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? 173
A Gauntlet of Tests for the Theory
Ancient and Modern, Rock and Fluid
Meet in San Francisco
Magnetic Ripple Hints Gaspra Is Metallic 176
Astronomers Turn New Eyes on the Cosmic Ray Sky
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
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
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
F. J. Spera and A. F. Trial
Comparative Compressibilities of Silicates
Spinels: Anomalous Behavior of (Mg,Fe)₂SiO₄
R. M. Hazen

DEPARTMENTS

EDITORIAL

REGULATORY COSTS

LETTERS


REPORTS

RANDOM SAMPLES

BOOK REVIEWS

PRODUCTS & MATERIALS

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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$_2$SiO$_4$ end member is 13% more compressible than the Fe$_2$SiO$_4$ 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]
Editor's Summary

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