1039 This Week in Science

Editorial

1041 The Challenge to U.S. Competitiveness: ROBERT M. WHITE

Perspective

1043 What Myosin Might Do: F. SOLOMON

Letters


News & Comment

1052 Ozone Plan Splits Administration
1054 Regulating Pesticides: The “Delaney Paradox”
1055 PHS Revitalization Plan Stirs Up NIH
1056 Ariane, Shuttle Delayed Again
1057 Bavaria Requires AIDS Testing
1057 Prosecution Urged In Fraud Case
1058 Briefing: Madagascar Is the Focus of Habitat Project ■ Overhaul Recommended for British Geology ■ Congress to Weigh Animal Patents ■ IBM to Give Cornell a $20-Million Computer ■ A Warning on Oil Imports ■ Vaccine Test Okayed

Research News

1059 Leukemia Virus Linked to Nerve Disease
1061 The Earliest “Humans” Were More Like Apes
1063 An Oxygen Key to the New Superconductors: Where the Oxygen Vacancies Are ■ Vacancy Ordering and Superconductivity ■ Oxygen Isotypes Spell Trouble for Phonons

Articles

1069 Managing the Soils of Sub-Saharan Africa: R. LAL
1076 Freezing: A. D. J. HAYMET

Research Articles

1081 Antisense RNA Inactivation of Myosin Heavy Chain Gene Expression in Dictyostelium discoidum: D. A. KNECHT and W. F. LOOMIS
1086 Disruption of the Dictyostelium Myosin Heavy Chain Gene by Homologous Recombination: A. DE LOZANNE and J. A. SPUDIC

Reports

1092 Observation of Phase Transitions in Spreading Activation Networks: J. SHRAGER, T. HOGG, B. A. HUBERMAN

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. Copyright © 1987 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): $65. Domestic institutional subscription (51 issues): $98. Foreign postage extra: Canada $32, other (surface mail) $27, airmail via Amsterdam $56. First class, airmail, school-year, and student rates on request. Single copies $2.50 ($3 by mail). back issues $4 ($4.50 by mail); Biotechnology issue, $5.50 ($6 by mail); classroom rates on request; Guide to Biotechnology Products and Instruments $16 ($17 by mail). Change of address: allow 6 weeks, giving old and new addresses and seven-digit account number. 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 the base fee of $1 per copy plus $.10 per page is paid directly to CCC, 21 Congress Street, Salem, Massachusetts 01970. The identification code for Science is 0036-8075/87 $1 + .10. Postmaster: Send Form 3579 to Science, 1333 H Street, NW, Washington, DC 20005. 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.
cover Multinucleated cells of *Dicyostelium discoideum* cells that arise when cytokinesis is impaired by the lack of myosin heavy chain protein. The bright spots are nuclei fluorescently stained with the DNA binding dye Hoechst 33258 after fixation of the cells. The phenotype was produced by transforming cells with a vector that encodes myosin heavy chain antisense RNA. See pages 1081 and 1086. [D. A. Knecht and W. F. Loomis, University of California San Diego, La Jolla, CA 92093]


1098 Herbivory in Rocks and the Weathering of a Desert: M. Shachak, C. G. Jones, Y. Granot


1110 Human Cerebral Hemispheres Develop at Different Rates and Ages: R. W. Thatcher, R. A. Walker, S. Judice

1114 *Aedes albopictus* in North America: Probable Introduction in Used Tires from Northern Asia: W. A. Hawley, P. Reiter, R. S. Copeland, C. B. Pumpuni, G. B. Craig, Jr.


---

**Book Reviews**

1125 The Evolution of Human Behavior, reviewed by R. S. O. Harding ■ Phosphate Deposits of the World, P. Cloud ■ Fjords, B. F. Molnia ■ Aeolian Geomorphology, N. Lancaster ■ Books Received

**Software Reviews**

1128 The ASYST Software for Scientific Computing: D. Hary, K. Oshio, S. D. Flanagan

---

**Board of Directors**
Lawrence Bogod, Retiring President, Chairman
Sheila E. Widnall, President
Walter E. Massey, President-elect
Robert McC. Adams
Floyd E. Bloom
Mary E. Clutter
Mildred S. Dresselhaus
Beatriz A. Hamburg
Donald N. Langenberg
Frank von Hippel
Linda S. Wilson
William T. Golden
Treasurer
Alvin W. Trivelpiece
Executive Officer

**Editorial Board**
Elizabeth E. Bailey
David Baltimore
William F. Brinkman
Philip E. Converse
Joseph L. Goldstein
James D. Idol, Jr.
Leon Knopoff
Seymour Lipset
Oliver E. Nelson
David V. Ragone
David M. Raup
Vera C. Rubin
Larry L. Smarr
Solomon H. Snyder
Robert M. Solow
James D. Watson

**Board of Reviewing Editors**
John Abelson
Qais Al-Awqati
James P. Allison
Don L. Anderson
Elizabeth H. Blackbum
Floyd E. Bloom
Charles R. Cantor
James H. Clark
Bruce F. Edridge
Stanley Falkow
Theodore H. Gebele
Roger I. M. Glass
Stephen P. Goff
Robert B. Goldberg

**Board of Reviewing Editors**
Corey S. Goodman
Stephen J. Gould
Richard M. Held
Gloria Hoppner
Eric F. Johnson
Konrad B. Kruiskoepf
I. Robert Lehman
Karl L. Maglcy
Joseph B. Martin
John C. McGill
Alton Meister
Mortimer Mckhin
Peter Olson
Gordon H. Orians
Carl O. Pabo
John S. Pearse

---

**Table of Contents**

1128 The ASYST Software for Scientific Computing: D. Hary, K. Oshio, S. D. Flanagan

---

29 May 1987