NEWS & COMMENT

Is There Life After the SSC? 644

New Rules Squeeze EPA Scientists 647

No Way to Cool the Ultimate Greenhouse 648

New Sellafield Study Poses a Puzzle 648

EMF-Cancer Links: Yes, No, and Maybe 649

RESEARCH NEWS

Human Embryo Cloning Reported 652

New Protein Appears to Be Long-Sought Neural Inducer

Going for the Old: Ancient DNA Draws a Crowd

El Niño Metamorphosis Throws Forecasters 656

Lithium Hints at Possessed Stars 657

Nonlinear Codes Straighten Up—and Get to Work

New Crater Age Undercuts Killer Comets 659

DEPARTMENTS

THIS WEEK IN SCIENCE 633

EDITORIAL 635

Frontiers in Neuroscience

LETTERS 637

NIH Support for Graduate Students: J. Hegde • NCRR Funding Mechanisms: J. L. Vaitukaitis • Environmental Hazards: Real or Exaggerated?: M. D. Green; B. Weiss; D. Redfield • Carcinogenicity Certification: P. Shubik • Excluded Gender?: D. Arnott • Volcanology in Europe: F. Barberi • Mesostructure Silicate Names: G. Stucky

FRONTIERS IN NEUROSCIENCE

PERSPECTIVES

Seeing the Mind 673

M. I. Posner

Molecular Genetics of Neurological Diseases 674

J. B. Martin

Excitement About Calcium Signaling in Inexcitable Cells 676

J. W. Putney Jr.

ARTICLES

Thalamocortical Oscillations in the Sleeping and Aroused Brain 679

M. Steriade, D. A. McCormick, T. J. Sejnowski

Neuronal Mechanisms of Object Recognition 685

K. Tanaka

Oxidative Stress, Glutamate, and Neurodegenerative Disorders 689

T. J. Coyle and P. Puttfarken

Programmed Cell Death and the Control of Cell Survival: Lessons from the Nervous System 695

M. C. Raff, B. A. Barres, J. F. Burne, H. S. Coles, Y. Ishizaki, M. D. Jacobson

Board of Reviewing Editors

June 1993

Copyright 1993 by the American Association for the Advancement of Science

630 SCIENCE • VOL. 262 • 29 OCTOBER 1993

Noggin protein, identified as a neural inducer

J. Abelson

F. W. Bloom

D. E. Bloom

P. Borst

M. S. Brown

H. Bourne

J. Bull

K. Calame

C. Thomas Caskey

D. Choi

R. Coffin

J. Cudjoe

R. Desmonde

N. DeSouzann

B. Eldridge

P. Enlund

R. Fath

D. Fears

E. Frazz

K. Fiedrich

T. H. Geballe

M. Jordan

J. K. Giger

J. C. Gerard

R. M. Glass

S. P. Goff

S. Goodfellow

S. Goodman

S. Gould

J. Herskowitz

E. F. Johnson

M. Kossly

M. LaBarbera

S. Lavin

A. Levkoff

H. Lodish

R. Lowzik

D. Mathis

A. Means

C. Nakashima

R. Nicoll

W. Orme-Johnson

I. Pimm

Y. Pocker

D. Powers

R. Guastino

V. Ramachar

D. Rees

T. Rice

M. Ruoslahti

D. Ruben

G. Schatz

S. Scheib

R. Schwartz

A. Sejnowski

T. Steitz

M. Steinberg

R. Thompson

T. T. Toge

E. Umez

G. Vermeij

B. Voltaire

W. Whitehead

W. Witte

W. Wulf

K. Yamamoto

Downloaded from http://science.sciencemag.org/ on July 11, 2021
Salvador Dali's *Raphaelesque Head Breaking* (1951) portrays the logarithmic spirals of the rhinoceros horn, the dome of the Pantheon, and the contemplative Madonna. Scientists are pushing the frontiers of neuroscience in all directions and may even enter into the realms of mathematics, architecture, and faith. This special issue samples the variety in neuroscience. See the Editorial, the News story on page 653, the Research Article on page 713, and the section of Perspectives and Articles beginning on page 673. [Transparency: Bridgeman/Art Resources, NY. Reproduced with permission from Artists Rights Society, NY]

RESEARCH ARTICLE

Neural Induction by the Secreted Polyopeptide Noggin

REPORTS

Laser Ablation and the Production of Polymer Films

Identification of Complex Aromatic Molecules in Individual Interplanetary Dust Particles
S. J. Clemett, C. R. Maechling, R. N. Zare, P. D. Swan, R. M. Walker

The Effect of Changing Land Use on Soil Radiocarbon
K. G. Harrison, W. S. Broecker, G. Bonani

Crustal Thickness on the Mid-Atlantic Ridge Bull's-Eye Gravity Anomalies and Focused Accretion
M. Tolstoy, A. J. Harding, J. A. Orcutt

The Manson Impact Structure: *Ar/Ar* Age and Its Distal Impact Ejecta in the Pierre Shale in Southeastern South Dakota
G. A. Izett, W. A. Cobban, J. D. Obradovich, M. J. Kunk

Mississippian Fossils from Southern Appalachian Metamorphic Rocks and Their Implications for Late Paleozoic Tectonic Evolution
R. A. Gastaldo, G. M. Guthrie, M. G. Steltenpohl

Structure at 2.5 Å of a Designed Peptide That Maintains Solubility of Membrane Proteins
C. E. Schafmeister, L. J. W. Miercke, R. M. Stroud

Analysis of a Nucleoprotein Complex: The Synaptosome of γδ Resolveval N. D. F. Grindley

Calcium Sparks: Elementary Events
H. Cheng, W. J. Lederer, M. B. Cannell

Microdomains with High Ca²⁺ Close to IP₃-Sensitive Channels That Are Sensed by Neighboring Mitochondria
R. Rizzuto, M. Brini, M. Murgia, T. Pozzan

Alterations of a Zinc Finger-Encoding Gene, BCL-6, in Diffuse Large-Cell Lymphoma

Isolation of the Cyclosporin-Sensitive T Cell Transcription Factor NFATp

Nonuniform Probability of Glutamate Release at a Hippocampal Synapse
C. Rosenmund, J. D. Clements, G. L. Westbrook

Functional Stoichiometry of Shaker Potassium Channel Inactivation
R. MacKinnon, R. W. Aldrich, A. W. Lee

TECHNICAL COMMENTS

Spatial Learning in Mutant Mice

Gravitational Separation in Polar Firn

AAAS Board of Directors

F. Sherwood Rowland
Retiring President, Chairman
Elise E. Clark President
Francisco J. Ayala President-elect
Robert A. Frosch President
Florence P. Haselton President
William A. Lester, Jr. Executive Officer

*SCIENCE* (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005. Second-class postage (publication No. 484466) paid at Washington, DC, and additional mailing offices. Copyright © 1993 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): $87 ($47 allocated to subscription); Domestic institutional subscription (51 issues): $220. Foreign postage extra: Mexico, Caribbean (surface mail) $50; other countries (air assisted delivery) $15. First class, airmail, student and emeritus rates on request. Canadian rates with GST available upon request, GST #1254-88122. Change of address: allow 6 weeks, giving old and new addresses and 11-digit account number. Postmaster: Send change of address to Science, P.O. Box 2033, Marion, OH 43305-2033. Single copy sales: $6.00 per issue prepaid includes surface postage. Guide to Biotechnology Products and Instruments, $20. Bulk rates on request. 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, 27 Congress Street, Salem, MA 01970. The identification code for Science's 0036-8075/93 $1 - 10. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.
Science 262 (5134), 633-779.