

# SCIENCE



**177**  
Cosmic ray  
observatories

## NEWS & COMMENT

- HHS: Gallo Guilty of Misconduct **168**  
Clinton Picks His Science Adviser **171**  
A Cloud With a Strange Dark Lining **171**  
Gene Therapy: Healy Approves an Unproven Treatment **172**

## RESEARCH NEWS

- How Do Particles Put on Weight? A Gauntlet of Tests for the Theory **173**  
Ancient and Modern, Rock and Fluid Meet in San Francisco **175**  
Magnetic Ripple Hints Gaspra Is Metallic **176**  
Astronomers Turn New Eyes on the Cosmic Ray Sky **177**  
How Nature Might Build a Cosmic Ray Accelerator

## ARTICLES

- The Directed Mutation Controversy and Neo-Darwinism **188**  
R. E. Lenski and J. E. Mittler  
Atmospheric Lifetimes of Long-Lived Halogenated Species **194**  
A. R. Ravishankara, S. Solomon, A. A. Turnipseed, R. F. Warren

## RESEARCH ARTICLE

- A 100-Year Average Recurrence Interval for the San Andreas Fault at Wrightwood, California **199**  
T. E. Fumal, S. K. Pezzopane, R. J. Weldon II, D. P. Schwartz

## REPORTS

- Verification of the Onsager Reciprocal Relations in a Molten Silicate Solution **204**  
F. J. Spera and A. F. Trial  
Comparative Compressibilities of Silicate Spinel: Anomalous Behavior of  $(\text{Mg,Fe})_2\text{SiO}_4$  **206**  
R. M. Hazen

## DEPARTMENTS

- THIS WEEK IN SCIENCE **157**  
EDITORIAL **159**  
Regulatory Costs  
LETTERS **161**  
Gun Ownership and Risk: P. H. Blackman; K. Kulman; A. Kellermann • The Future of Agricultural Research: R. Beachy, S. L. Huttner, A. K. Vidaver; P. Lyrene; K. A. Dahlberg • Antibiotic Resistance: V. Burdett • Enigmatic Arctic Cloud Plumes: C. K. Paull and W. J. Buelow  
SCIENCESCOPE **167**

- RANDOM SAMPLES **180**  
Koprowski Sues Rock Mag • Celestial Science in Mauritius • Scientific Papers: Top Producers of 1991 • Transgenic Escargots • Taxol Gains Quick FDA Approval • Secrets from Tibet's Icy Peaks, etc.  
BOOK REVIEWS **248**  
*Questions About Questions*, reviewed by W. S. Bainbridge • *Challenger at Sea*, W. P. Dillon • *The Proterozoic Biosphere*, A. H. Knoll • Vignettes: Human Genetics • Books Received  
PRODUCTS & MATERIALS **253**

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Six crystals of silicate spinel, a high-pressure mineral abundant in the transition zone of Earth's mantle, confined in a diamond-anvil cell (mount diameter, 0.45 millimeter). High-pressure x-ray studies of these crystals reveal that the  $Mg_2SiO_4$  end member is 13% more

compressible than the  $Fe_2SiO_4$  end member even though its molar volume is 6% less. Such anomalous compressibility suggests that the behavior of  $Mg^{2+}$  and  $Fe^{2+}$  at mantle pressures is divergent. See page 206. [Photo: R. M. Hazen]



**Mechanism Diversity of the Loma Prieta Aftershocks and the Mechanics of Mainshock-Aftershock Interaction** 210  
G. C. Beroza and M. D. Zoback

**Domain Structures in Langmuir-Blodgett Films Investigated by Atomic Force Microscopy** 213  
L. F. Chi, M. Anders, H. Fuchs, R. R. Johnston, H. Ringsdorf

**An Inhibitor of p34<sup>CDC28</sup> Protein Kinase Activity from *Saccharomyces cerevisiae*** 216  
M. D. Mendenhall

**The Prevention of Thymic Lymphomas in Transgenic Mice by Human O<sup>6</sup>-Alkylguanine-DNA Alkyltransferase** 219  
L. L. Dumenco, E. Allay, K. Norton, S. L. Gerson

**Terrestrial Soft-Bodied Protists and Other Microorganisms in Triassic Amber** 222  
G. O. Poinar, Jr., B. M. Waggoner, U.-C. Bauer

**Presentation of a Viral T Cell Epitope Expressed in the CDR3 Region of a Self Immunoglobulin Molecule** 224  
H. Zaghouni, R. Steinman, R. Nonacs, H. Shah, W. Gerhard, C. Bona

**Evidence for a Clonal Origin of Methicillin Resistance in *Staphylococcus aureus*** 227  
B. Kreiswirth, J. Kornblum, R. D. Arbeit, W. Eisner, J. N. Maslow, A. McGeer, D. E. Low, R. P. Novick

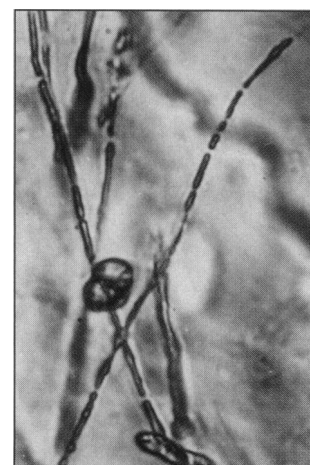
**Regulation of Heat Shock Factor Trimer Formation: Role of a Conserved Leucine Zipper** 230  
S. K. Rabindran, R. I. Haroun, J. Clos, J. Wisniewski, C. Wu

**Rate and Mechanism of Nonhomologous Recombination During a Single Cycle of Retroviral Replication** 234  
J. Zhang and H. M. Temin

**Circadian Rhythm in Membrane Conductance Expressed in Isolated Neurons** 239  
S. Michel, M. E. Geusz, J. J. Zaritsky, G. D. Block

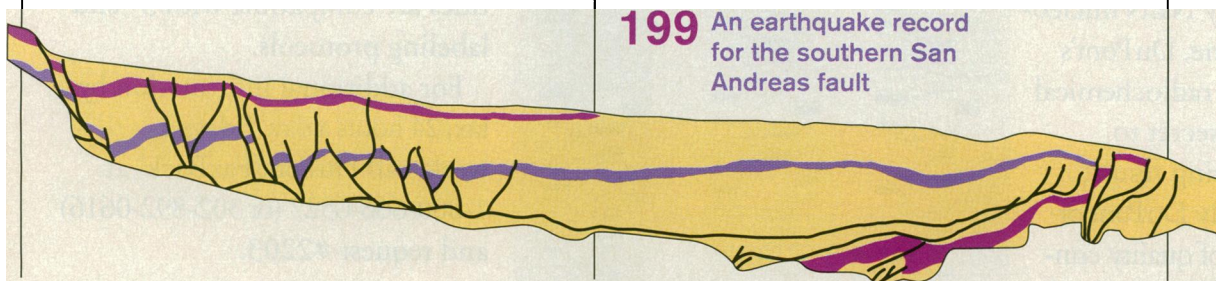
**Tyrosine Phosphorylation of Actin in *Dictyostelium* Associated with Cell-Shape Changes** 241  
P. K. Howard, B. M. Sefton, R. A. Firtel

**Forward Plasma Membrane Flow in Growing Nerve Processes** 244  
S. Popov, A. Brown, M.-m. Poo



**222**  
220- to 230-million-year-old microorganisms from amber

**199** An earthquake record for the southern San Andreas fault



■ Indicates accompanying feature

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