147 This Week in Science

Editorial
149 Progress at AAAS

Letters
151 The Holly Oak Shell; J. F. Custer, J. C. Kraft, J. F. Wehmiller; R. Lewin
Demand for Electricity: T. M. Besmann; M. Crawford
Orangutan Tool Use: B. M. F. Galdikas

News & Comment
159 Science and the Lame-Duck Budget
160 New Hands on the Purse Strings
161 U.S.-Soviets Sign Collaboration
Europe Bans Bocuf à l'Estriadiol
162 "Wise Men" on Superconductors
163 Dear President-elect . . .: A Place at the Head Table
Slowing an Irreversible Experiment
"New Realities" in Space
Leadership and AIDS
165 FAA Fights Back on Plastic Explosives

Research News
167 Genome Project Under Way, at Last
168 Pruning the Thickets of Cosmic Speculation
170 How the Armenian Quake Became a Killer
Double Exposures Reveal Mini-Comets?
171 "Fragile X" Syndrome and Its Puzzling Genetics

Articles
177 Input Management of Production Systems: E. P. Odum
182 Ergodic Theory, Randomness, and "Chaos": D. S. Ornstein
187 Peptide and Protein Synthesis by Segment Synthesis-Condensation: E. T. Kaiser,

Research Articles
192 Molecular Sorting in the Secretory Pathway: K.-N. Chung, P. Walter,
G. W. Aponte, H.-P. H. Moore

Reports
198 Active Polar Region on the Nucleus of Comet Halley: H. J. Reitsema,
W. A. Delamere, F. L. Whipple
200 A Relation to Describe Rate-Dependent Material Failure: B. Voight
203 Observation of Individual DNA Molecules Undergoing Gel Electrophoresis:
S. B. Smith, P. K. Aldridge, J. B. Callis

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. Sec-
cond-class postage (publication No. 484460) paid at Washington, DC, and at an additional entry. Now combined with The
Scientific Monthly® Copyright © 1969 by the American Association for the Advancement of Science. The title SCI-
ENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): $70. Do-

cestic institutional subscription (51 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 copy sales: Current is-

sue, $3.50; back issues, $5.00; Biotechnology issue, $10.00 (for postage and handling, add per copy $0.50 U.S., $1.00 all
foreign); Guide to Biotechnology Products and Instruments, $15; (for postage and handling add per copy $1.00 U.S.,
$1.50 Canada, $2.00 other foreign). Bulk rates on request. Change of address: allow 6 weeks, giving old and new ad-
dresses and seven-digit account number. Authorization to photocopy material for internal or personal use under circum-
stances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users reg-
istered 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 0036-8075/89 $1.00. 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 the scientists, to facilitate cooperation among them, to foster scientific freedom and responsi-

bility, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and ap-
preciation of the importance and promise of the methods of science in human progress.
Visualization of brain activity during mental rotation. The neuronal population vector rotated gradually from 2 to 10 o'clock as a monkey was thinking (time upward, white line). The population vector was calculated from an ensemble of neurons recorded in the motor cortex. See page 234. [A. P. Georgopoulos, Department of Neuroscience, Johns Hopkins University School of Medicine, Baltimore, MD 21205]

206 Correct Folding of Circularly Permuted Variants of a \( \beta \alpha \) Barrel Enzyme in Vivo: K. Luger, U. Hommel, M. Herold, J. Hofsteenge, K. Kirschner

210 Involvement of Juvenile Hormone in the Regulation of Pheromone Release Activities in a Moth: M. Cusson and J. N. McNeil


214 A New Cluster of Genes Within the Human Major Histocompatibility Complex: T. Spies, G. Blank, M. Brensahani, J. Sands, J. L. Strominger


226 Dynamic Expression Pattern of the myc Protooncogene in Midgestation Mouse Embryos: P. Schmidt, W. A. Schulz, H. Hameister


231 A Yeast Actin-Binding Protein Is Encoded by SAC6, a Gene Found by Suppression of an Actin Mutation: A. E. M. Adams, D. Botstein, D. G. Drubin

234 Mental Rotation of the Neuronal Population Vector: A. P. Georgopoulos, J. T. Lurito, M. Petradies, A. B. Schwartz, J. T. Massey

Technical Comments


Book Reviews

241 The Evolution of Human Hunting, reviewed by J. D. Speth; Classical Probability in the Enlightenment, S. P. Turner; The Age of Lamarck, C. Limoeges; Plant Reproductive Ecology, D. C. Queller; Books Received

Products & Materials

246 Analytical Capillary Electrophoresis System; Antibodies; Molecular Distillation Dryer for TEM; Analytical Transmission Electron Microscope; DNA Synthesizer; Mammalian Transferrins; Literature