LETTERS

EDITORIAL
Handcuffing Science: ................................................. 1207

ARTICLES
Catalytic Processes in the Atmospheres of Earth and Venus: W. B. DeMore and Y. L. Yung ............................................. 1209
Living with Water Stress: Evolution of Osmolyte Systems: P. H. Yancey et al. .................. 1214
Some Effects of Disconnecting the Cerebral Hemispheres: R. Sperry .................................. 1223

NEWS AND COMMENT
White House Study Plows into Ag Research ................................................ 1227
Briefing: Science Board Nominations; A New Pot of Money for Plant Sciences; Stephen Bechtel Appointed NAE Chairman; Cetus Cuts Projects, Lays Off 40 People; Pesticide Data Released ........................................ 1228
Curbing the Antiquities Trade ................................................. 1230
OSHA Reviewing Cotton Dust Standards ...................................... 1232
Export Control Threat Disrupts Meeting ..................................... 1233

RESEARCH NEWS
Rethinking the Future of Magnetic Fusion ........................................ 1235
How Can Computers Get Common Sense? .................................... 1237
A Downward Slope to Greater Diversity ...................................... 1239

BOOK REVIEWS
The Inheritance of Personality and Ability, reviewed by J. C. Loehlin; Population and Biological Aspects of Human Mutation, J. W. MacCluer; Organization in the Spinal Cord, E. R. Perl; Relation between Laboratory and Space Plasmas, C. K. Goertz; Fire Ecology, J. K. Agee; Books Received .............................................. 1241
### Cloud Feedback: A Stabilizing Effect for the Early Earth?

W. B. Rossow, A. Henderson-Sellers, S. K. Weinreich ........................ 1245

### Numbers of Receptor Sites from Scatchard Graphs: Facts and Fantasies

I. M. Klotz .......................................................... 1247

### Direct Determination of Ionic Solvation from Neutron Diffraction

A. H. Narten and R. L. Hahn ........................................ 1249


### Fluorescence Microscopy: Reduced Photobleaching of Rhodamine and Fluorescein Protein Conjugates by n-Propyl Gallate: H. Giloh and J. W. Sedat .............................. 1252

### Stimulation of Colonic Secretion by Lipoygenase Metabolites of Arachidonic Acid: M. W. Musch et al. .................................................. 1255

### Bleb Formation in Hepatocytes During Drug Metabolism Is Caused by Disturbances in Thiol and Calcium Ion Homeostasis: S. A. Jewell et al. ........................................ 1257

### Polyamines and Plant Stress: Activation of Putrescine Biosynthesis by Osmotic Shock: H. E. Flores and A. W. Galston ........................................ 1259

### Glycolipids in Mammalian Epidermis: Structure and Function in the Water Barrier: P. W. Wertz and D. T. Downing ........................................ 1261

### Cystine Transport Is Defective in Isolated Leukocyte Lysosomes from Patients with Cystinosis: W. A. Gahl et al. ........................................ 1263

### Transmethylation of Phosphatidylethanolamine: An Initial Event in Embryonic Chicken Lens Fiber Cell Differentiation: P. S. Zelenka, D. C. Beebe, D. E. Feagans .................................................. 1265

### Scaling in Tensile “Skelettons”: Structures with Scale-Independent Length Dimensions: J. A. Peterson et al. ........................................ 1267

### Detoxification Enzyme Differences Between a Herbivorous and Predatory Mite: C. A. Mullin et al. .................................................. 1270

### Naloxone Antagonism of the Thermoregulatory Effects of Phencyclidine: S. D. Glick and R. A. Guido .................................................. 1272

### Characterization of Estrogen-Concentrating Hypothalamic Neurons by Their Axonal Projections: J. I. Morrell and D. W. Pfaff .................................................. 1273

### Enhancement of Sexual Behavior in Female Rats by Neonatal Transplantation of Brain Tissue from Males: G. W. Arendash and R. A. Gorski .................................................. 1276

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**Cover**

Giant bladder kelp, *Macrocystis pyrifera*. Marine plants and animals, as well as other organisms that encounter water stress, utilize a small number of organic molecules as the dominant intracellular osmolytes ("osmolites"). Polyhydric alcohols, amino acids and their derivatives, urea, and methylamines are the major osmolites in virtually all water-stressed species except the halophilic bacteria. The selective advantages of these organic osmolyte systems include the establishment of a cellular microenvironment compatible with macromolecular structure and function. See page 1214. [Craig Cary, Scripps Institution of Oceanography, La Jolla, California 92037]
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