1107 This Week in Science

Editorial

1109 New Horizons in Medicine

Letters


News & Comment

1117 Europe Split on Embryo Research
1118 A 20% Boost for Soviet Science
1119 Space Reactors Hinder Gamma-Ray Astronomy
1120 Collapse of a Radio Giant
1121 The Worm's Aftermath
1122 Soviet-Based Global Foundation Takes Shape • Sakharov Honored
1123 Genome Project "Alternative Nobels"

Research News

1124 Sunspot-Weather Link Holding Up
1125 One More Family of Superconductors
1126 NeXT Embraces a New Way of Programming
1128 Linguists Search for the Mother Tongue
1130 Random Samples: Feeding the Hungry • Authors, Authors! • Carlson's Oeuvre

Articles

1132 Self-Organization, Transformity, and Information: H. T. Odum
1139 Space, Stars, G6o, and Soot: H. Kroto

Research Articles

1146 Microinjected DNA from the X Chromosome Affects Sex Determination in Caenorhabditis elegans: W. K. McCoubrey, K. D. Nordstrom, P. M. Meneely

Reports


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. 484486) paid at Washington, DC, and at an additional entry, New York, NY. Copyright © 1988 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): $70. Domestic institutional subscription ($1 issues): $110. Foreign postage extra: Canada $32, other (surface mail) $32, air-surface via Amsterdam $85. First class, airmail, school-year, and student rates on request. Single copies $3.00; back issues $5.00; Biotechnology issue, $5.50 ($6 by mail); classroom rates on request; Guide to Biotechnology Products and Instruments $18 ($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 $0.10 per page is paid directly to CCC, 21 Congress Street, Salem, Massachusetts 01970. The identification code for Science is 0036-8075/88 $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 Colonies of the social wasp, *Polybia occidentalis* (yellows have been enhanced by the electronic flash), often have multiple queens as do colonies of many other neotropical wasps. The presence of multiple egg layers is expected to lower relatedness within colonies. The first estimates of relatedness for these wasps show that it is very low in one species, but in two other species it is not markedly lower than relatedness in some single-queen species. See page 1155. [Colin R. Hughes, Department of Biology, Rice University, Houston, TX 77251]

1155 Genetic Relatedness in Colonies of Tropical Wasps with Multiple Queens: D. C. Queller, J. E. Strassmann, C. R. Hughes

1157 Nitrogen Fixation by Anaerobic Cellulolytic Bacteria: S. B. Leschine, K. Holwell, E. Canale-Parola

1159 An In Vitro System for Accurate Methylation of Internal Adenosine Residues in Messenger RNA: P. Narayan and F. M. Rottman


1164 Intron Existence Predated the Divergence of Eukaryotes and Prokaryotes: M.-C. Shihi, P. Heinrich, H. M. Goodman

1166 HIV-Infected Cells Are Killed by rCD4-Ricin A Chain: M. A. Till, V. Ghetto, T. Gregory, E. J. Patzer, J. P. Porter, J. W. Uhr, D. J. Capon, E. S. Vittetta

1168 Fidelity of HIV-1 Reverse Transcriptase: B. D. Preston, B. J. Poesz, L. A. Loeb

1171 The Accuracy of Reverse Transcriptase from HIV-1: J. D. Roberts, K. Bebenek, T. A. Kunkel

1174 Demethylated CD8 Gene in CD4+ T Cells Suggests That CD4+ Cells Develop from CD8+ Precursors: A. M. Carbone, P. Marrack, J. W. Kappler

1176 Inositol 1,3,4,5-Tetrakisphosphate Induces Ca2+ Sequestration in Rat Liver Cells: T. D. Hill, N. M. Dean, A. L. Boynton

Book Reviews

1182 Science as a Process, reviewed by J. M. Smith • The Law of the Land, H. D. Woodman • Some Other Books of Interest • Books Received

Products & Materials

1186 80386-Based Laptop Computer • Liquid Scintillation Counter • pH Electrode for Small Volumes • Programmable Microtube Incubator • Cloning Systems for cDNA • Software for Chemical Inventory Management • Literature

Board of Directors
Sheila E. Widnall Retiring President, Chairman
Walter E. Massey President
Richard C. Atkinson President-elect

Floyd E. Bloom
Mary E. Clutter
Eugene H. Cote-Robles
Mildred S. Dresselhaus
Joseph G. Gavin, Jr.
John H. Gibbons
Beatriz A. Hamburg
Donald N. Langenberg
William T. Golden
Treasurer
Alvin W. Trivelpiece
Executive Officer

Editorial Board
Elizabeth E. Bailey
David Baltimore
William A. Brinster
E. Margaret Burbidge
Philip E. Converse
Joseph L. Goldstein
Mary L. Good
F. Clark Howell
James D. Idol, Jr.
Leon Knopff
Oliver E. Nelson
HeLEN M. Runney
David M. Raup
Howard A. Schneiderman
Larry L. Smarr
Robert M. Solow
James D. Watson

Board of Reviewing Editors
John Abelion
Osia Aucott
Don L. Anderson
Stephen J. Benkovic
Floyd E. Bloom
Henry R. Bourne
James J. Bull
Charles R. Cantor
Ralph J. Ciarone
John M. Coffin
Robert Dorfman
Bruce F. Eldridge
Paul T. Englund
Theodore H. Geballe
Roger I. M. Glass
Stephen P. Gold

Robert B. Goldberg
Corey S. Goodman
Jack Gorski
Stephen J. Gould
Richard M. Held
Gloria Hoppel
Eric F. Johnson
Konrad B. Krauskopf
Charles S. Levingis
Richard Losick
Kari L. Magleby
Philippa Marrack
Joseph B. Martin
John C. McGiff
Mortimer Mishkin
Jiri Novotny
Gordon H. Orians
Carl G. Pabo

Yeshayauf Pocker
Michael I. Posner
Dennis A. Powers
Jean Paul Revel
Russell Ross
James E. Rothman
Daniel V. Santii
Ronald H. Schwartz
Vernon L. Smith
Otto T. Solfibri
Robert T. N. Tjian
Virginia Trimble
Geerat J. Vermeij
Bert Vogelstein
Harold Weintraub
Irving L. Weissman
George M. Whitesides
Owen N. Witte
William B. Wood

25 November 1988

Table of Contents