publication No. 484460) paid at Washington, DC, and at an additional entry. Now combined with The Scientific Monthly® Copyright © 1989 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): $75. Domestic institutional subscription (51 issues): $120. Foreign postage extra: Canada $46, other (surface mail) $46, air mail via Amsterdam $95. First class, airmail, school-year, and student rates on request. Single copy sales: Current issue, $3.50; back issues, $5.00; Biotechnology issue, $6.00 (for postage and handling, add per copy $0.50 U.S., $1.00 all foreign); Guide to Biotechnology Products and Instruments, $18 (for postage and handling add per copy $1.00 U.S., $1.50 Canada, $2.00 other foreign). Bulk rates on request. Authorization to photocopy material for internal or personal use, or the text of articles for posting to internal library databases, is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $1 per copy plus $0.10 per page is paid directly to CCC, 27 Congress Street, Salem, Massachusetts 01970. The identification code for Science is 0036-8075/83 $1 + .10. Change of address: allow 6 weeks, giving old and new addresses and 11-digit account number. Postmaster: Send Form 3579 to Science, P.O. Box 1722, Riverton, NJ 08077. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.
Molecules of 10-alkylcyanobiphenyl condensed onto the surface of graphite are imaged with the scanning tunneling microscope (STM). The image is seen over an enlargement. The 56 by 56 Å² image has a height range of 1 Å, where red is highest and blue is lowest. The STM is sensitive to the different functional groups of the molecule; the biphenyl groups appear in the image as red ovals and the alkyl groups as green tails. See page 43. [Photograph by Douglas P. E. Smith; computer graphics by Michael Niksch and Lloyd LaComb, Jr., using a silicon Graphics Iris computer]

52 The Diageotropic Mutant of Tomato Lacks High Specific Activity Auxin Binding Sites: G. R. Hicks, D. L. Rayle, T. L. Lomax
54 Influence of Interior Packing and Hydrophobicity on the Stability of a Protein: W. S. Sandberg and T. G. Terwilliger
60 Pretranslational Suppression of an Insulin-Responsive Glucose Transporter in Rats with Diabetes Mellitus: W. T. Garvey, T. P. Huecksteadt, M. J. Birnbaum
68 Histone H5 in the Control of DNA Synthesis and Cell Proliferation: J.-M. Sun, R. Wiaderkiewicz, A. Ruiz-Carrillo
71 Rapid β-Adrenergic Modulation of Cardiac Calcium Channel Currents by a Fast G Protein Pathway: A. Yatani and A. M. Brown

76 Computer Programs for Mineral Exploration: F. P. Agterberg
82 The Rise of the Wave Theory of Light, reviewed by D. B. Wilson • Mercury, S. C. Solomon • Volcanic Hazards, T. Simkin • Mobile DNA, B. G. Hall

86 Neurophysiological Magnetic Stimulator • Detector for Liquid Chromatography • Real-Time Color Image Analysis • Molecular Modeling Software • Automated Capillary Electrophoresis • Oligonucleotide Purification Cartridges • Interferometric Refractometer • Literature

Board of Directors
Walter E. Massey
Ranier, President, Chairman
Mary Ellen Avery
Francisco J. Ayala
Floyd E. Bloom
Mary E. Clutter
Eugene H. Cota-Robles
Joseph G. Gavin, Jr.
John H. Gibbons
Beatriz A. Hamburg
William T. Golden
Treasurer
Richard S. Nicholson
Executive Officer
Elizabeth E. Bailey
David Baltimore
William F. Brinkman
E. Margaret Burbidge
Philip En Covers
Joseph L. Goldstein
Mary L. Good
F. Clark Howell
James D. Idol, Jr.
Leon Knopoff
Oliver E. Nelson
Helen M. Ranney
David P. Raup
Howard A. Schneiderman
Larry L. Smer
Robert M. Solow
James D. Watson
John Abelos
Qais Al-Awadi
Don L. Anderson
Stephen J. Benkovic
Floyd E. Bloom
Henry R. Bourne
James J. Bull
Kathryn Calame
Charles R. Cantor
Ralph J. Cocerone
John M. Collin
Robert Dormann
Bruce F. Eldridge
Paul T. Englund
Fredric E. Fay
Theodore H. Geisith
Roger L. Glass
Stephen P. Gol
Robert B. Goldberg
Corey S. Goodman
Jack Gorski
Stephen J. Gould
Richard M. Held
Gloria Hoppener
Eric F. Johnson
Konrad B. Krauskopf
Charles S. Levinson III
Richard Losick
Karl L. Magely
Philippa Mørrack
Joseph B. Martin
John C. McIlh
Morlimer Mishkin
Carl O. Pabo
Roger L. Glass
Stephen P. Gof
Robert B. Goldberg
Corey S. Goodman
Jack Gorski
Stephen J. Gould
Richard M. Held
Gloria Hoppener
Eric F. Johnson
Konrad B. Krauskopf
Charles S. Levinson III
Richard Losick
Karl L. Magely
Philippa Mørrack
Joseph B. Martin
John C. McIlh
Morlimer Mishkin
Carl O. Pabo
Yoshida Packer
Michael I. Pooser
Dennis A. Powers
Russell Ross
James E. Rothman
Enki Rusakal
Ronald H. Schwartz
Vernon L. Smith
Robert T. N. Tjian
Virginia Trimble
Enil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Harold Weintraub
Irving L. Weissman
George M. Whitesides
Owen N. Witte
William B. Wood