This Week in Science .......................... 1362

LETTERS NIH Budget and Better Health: L. Sagan; D. E. Koslund, Jr.; Textbooks and Profits: W. Kaufmann; Inyo Dike Rotation: J. Fink and D. Pollard; Nuclear Reactor Safety: S. Aftergood; CIBA-GEIGY Origins: N. A. de Bruyne .......................... 1382

EDITORIAL Peer Review of Peer Review .................................. 1387

ARTICLES Gas Jets Associated with Star Formation: W. J. Welch et al. .......................... 1389
Long-Term Ecosystem Stress: The Effects of Years of Experimental Acidification on a Small Lake: D. W. Schindler et al. .......................... 1395

NEWS AND COMMENT Radical Surgery in Uranium Enrichment .......................... 1407
AVLIS: A Clear Winner .................................. 1408
NRC Finds Few Risks for Atomic Vets .................................. 1409
Briefing: NSF Unplugs Wisconsin Synchrotron Source; Great Plains Project Hangs in the Balance; Caltech, MIT Deny Role in Star Wars Research; Judge Blocks Biological Warfare Laboratory .......................... 1410
An Omnifarious Data Bank for Biology? .................................. 1412
Host of Problems Threaten National Parks .................................. 1413
GM Buys Hughes for $5 Billion .................................. 1414

RESEARCH NEWS Clotting Protein Cloned .................................. 1415
Slime Molds on the Wing .................................................. 1416
Los Alamos Neutron Source Meets First Test ......................... 1417

BOOK REVIEWS
The Inka Road System, reviewed by P. J. Lyon; Neurophysiological Approaches to Higher Brain Functions, R. Porter; Physiology of Cell Aging, C. E. Finch; Spinors and Space-Time, G. Horowitz; Reprints of Books Previously Reviewed; Books Received .................................................. 1420

REPORTS
Mechanisms Controlling Phosphorus Retention Capacity in Freshwater Wetlands: C. J. Richardson ........................................... 1424
Studies of the Putative Transforming Protein of the Type I Human T-Cell Leukemia Virus: D. J. Slamon et al. ........................................... 1427/
A Transcriptional Activator Protein Encoded by the x-lor Region of the Human T-Cell Leukemia Virus: J. Sodroski et al. .......................... 1430/
Oxidation of Persistent Environmental Pollutants by a White Rot Fungus: J. A. Bumpus et al. ..................................................... 1434
Rationale for Development of a Synthetic Vaccine Against Plasmodium falciparum Malaria: F. Zavala et al. ........................................... 1436
Involvement of the bcl-2 Gene in Human Follicular Lymphoma: Y. Tsujimoto et al. .............................................................. 1440
Mitochondrial DNA Size Variation Within Individual Crickets: R. G. Harrison, D. M. Rand, W. C. Wheeler .................................................. 1446
Selective Inhibition of Fibronectin-Mediated Cell Adhesion by Monoclonal Antibodies to a Cell-Surface Glycoprotein: P. J. Brown and R. L. Juliano .... 1448
Morpheine-Induced Delay of Normal Cell Death in the Avian Ciliary Ganglion: S. D. Meriney, D. B. Gray, G. Pilar .......................................... 1451
Knowledge Without Awareness: An Autonomic Index of Facial Recognition by Prosopagnosics: D. Tranel and A. R. Damasio .................................. 1453

Cover
Young stand of bald cypress trees (Taxodium distichum) in a swamp near New Orleans, Louisiana. Cypress, a needle-leaved deciduous conifer, is one of the most flood-tolerant tree species and is often found in pure stands. Cypress knees, suggested adaptations to flooding, are a unique feature of this species. Spanish moss (Tillandsia usneoides), hanging from the branches (foreground), and duckweed (Lemna spp.), covering much of the standing water, are common plant associates in this palustrine, forested wetland. See page 1424. (C. J. Richardson, Duke University, Durham, North Carolina 22706)
Peer Review of Peer Review

Peer review is once again under review. That is appropriate in one sense, as any policy that continually affects many lives and large amounts of money should be appraised periodically. A committee of the National Science Foundation is evaluating peer review; the president of the National Academy of Sciences has mentioned the need for reform; the anguished recipients of “approved but not funded” notices have cried for reform.

Undoubtedly some reforms are needed, but they must be evaluated against the backdrop of the decision-making system that has in the main been responsible for the spectacular developments of modern science. Some of the current demands for reform are activated by a crisis that peer-review committees cannot solve—that is, lack of money. One of the complaints is that in the “good old days” the review committees were more distinguished than they are today. Perhaps so. The members of those old review committees, however, have had time to become well known; the current members have not. Even if they were more distinguished, the old committees were evaluating grants in an era in which the competition was not as severe as it is now, and priority scores for funding were reasonable. With quality as high as it is today, and funding low, a committee of Solomons would have difficulty distinguishing between grants that should and should not be awarded.

Science has done quite well in annual budgets in recent decades. What, then, is causing the current crisis? Not only is there inflation in the cost of materials, but the information needed to prove a point has expanded because more complex problems are being approached. Scientists need more dollars to solve problems because of the advancing sophistication of research. Another factor is that university overhead has taken a higher percentage of the total research money. Finally, and probably most important, there are many more investigators. The general impression of the granting agencies is that current researchers are better trained than were their predecessors. The sheer size of the competition means that each investigator, understanding the law of mass action, applies for multiple grants, thereby increasing the work load of the peer reviewers.

Do scientists think they are writing too many grant proposals? Of course not. Do university presidents think they are asking for too much overhead? Of course not. Do editors think they are requiring too much data for an acceptable article? Of course not. It follows as the night the day that peer reviewers are at fault.

Are peer-review procedures beyond criticism? Again, of course not. Procedures that worked when funding levels were higher certainly deserve reexamination when conditions change, but it is appropriate to reexamine all aspects—university overhead, policy matters that affect the distribution of grants, appropriate levels of total support, and so on, as well as peer review.

The agencies with the most distinguished records of funding fundamental research, the National Science Foundation and the National Institutes of Health, have had peer-review procedures that their constituents respect and defend. When “czars” have been placed in charge of distributing money, unfortunate results have ensued. Those who would like a “spoils system” would like to eliminate peer review. Scientists who are correctly raising a question in regard to improvement in peer-review procedures must take care to emphasize that they want evolution and not revolution, lest others in legislative or administrative circles demand abolishment of a system that has served science and the country so well.—DANIEL E. KOSHLAND, JR.