24 September 1982 • Vol. 217 • No. 4566

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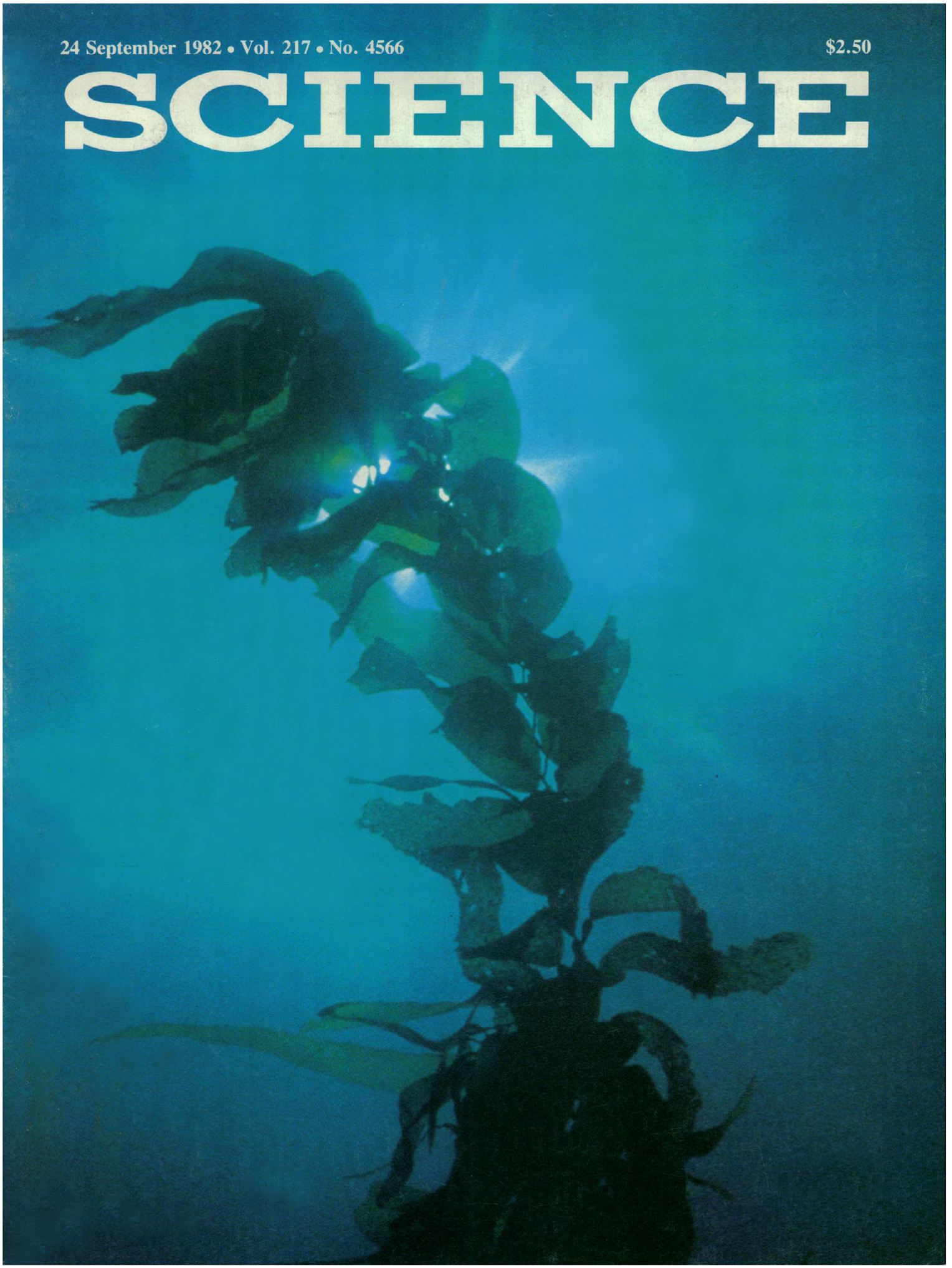
SCIENCE



The Gentle, Rapid Way to Separate Living Cells.

This technician has just prepared a fraction containing 95% granulocytes from human serum with the Beckman Elutriator Rotor System. Cell viability was excellent.

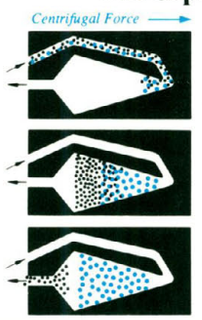
In the past four years, the technique of centrifugal elutriation has become extremely popular for synchronization studies of cultured cells, for separating blood cells, and for separating cells from tissues such as bone marrow, liver, lung, spleen and solid tumors. Elutriation has many advantages: isotonic media can be used to avoid osmotic or toxic effects of gradient materials, and there is no exposure to the effects of pelleting. Viability, purity, and recovery rates can range close to 100 percent, depending on the type of cell. And separation times are relatively brief.

The complete Elutriator System consists of an Elutriator Rotor used in either a high speed Beckman J-21 series centrifuge, or a low-speed J-6 series centrifuge. The new "M" versions (J2-21M and J-6M) are ideal for elutriation since they have extra capabilities built-in.

Our current applications literature describes the studies which have used the Elutriator System. Be sure to send for it if you're involved in any way with cell separations.

Write Beckman Instruments, Inc., Spinco Division, P.O. Box 10200, Palo Alto, CA 94304.

The Separation Chamber



1. Sample suspended in a medium enters Chamber.
2. Sedimentation tendency of particles balanced by counterflow.
3. Flow increased—slow-sedimenting particles elutriated out of chamber.

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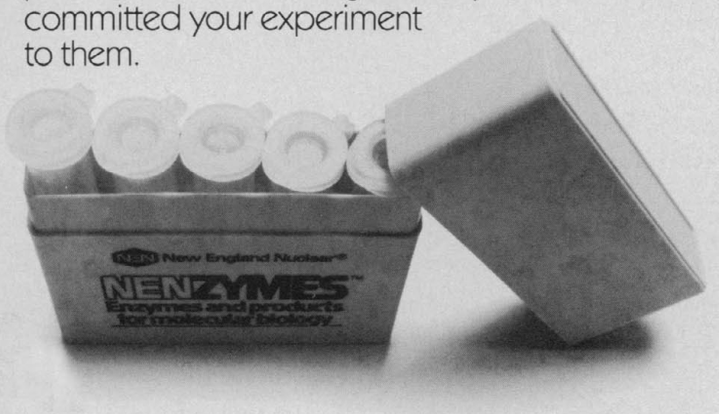

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LEADER IN BIOTECHNOLOGY

ISSN 0036-8075

24 September 1982

Volume 217, No. 4566

SCIENCE

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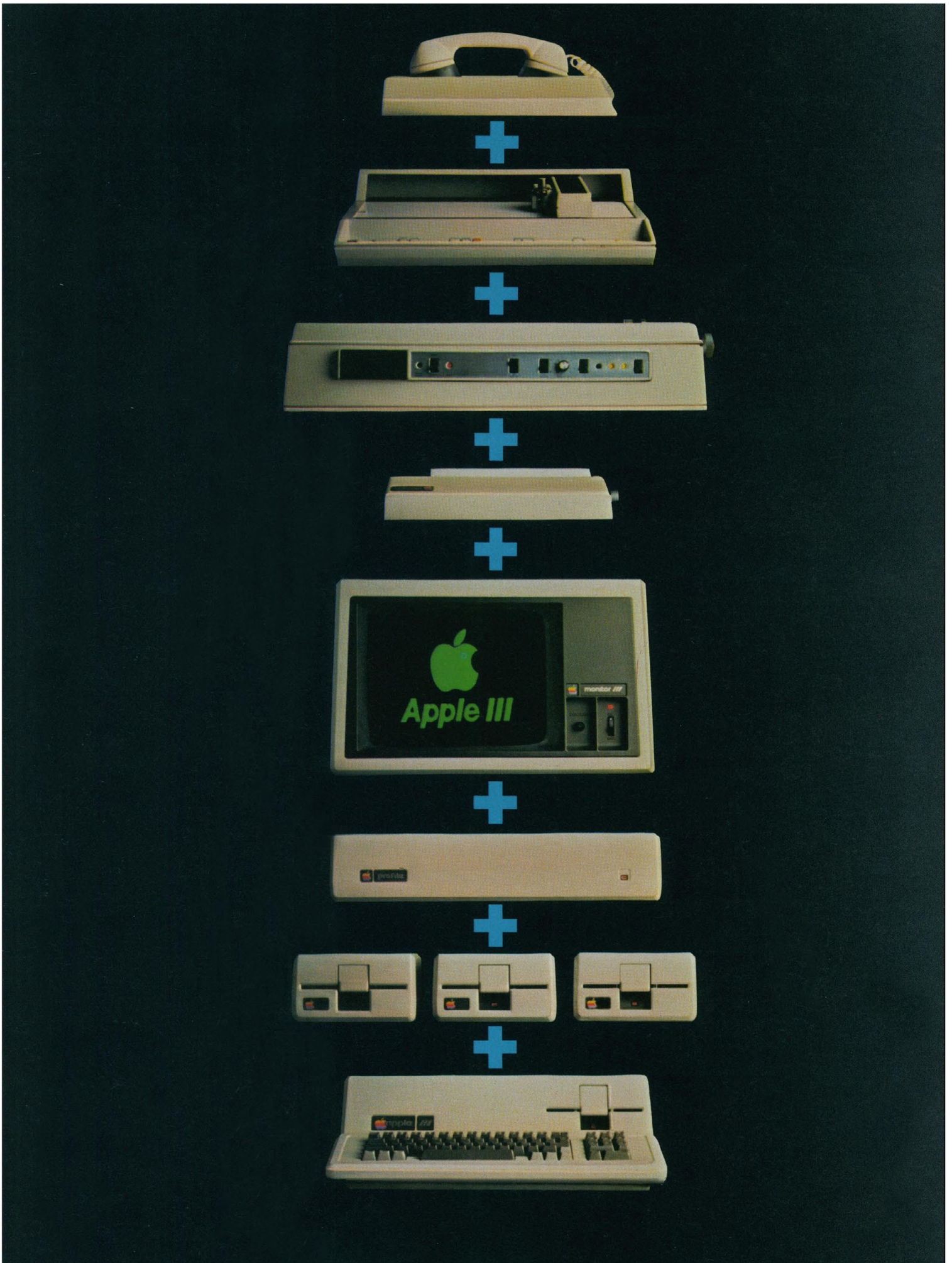
COVER

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 osmotic agents ("osmolytes"). Polyhydric alcohols, amino acids and their derivatives, urea, and methylamines are the major osmolytes 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]


Apple III
monitor III
profile
apple ///

MOST PERSONAL COMPUTERS CAN'T COPE WITH SIMPLE ADDITION.

Because most PC's use their expansion slots for both added memory and peripheral interfaces, you may be forced to choose one or the other. Add memory, lose peripherals. And vice versa.

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Take a bottoms-up tour of the opposite page, and consider the possibilities.

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Only the Apple III can handle all of the above, all at once, without losing its memory. And even though you may never configure your system just like this, it's important to know how far you can grow. With a couple of OEM Prototyping Cards. Or your own specialized peripherals. Or future technology.

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Technologies

Science Magazine in cooperation with Scherago Associates announces The First Annual Conference on

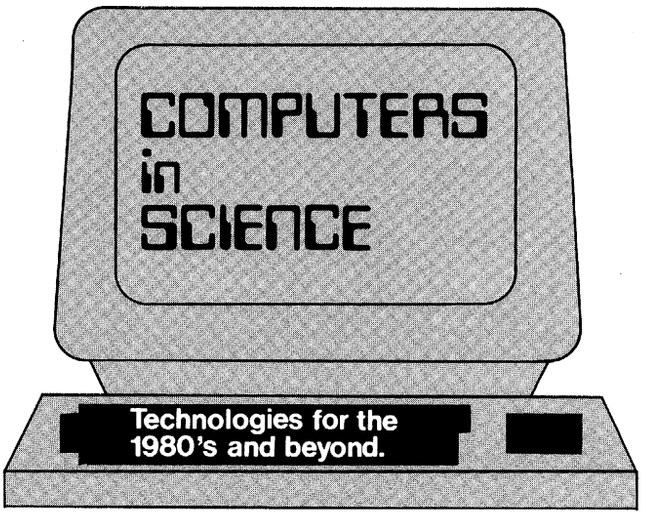
COMPUTERS IN SCIENCE

December 6-9, 1982

Conrad Hilton, Chicago, Illinois

Chairman: Dr. Dennis Smith, Group Leader, Discovery Research Systems, Lederle Laboratories

Vice Chairman: Dr. Peter Friedland, Research Associate, Dept. of Computer Science, Stanford University



The conference's primary objective is to provide information on how changing computational technologies will influence future scientific research. Sessions will examine state of the art applications of existing technologies to specific areas of research as well as the impact of new developments on scientific research in the decades ahead.

Each conference day is devoted to a specific topic with lectures and presentations providing in-depth coverage of the subject:

- **Tuesday, December 7th — Products of the Technological Revolution: Building Blocks of Future Computer Systems.** A look at the underlying technology of future computer systems, emphasizing hardware developments and their role in providing powerful, distributed systems.
- **Wednesday, December 8th — Computational Systems: Man/Machine Synergism and the Conduct of Scientific Research.** Discussion on building useful research and development systems, focusing on the interaction of scientists with computers.
- **Thursday, December 9th — Scientific Communication and Collaboration: Conducting Research in the New Computational Environment.** An examination of the influence of computers, on how research is conducted, covering scientific collaboration, communication, resource sharing and the sociology of research in a new computational environment.

On Monday, December 6th, the day immediately preceding the main conference three Tutorials will be presented on the subjects of hardware, software, and communication technology. The Tutorials will provide intensive instruction on these subjects to provide a background for the main conference sessions to follow.

In addition, comprehensive exposition of equipment and software used in scientific computer applications will run concurrently with the conference. Company technical personnel will be on hand to assist attendees and to give demonstrations. Contributed papers in the form of posters or demonstrations are invited. Please check registration form to receive Tutorial information and/or Abstract forms where indicated.

Tuesday, December 7th — Morning lectures:

Microelectronics — Dr. Gordon Moore, Chairman of the Board/CEO, Intel Corp.

Personal Computers — Dr. Adele Goldberg, Principal Scientist/Area Manager, Software Concepts Group, Xerox Palo Alto Research Center

Local Area Networks — Dr. Robert M. Metcalfe, Chairman of the Board, 3COM Corp.

Shared Resources — Dr. C. Gordon Bell, Vice President of Engineering, Digital Equipment Corp.

Wednesday, December 8th — Morning Lectures:

Symbols and Software for Science — Prof. Edward A. Feigenbaum, Dept. of Computer Science, Stanford University

Methodology of Programming — Dr. Ira Goldstein, Manager, Application Technology Dept., Computer Research Center, Hewlett-Packard

Expert Systems/Artificial Intelligence — Prof. Bruce G. Buchanan, Dept. of Computer Science, Stanford University

Computer Graphics — Prof. Robert Langridge, Dept. of Pharmaceutical Chemistry, University of California, San Francisco

Thursday, December 9th — Morning Lectures:

General Perspectives — Dr. Ralph E. Gomory, IBM Vice President and Director of Research

Evolution of Computer Networks — Dr. Robert Kahn, Director, Information Processing Techniques, Defense Advance Research Projects Agency

Scientific Collaborations — Lynn Conway, Research Fellow/Manager, VLSI System Design Area, Xerox Palo Alto Research Center

Sociological Impact of Computing — Prof. J.C.R. Licklider, Laboratory for Computer Science, MIT

CONFERENCE REGISTRATION FORM

☐ Conference registration fee: $200
☐ Send Information on Tutorials
☐ Send Abstract Forms

Attendance will be limited.
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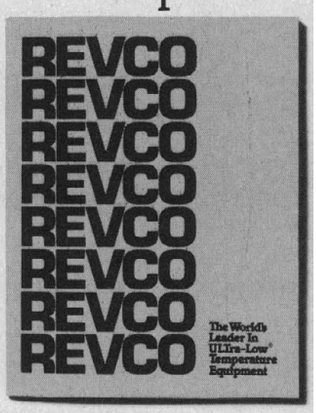

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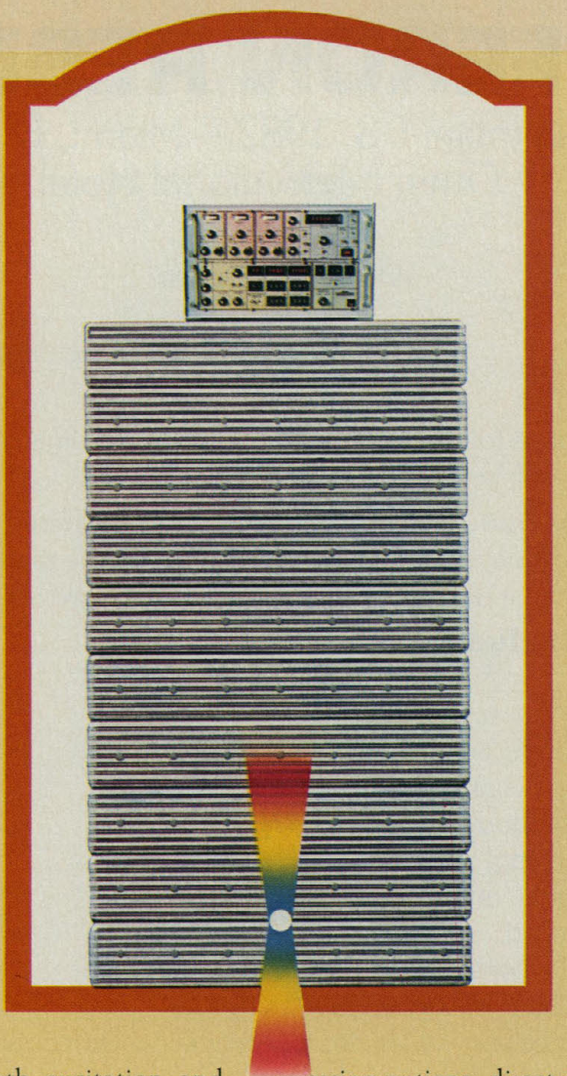
"Remember the story about the Princess on the Pea? Well, the SLM 8000™ Spectrofluorometer is even more sensitive."



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November 1-3, 1982—Miami, Florida
Omni International Hotel

Chaired By
William E. Stewart II
of the
University of South Florida
School of Medicine

The Third International Congress for INTERFERON RESEARCH, organized by Scherago Associates in cooperation with the Journal of Interferon Research.*

Interferon research has greatly proliferated, and the synthesis of Interferon has added a new dimension to recent developments and clinical trials. This Congress provides the major forum for both current research and clinical work and the new areas of application will be presented.

Program Topics Will Include

- Interferon inducers.
- Induction mechanisms.
- Genetics of interferon production.
- Isolation, purification, and characterization of interferons.
- Messenger RNA's and products.
- Progress in interferon cloning.
- Purification characterization, and modification of interferons.
- Genetics of interferon actions.
- Mechanisms of antiviral actions.
- Immuno-modulatory actions of interferons.
- In vivo studies on pharmacology of interferons and their antitumor and antiviral actions in animals and in man.
- Results of clinical studies.

Published by Mary Ann Liebert Inc., Publishers, New York, New York.

Regular Registration: $350
Student Registration: $175
Attendance will be limited to approximately 800.

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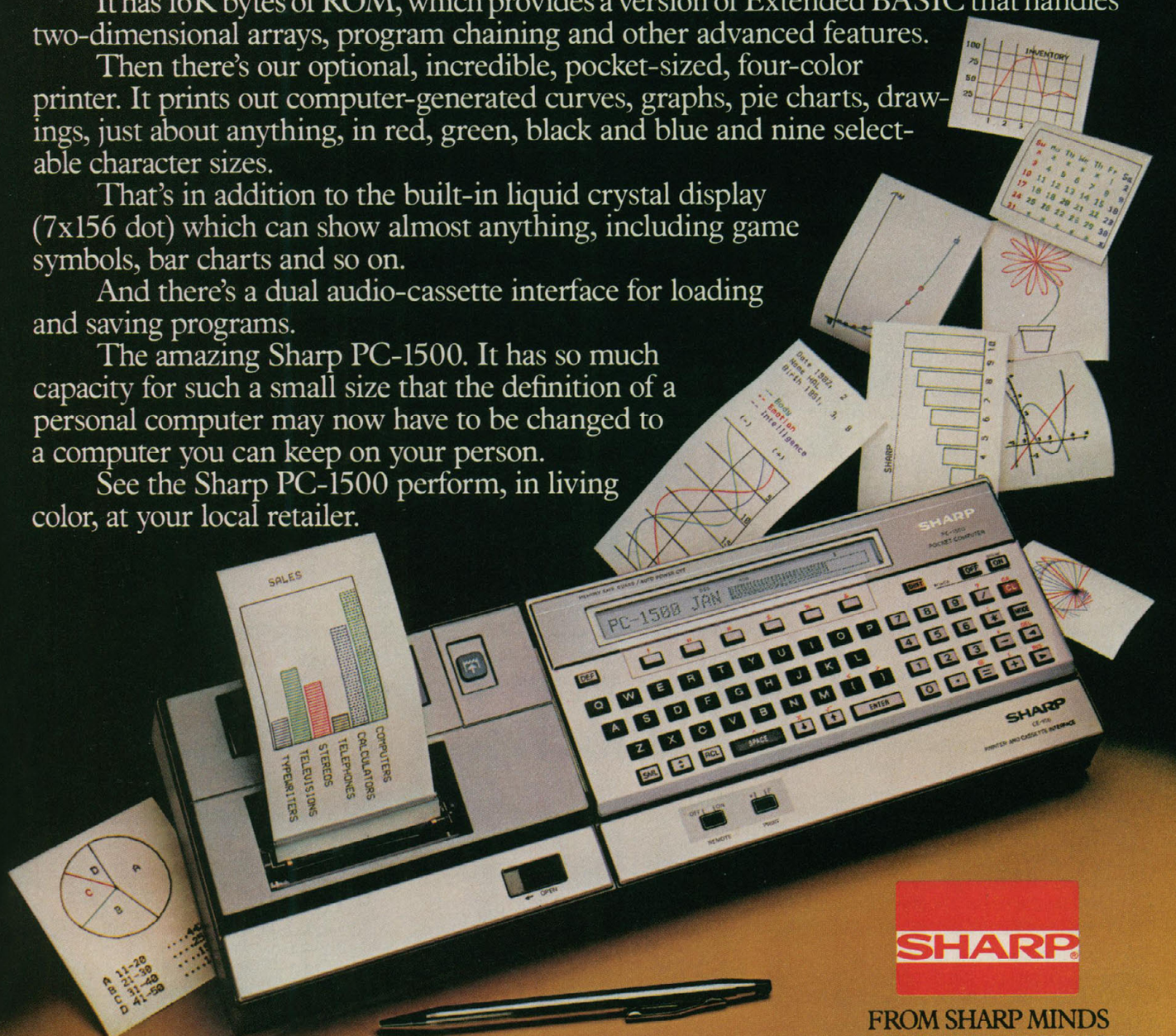

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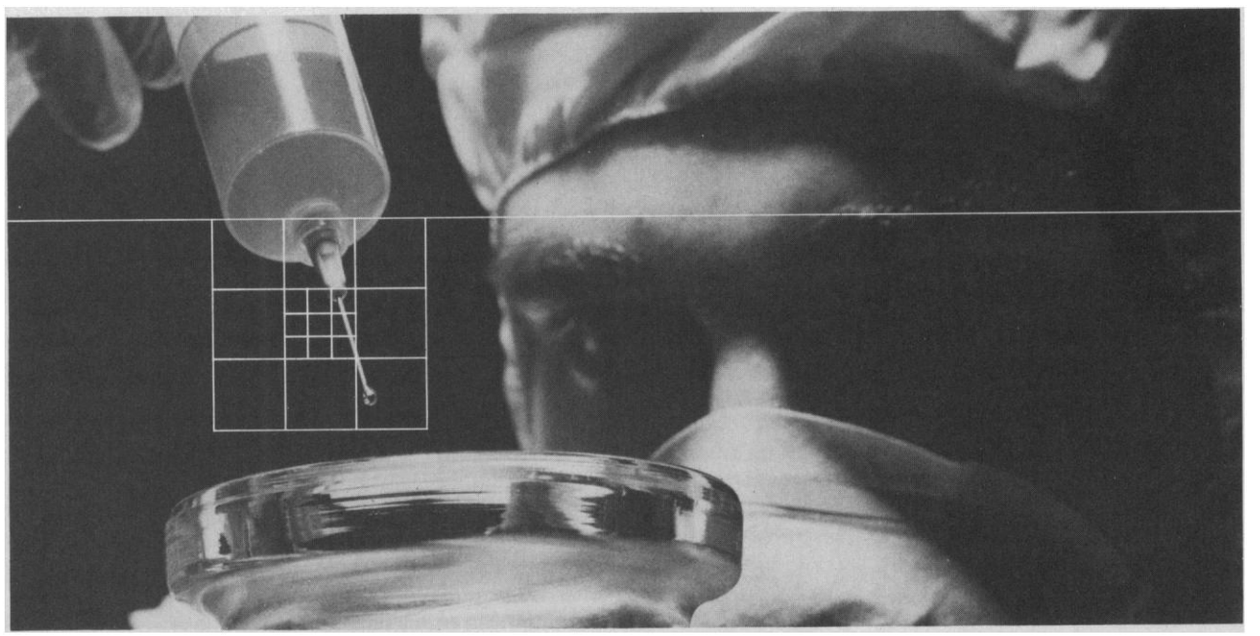

Technicon's Program of Grants for Research in Biomedical and Industrial Instrumentation, now in its 9th year, provides benefits to both industry and participating universities. University scientists acquire the funds needed for their research, and the sponsor may get a start on a new product. The university may also benefit from royalty payments on patents, and researchers can enjoy seeing their research applied in important ways.

Who is eligible?
Grants are available to scientists at colleges, universities, medical centers and other non-profit research institutions worldwide.

Categories:
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- New instruments or procedures for diagnostic medicine including, but not limited to, laboratory medicine.
- New instruments or procedures for diagnosis of internal organs, measurement of physiological functions, and monitoring of patients.
- Veterinary diagnostic instruments.
- Instruments and methods for the automated analysis of industrial, agricultural, and environmental materials.

How to proceed:

Do not send a proposal at this time.
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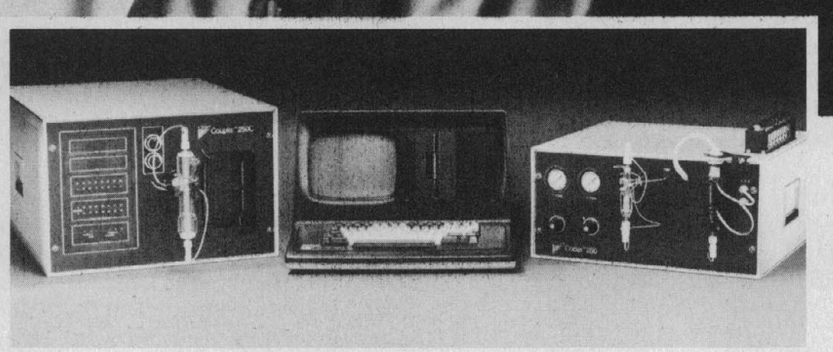

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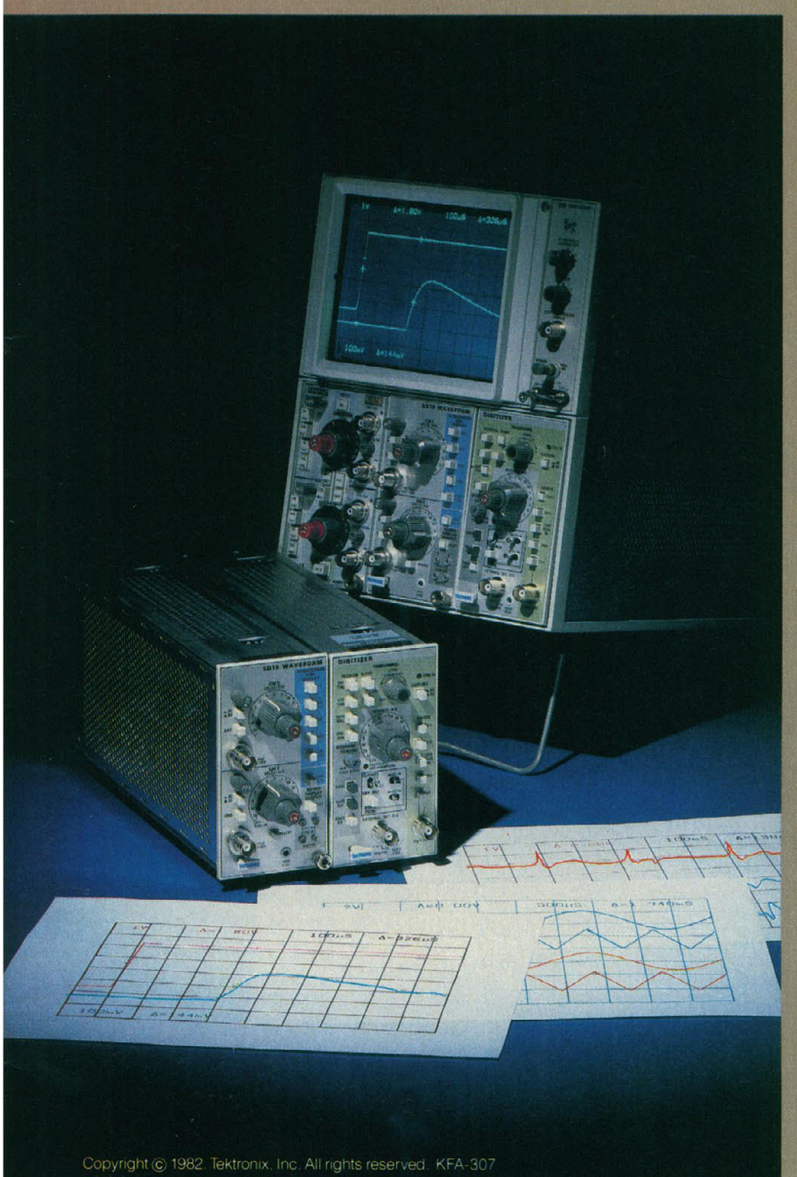

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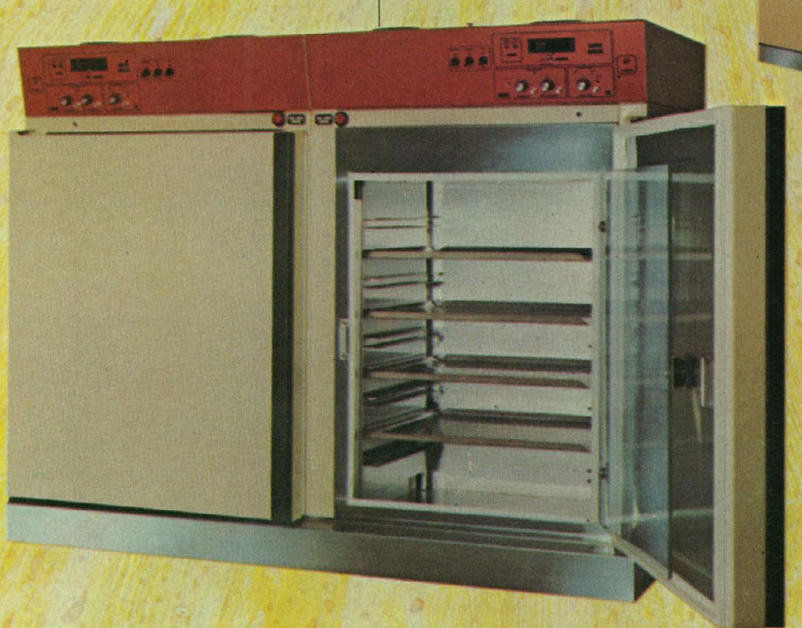

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24 September 1982, Volume 217, Number 4566 **SCIENCE**

Handcuffing Science

In the mellow last days of August, even as the National Academy of Sciences' panel on Scientific Communication and National Security rolled up its sleeves to work on its report, our military authorities launched a surprise strike resulting in the suppression of papers scheduled to be read at a major conference on optical instrumentation.

Exercising its oversight of Defense-funded research and development contracts, the military summarily embargoed the presentation of about 100 papers whose titles in a number of instances unwisely included language suggestive of military applications. Although the affair is being smoothed over, there can be little doubt that the continued prospects for open discussion of leading-edge unclassified work now dwell in a no-man's-land of confusion and disarray, subject to further incursions at any time. The humiliation visited on the sponsoring engineering society is no small matter and one that will be taken to heart by other scientific and engineering organizations. Of more significance, if the raid at San Diego was more than an aberrant case of fractured communications, is an emergent tilt toward reliance upon preemptive powers. Should this be so, we are seeing a new face of the defense research funding system which, over many decades, contributed on an enviable scale to the open search for and sharing of knowledge.

Such a transformation would go far to undo the postwar terms of reference that assured comity and stability to relationships between the scientific and technical communities and the defense establishment. If acceptance henceforth of Defense Department support for significant but unclassified work must carry with it implicit or explicit acquiescence in the suppression of disclosure, will scientists and engineers be prepared to travel that road with the specter of ambushment no farther distant than the next professional meeting? What conference planner will consider inviting foreign participants lest they be suspected carriers of unclassified tidings to delight an insatiable KGB?

It is not just the unfortunate handling of the affair at San Diego that is unnerving. The timing is no less to be deplored. What has been needed is a breathing spell to reduce the tensions and the controversy of last winter, and an opportunity for balance to be struck between the needs for national security and the requirements for scientific and technical communication. The latest failure of restraint undeniably constitutes a setback to peacemaking efforts.

The relationships between the government and the scientific and technical communities continue to be sorely troubled as the fixation on the "hemorrhage" of technology hardens. Even as the pipeline war has unsettled the Atlantic diplomatic consensus, it appears that the crucial domestic consensus between science and national defense is being tested severely. It becomes increasingly clear that a formula must be found to set up an institutional umpire with authority to see to it that checks and balances are put in place and understood on both sides. It will not do to continue to have a variety of government agencies taking matters into their own hands without coordination, indifferent to the consequences.

There is one other, and quite vital, point that must not be lost sight of. When a proper concern for the national security is burdened by clumsy execution, something is subtracted from the fundamental respect that is owed the necessary goal of safeguarding defense secrets. Once confidence in the judgment and the management of the security process is shaken, its integrity is served badly. The defense authorities have very good reason to know that the scientific community has proved its respect for the national security through three hot wars and a long cold war. That respect must be reciprocated.—WILLIAM D. CAREY

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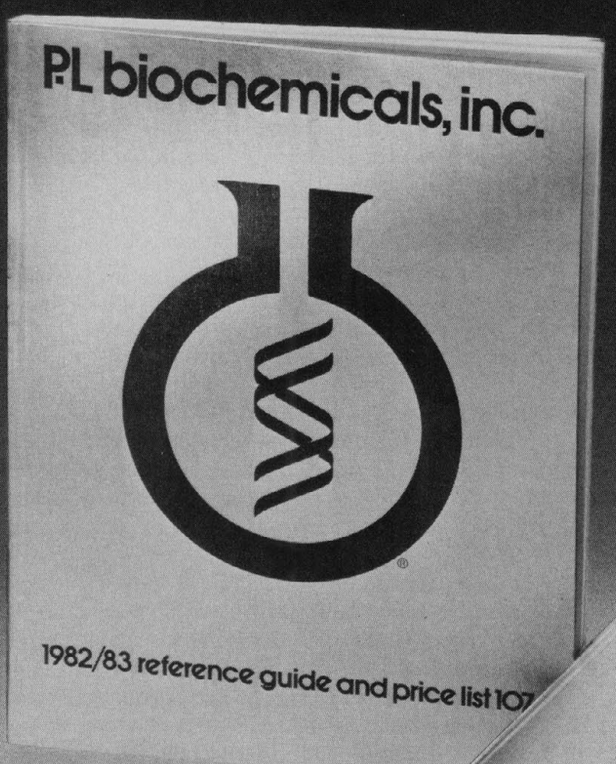

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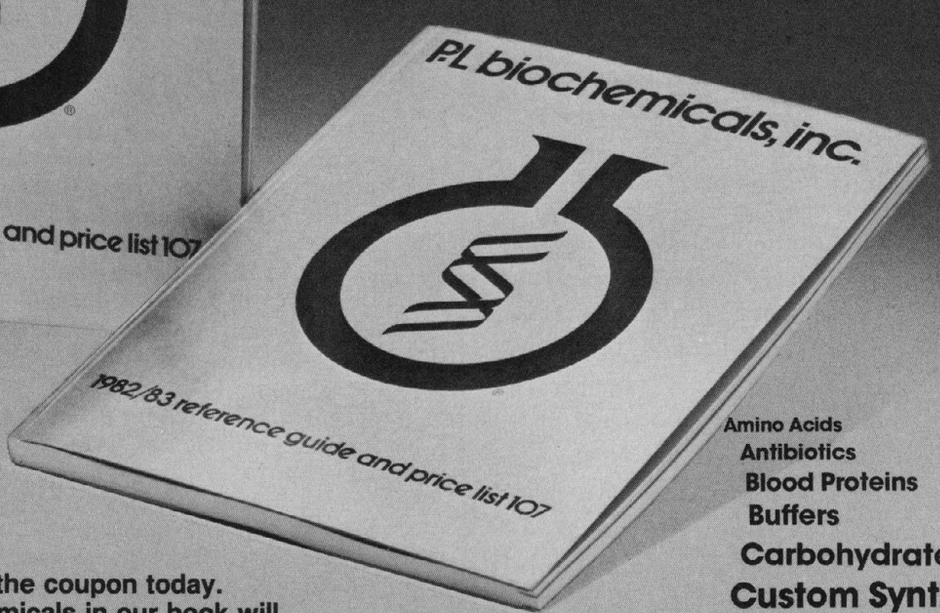

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Information for Contributors

The Editors of *Science*

Papers published in *Science* often receive far more attention than papers published in specialty journals. As a consequence, the rate of submission of papers is high—about 5000 manuscripts are submitted each year. The rejection rate of about 80 percent contrasts with that of most specialty journals, which is usually about 30 percent. Most of the material submitted to *Science* is of good quality and worthy of publication, and virtually all the scientific papers are eventually published somewhere. In selecting papers for *Science*, the editors must consider the needs of a broad audience. Insofar as the input of manuscript permits, preference is given to items that seem to be of general significance.

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Four types of signed papers are considered: Articles, Reports, Letters, and Technical Comments. The author's membership in the AAAS is not a factor in selection. Papers are considered with the understanding that they have not been published and are not under consideration elsewhere. Authors will usually be notified of acceptance, rejection, or need for revision in 6 to 8 weeks (Reports) or 8 to 10 weeks (Articles).

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