

263 This Week in *Science*

## Editorial

265 Managing Technology

## Letters

267 Replication and the Scientific Method: A. G. GOLDSTEIN ■ Public School Teaching: An Alternative: W. SIMON ■ GenBank Status Report: C. BURKS, J. FICKETT, W. GOAD ■ "Toxic Torts": A. S. LEVIN ■ SDI Goals: R. GANGE

## News & Comment

271 Nuclear Winter Debate Heats Up  
273 Berkeley Changes Tack on Reactor  
274 U.S.-Japan Study Aim Is Education Reform  
275 NASA Announces a Plan to Reform Management Practices  
276 NIH Finds Argentine Experiment Did Not Break U.S. Biotechnology Rules  
277 Debate Over SDI Enters New Phase ■ The Conventional Look of Near-Term SDI  
280 *Briefing*: House of Lords Wants U.K. Research Assessed ■ New French Minister

## Research News

281 Fire! New Ways to Prevent It  
283 The Texas Symposium on Relativistic Astrophysics: Keeping Current with Cosmic Strings ■ Exploring the Lyman-alpha Forest ■ New Variables for Quantum Gravity  
285 A New Wave of Enzymes for Cleaving Prohormones

## Articles

295 Development of a More Market-Oriented Economy in China: G. C. CHOW  
299 Geologic Evolution of Northern Tibet: Results of an Expedition to Ulugh Muztagh: P. MOLNAR, B. C. BURCHFIEL, Z. ZIYUN, L. K'UANGYI, W. SHUJI, H. MINMIN  
305 The Molecular Genetics of Cancer: J. M. BISHOP

## Research Articles

312 Many Random Sequences Functionally Replace the Secretion Signal Sequence of Yeast Invertase: C. A. KAISER, D. PREUSS, P. GRISAFI, D. BOTSTEIN

## Reports

318 Multiple Conformational States of Proteins: A Molecular Dynamics Analysis of Myoglobin: R. ELBER AND M. KARPLUS  
321 Construction of a Novel Oncogene Based on Synthetic Sequences Encoding Epidermal Growth Factor: D. F. STERN, D. L. HARE, M. A. CECCHINI, R. A. WEINBERG  
325 Cellular and Subcellular Heterogeneity of  $[Ca^{2+}]_i$  in Single Heart Cells Revealed by Fura-2: W. G. WIER, M. B. CANNELL, J. R. BERLIN, E. MARBAN, W. J. LEDERER

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**COVER** Triassic sandstone and shale in valley northeast of Ulugh Muztagh, the peak on the horizon and behind the glacier in the middle ground. Note rounded topography near the glacier where Triassic sandstone, siltstone, and shale crop out and the steep topography of the mountain where metamorphic equivalents of these Triassic rocks are more resistant to erosion. See page 299. [Peter Molnar, Massachusetts Institute of Technology, Cambridge, MA 02139]

- 328 A Subset of Yeast snRNA's Contains Functional Binding Sites for the Highly Conserved Sm Antigen: N. RIEDEL, S. WOLIN, C. GUTHRIE
- 331 Lunar-Molulated Geomagnetic Orientation by a Marine Mollusk: K. J. LOHMANN AND A. O. D. WILLOWS
- 334 Myosin Rod Phosphorylation and the Catch State of Molluscan Muscles: L. CASTELLANI AND C. COHEN
- 337 Slow Transport of Tubulin in the Neurites of Differentiated PC12 Cells: C. H. KEITH
- 340 Cytosolic Acidification as an Early Transducing Signal of Human Neutrophil Chemotaxis: I. YULI AND A. OPLATKA
- 342 Chaotic Bursts in Nonlinear Dynamical Systems: R. L. DEVANEY
- 345 Forskolin and Phorbol Esters Reduce the Same Potassium Conductance of Mouse Neurons in Culture: D. S. GREGA, M. A. WERZ, R. L. MACDONALD
- 348 Yeast KEX2 Protease Has the Properties of a Human Proalbumin Converting Enzyme: I. C. BATHURST, S. O. BRENNAN, R. W. CARRELL, L. S. COUSENS, A. J. BRAKE, P. J. BARR
- 350 Epithelial Wound Healing Enhanced By Transforming Growth Factor- $\alpha$  and Vaccinia Growth Factor: G. S. SCHULTZ, M. WHITE, R. MITCHELL, G. BROWN, J. LYNCH, D. R. TWARDZIK, G. J. TODARO
- 352 Antidepressant and Circadian Phase-Shifting Effects of Light: A. J. LEWY, R. L. SACK, L. S. MILLER, T. M. HOBAN
- 354 Wind Speed and Mortality Rate of a Marine Fish, the Northern Anchovy (*Engraulis mordax*): R. M. PETERMAN AND M. J. BRADFORD

## Technical Comments

- 356 In Vivo Activation of CD4<sup>+</sup> Cells in AIDS: D. FUCHS, A. HAUSEN, P. HENGSTER, G. REIBNEGGER, T. SCHULZ, E. R. WERNER, M. P. DIERICH, H. WACHTER

## Book Reviews

- 371 No Ivory Tower, reviewed by C. S. GRUBER ■ Inner Space/Outer Space, P. J. E. PEEBLES ■ Mind and Brain, B. BRIDGEMAN ■ Yeast Cell Biology, R. C. DICKSON ■ Books Received

## Products & Materials

- 375 Data Acquisition Computer System ■ Micropipette Injector ■ Thermostable Inert Column ■ Multichannel Pipetting Instrument ■ Bioreactor ■ Laser Power Stabilizers ■ Literature

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## Managing Technology

Many thoughtful people are concerned about the future of this country. They are uneasy about loss of technological competitiveness, a mounting trade imbalance, and the probability that the nation is living beyond its means and may face the need to accept a lower standard of living. They have long been troubled by reports of deleterious side effects of technology. Their discomfort is enhanced by a feeling that they are helpless to have even a slight impact on events. Most of those who would like to influence decisions about the future do not know how. They have little knowledge about how society and its political and communications systems work. Edward Wenk, a veteran of the national political scene and an engineer, has produced a book that will interest them.\* This volume provides insightful perspectives on how technology interacts with the various segments of society and notes that the key decisions in the grand issues involving technology are made by public policy, not in the marketplace.

Pollsters have determined that television programs are exposed an average of 7.5 hours a day in American households. Accordingly, one of the realities of the present is the great impact that the media can have on popular opinion, rendering it volatile. In turn, the media recognize that if they do not produce excitement, they will lose their audience. The offerings tend to concentrate on disasters. Complex issues and important matters affecting the future get little attention. Correspondingly, as Wenk points out, pressures transmitted by the public "tilt the legislative process to favor what is urgent rather than what is important." Wenk further states: "Most issues seem propelled by either crisis or pressure. Legislative histories generally confirm this pattern, although there are exceptions. Some issues are also driven by a tidal wave of popular sentiment where people lead their leaders."

In what follows, the scene of the political action is described. Washington and the surrounding metropolitan area are largely devoted to politics and to attempts to influence legislation and the regulations pertaining to the laws. More than 45,000 lawyers are licensed to practice in the District of Columbia. The government is, of course, the largest employer of personnel, but thousands of professional and trade associations together rank second. For many years, the region has had a great building boom with tens of millions of square feet of office space added. The complement of federal employees in the Executive Branch has expanded somewhat, but the great increase has been in congressional staffers. In the last two decades, their numbers have increased about fivefold, and they now total nearly 40,000. Washington seethes with activities of major and minor players—perhaps 100,000 of them—intent on influencing events. Trying to monitor the most exciting developments is a press and electronic media corps that totals more than 5,000.

One way or another, most of the issues being dealt with have to do with money, power, and influence. They also often have a substantial content of technology. The political system seems to find it difficult to legislate simply about technology. In the last two decades, the average number of pages devoted to each law has tripled, as has the number of pages in the *Federal Register*. Last year, nearly 50,000 pages were devoted to new or amended and proposed or final regulations. The regulations are often so complex that those affected, though professionals, find it difficult to comprehend the language.

Members of Congress are in general conscientious and well meaning, but they have little free time for contemplation while in Washington. Each serves on an average of more than seven committees or subcommittees. They must manage staff, be available for key constituents, deal with the media, and attend innumerable social functions.

In view of the frenetic atmosphere in Washington, scientists and engineers in the hinterlands should consider the advantages of activities in the home states and districts. On visits home, politicians may be more receptive to well-considered positions from a group of constituents than they would be elsewhere. By the nature of their professions, scientists and engineers tend to be alert to developments that may affect the national and global future. They could provide a perspective for politicians that is missing in Washington.

—PHILIP H. ABELSON

\*E. Wenk, Jr., *Tradeoffs* (Johns Hopkins Univ. Press, Baltimore, 1986).