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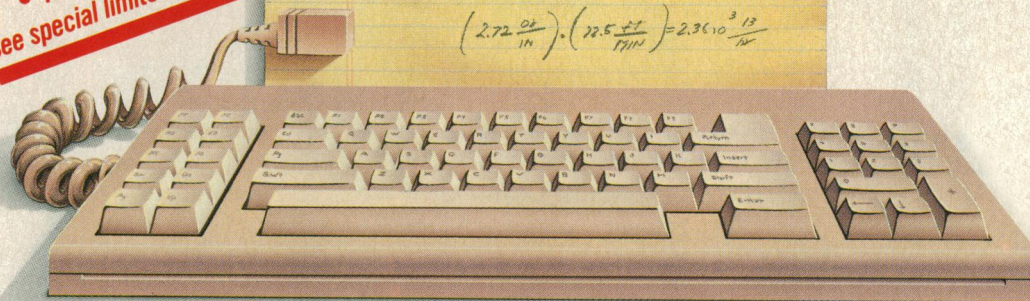
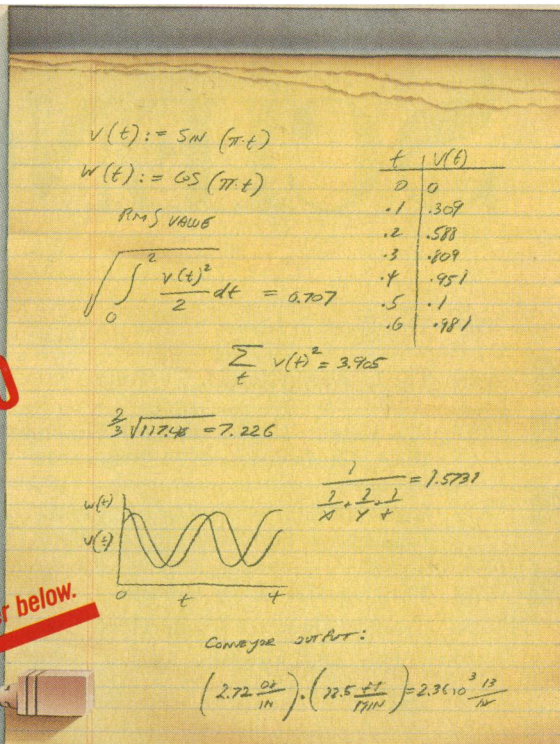
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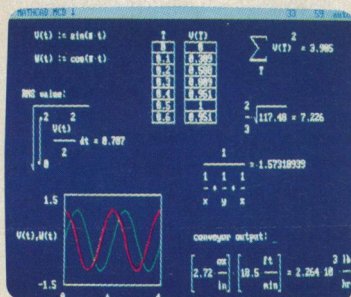
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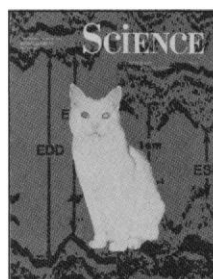
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COVER "El Blanco" Glassauer died of dilated cardiomyopathy associated with taurine deficiency. His owner's desire to prevent others from losing their pets stimulated work elucidating the cause and "cure" for feline dilated cardiomyopathy. A greenish-yellow glow emanates from normal reflective tapetum (left eye); congenital ocular albinism and tapetal absence, unrelated to taurine deficiency, result in reddish glow (right eye). Background: pre- and post-aurine supplementation M-mode echocardiogram from the first case treated. See page 764. [Photograph of "El Blanco" by Cindy Glassauer]

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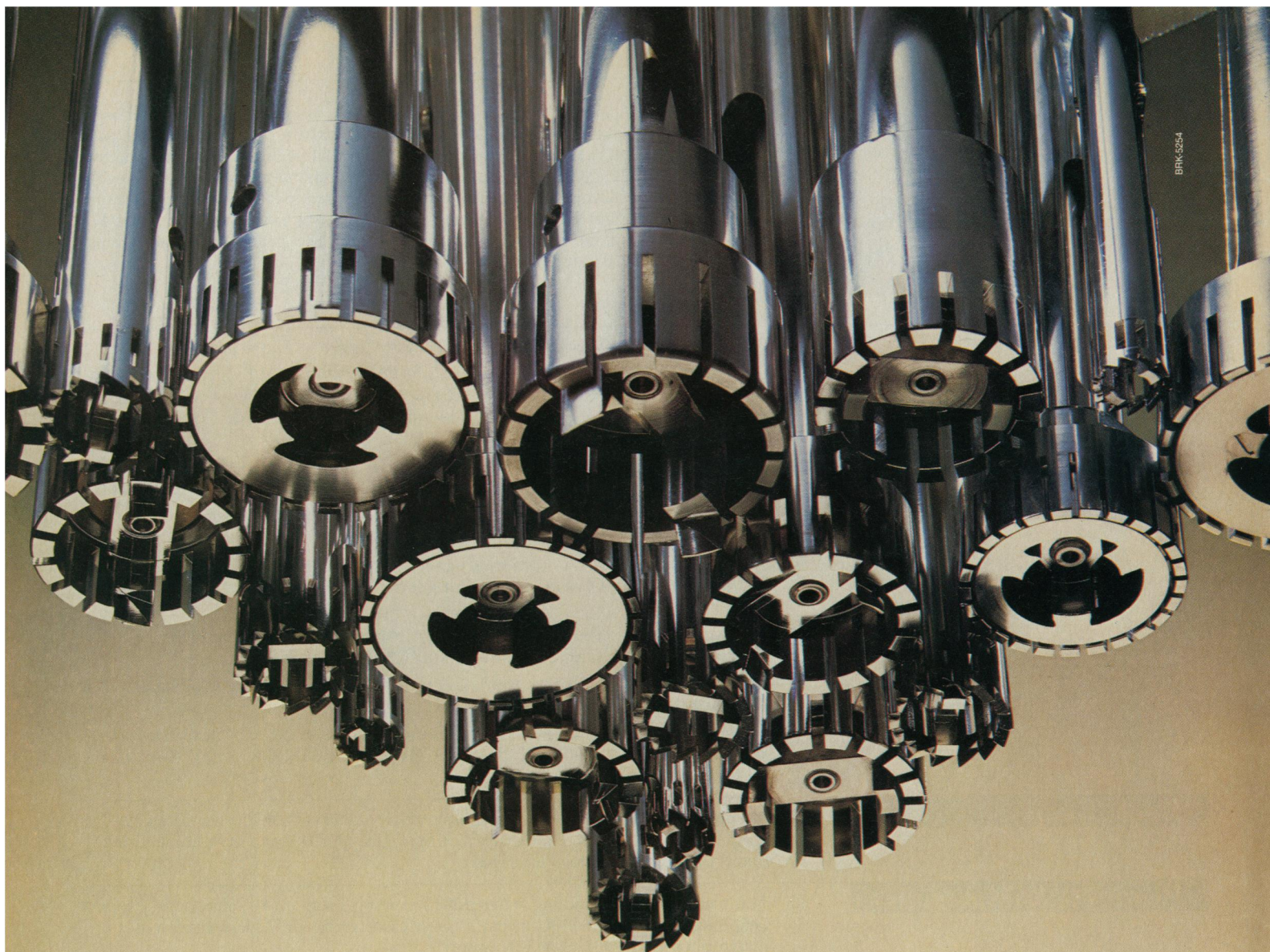
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This Week in **SCIENCE**

Migrant networks

TENS of thousands of Mexicans migrate to the United States each year, lured by the promise of jobs and better wages than those they might find at home; an important element in promoting this migration (and one that affects continued migration between sending and receiving communities elsewhere) is the establishment of migrant networks (page 733). Massey and García España describe how networks work: after pioneering migrants settle in a new place, friends and relatives from the home community feel encouraged to follow; for each new wave of migrants, the process becomes simpler because of the assistance—a place to stay, information about resources, psychological support—received from the earlier migrants. Surveys of diverse Mexican communities indicated that, in those households or communities that had ties to networks, the likelihood was greatest that other members of the community would migrate. Eventually the process develops an internal momentum and is self-perpetuating, so that even if the original impetus for the migration is no longer there (for example, if jobs and wages in sending and receiving countries become comparable) migration will continue because of the force of the network.

Origin of SNC meteorites

MARS is considered by many to be the source of the eight SNC (shergottite, nakhlite, Chassigny) meteorites (page 738). These are the youngest meteorites known and their age (1.3×10^9 years old) is compatible with a martian origin, because Mars was still tectonically active—forming crust from molten rock—at that time. Accounting for a martian origin for the SNCs requires explanations of how the SNCs could have been launched at speeds exceeding 5 kilometers per second (so as to escape the planet's surface) and identification of a large crater on the planet from which they would have come. Vickery

and Melosh conclude that the most likely scenario involves ejection of rock about 200 million years ago in a single event, leaving on Mars a large crater (that has yet to be identified); during transit to the earth, the original large ejecta broke into smaller meteorites that were exposed to cosmic rays (that further label the rocks). Kerr discusses some of the interesting puzzles posed by the SNC meteorites, some issues that remain to be addressed concerning the postulated martian origin, and insights that these meteorites provide as to the nature of the mantle and core of Mars (page 721).

Heart failure in cats

A condition called dilated cardiomyopathy (DCM) kills tens or hundreds of thousands of pet cats each year; this form of heart failure is also found in humans and other species (page 764). The cause of DCM in cats and a cure for it have been identified by Pion *et al.*: DCM results from a taurine-deficient diet, and it can be reversed simply by a diet supplemented with taurine. Taurine is an organic compound that cats, unlike other species including humans, do not synthesize. In mammals, taurine becomes concentrated in the myocardium and in the retina; it is transported to these tissues from the plasma. Echocardiographic findings and taurine measurements of plasma of cats in the study showed that DCM was no longer diagnosed when taurine rose in the plasma (and presumably was then concentrated in myocardial tissue). The cats could eat and breathe normally and could resume other activities. This reversible taurine deficiency of cats may prove useful for studying how heart muscles and the agents that affect their functioning work.

The plight of the condor

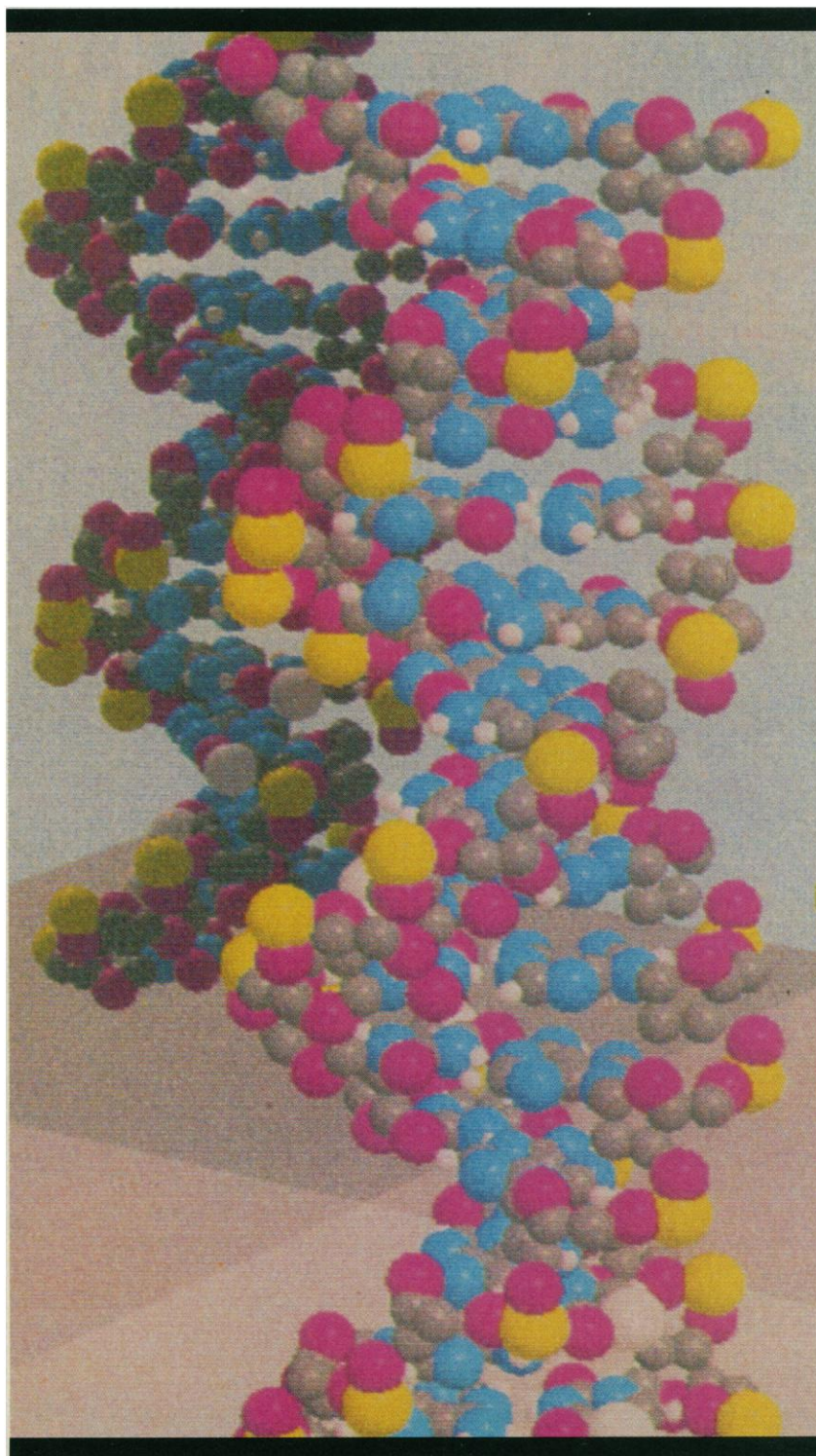
CALIFORNIA condors became extinct in the Grand Canyon near the end of the Pleistocene Epoch (more than 10,000 years ago) (page

768). Because many large mammals also became extinct at this time, the condors' food supply (mammal carcasses) was possibly cut off. A date for the condor extinction was determined by tandem accelerator mass spectrometry of condor bones and tissues recovered from caves in the Grand Canyon, New Mexico, and Texas. Two caves contained particularly informative samples: Sandblast Cave had partial skeletons of five condors, eggshell and feather fragments, and bone fragments of large mammals (that could only have been deposited there by birds), and Stevens Cave had a complete condor skull to which dried connective tissue was still attached. The survival of small numbers of California condors may reflect unique conditions that exist along the Pacific coast. Emslie cautions that one plan to help the condors make a comeback from their status as an endangered species—release of condors into the Grand Canyon—may not succeed unless feeding stations are set up containing carcasses of cattle, sheep, and other large animals.

Heparin and coagulation

HEPARIN is a sulfated carbohydrate that resides in blood vessel walls where, through its anticoagulant activity, it helps prevent blood clotting (page 777). In *in vitro* studies, heparin had an unexpected reverse action: it accelerated the speed with which elastase (an enzyme from neutrophils) inactivated antithrombin (a cofactor of heparin that also inhibits clotting). Antithrombin binds with high affinity to heparin, and it is this complex that elastase attacks. Jordan *et al.* speculate that if heparin, antithrombin, and elastase were to react similarly in certain disease states (for example, certain inflammatory diseases in which neutrophils adhere to sites of inflammation) clot formation would be promoted. Thus, depending on the balance of the three constituents, this three-way reaction will have different outcomes in association with various physiologic conditions.

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The University Presidency Today

Where are the greatest college presidents of today? Few of us who lead major universities have escaped this question, asked in a plaintive—and implicitly accusatory—tone. The question, in fact, is not merely theoretical—it constitutes an indictment. The questioner has in mind the Gilmans, Eliots, Hutchins, or Conants of the past; he sees only those of us who currently hold office and finds us wanting. None of us is a great leader, none the present voice of conscience or inspiration of the highest learning. We are perceived, our questioner will inform us with great courtesy, as lacking the aura, the eccentricity, the genius of greatness.

If it is true that none among us has attained the dominant stature, the mantle of national advocacy, why is this so? My answer is that we university presidents of today may very well be inferior to our predecessors, but that what we do, how we do it, and how we are perceived are different from their circumstances. The finest of our predecessors rose to an opportunity that may no longer exist for those of us who hold university presidencies today. The case consists mainly of a single point: The major research university of today is a radically different institution than its predecessor of three or four decades ago. The most obvious difference is size. There have now evolved in the United States between 50 and 100 major research universities that are megasize—numbering their students in tens of thousands, their faculties and administrative cadres in thousands, their buildings and their acreage in hundreds.

Perhaps the simplest effect of size on the presidency—and the greatest—is the sheer volume of work required just to keep up with all the facets of so large an institution. No president can be aware of everything that happens in the university, but no president can afford long to be in ignorance of most that happens; the result is endless presidential hours devoted to the effort of keeping track of the enormity of scope encompassed by the major research university. Complexity plays a competing role with size. The very research intensity that justifies “research university” as a descriptive name subjects the institution to the ultimate in the fragmentation of human knowledge.

When faculty achievements bring public acclaim, how could the president of the institution maintain a post of blissful ignorance? And even more directly to the point, he who asks for support must know not only whom to ask, but also what to ask for and why a particular project is of importance and priority.

As chief executive officers of our institutions, we are, of course, expected to manage. There are all those people, in their thousands; all those buildings; all that research; and all that money. Our annual budgets are counted in the hundreds of millions of dollars. Our revered predecessors were of course managers as well. But the size, complexity, and diversity of the major research university place vastly greater managerial responsibilities in the hands of those of us who serve as president today than was true three or four decades ago.

If greatness is equated with national stature, then part of the problem with today's university presidents may be that we are not media personalities. In a society whose attention span has shrunk from earlier times and that reads less and less, national recognition derives primarily from national television. On the one hand, the thoughtful address, the detailed exposition of the complicated have been largely replaced by one-liners and headlines. On the other hand, prolonged and repeated national television exposure has elevated to national stature (greatness?) not only politicians but also television commentators, articulate athletes, and other entertainers. University presidents are not—most of us—show biz.

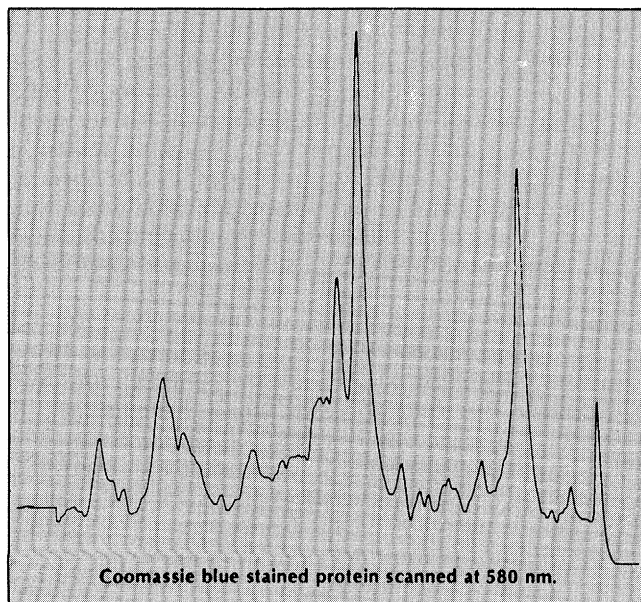
We have our dreams of greatness—not for ourselves, but for our universities. We are—each of us—builders. Our task is to help to remodel our institutions for tomorrow—for the students who come anew each year, for scholars who will acquire knowledge that as yet eludes us, for discoveries and techniques that will enhance the human condition anew. But as we leave and enter each academic year, there is still pleasure and satisfaction in the job done, and to be done again. There may be no great university presidents today. But there are great universities, greater than yesterday's. And the men and women who captain them are no unworthy breed. [Adapted from a Festschrift in tribute to Arthur M. Sackler]—STEVEN MULLER, *President, Johns Hopkins University, Baltimore, MD 21218*



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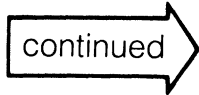
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Monday, September 28

- 8:00 a.m. REGISTRATION
- 9:00 a.m. OPENING PLENARY SESSION: **Science and Technology: Shaping National Security Policy and American Competitiveness.** Speakers: **Robert Dean**, *Special Assistant to the President and Senior Director for International Programs and Technology Affairs*; **Lewis Branscomb**, *Director, Science, Technology, and Public Policy Program, Harvard University*; additional panelist to be announced.
- 11:00 a.m. PLENARY SESSION: **Advances in Weapons Technology and Their Impact on National Security and Arms Control.** Speakers: **Robert Cliff Duncan**, *Director, Defense Advanced Research Projects Agency*; **John Deutch**, *Provost, Massachusetts Institute of Technology*; additional panelist to be announced.
- 12:30 p.m. LUNCHEON ADDRESS: **American Nuclear Strategy and European Security.** Speaker: **The Honorable Paul Nitze**, *Special Advisor to the President and Secretary of State for Arms Control Matters.*
- 2:00 p.m. PLENARY SESSION: **European Security: The Relationship Between Nuclear and Conventional Forces.** Speakers: **Karl Kaiser**, *Director, Research Institute of the German Council on Foreign Relations (Bonn)*; **Joseph Nye**, *Director, Center for Science and International Affairs (CSIA), John F. Kennedy School of Government, Harvard University*; **Jonathan Dean**, *Arms Control Advisor, Union of Concerned Scientists*; senior U.S. Government official to be announced.
- 4:45 p.m. OPEN FORUM
- 6:00 p.m. RECEPTION

continued 

The Second Annual AAAS Colloquium on Science, Arms Control, and National Security

(continued from previous page)

Tuesday, September 29

7:30 a.m. REGISTRATION

8:00 a.m. BREAKFAST ADDRESS: **Nuclear and Conventional Forces and the Defense of Europe.**
Speaker: Senior Member of Congress to be announced.

9:30 a.m. SMALL GROUP SESSIONS:

An Assessment of U.S./Soviet Biological and Chemical Warfare Capabilities in Europe.
Speakers: **Paul Doty**, *Director Emeritus, CSIA, John F. Kennedy School of Government, Harvard University*; **Amoretta Hoeber**, *Director for Planning and Development, TRW Federal Systems Group*.

The Role of Anti-Tactical Ballistic Missiles in European Security. Speakers: **Lt. Gen. John Wall**, *Commander, U.S. Army Strategic Defense Command*; **Donald Hafner**, *ATBM Project Director, American Academy of Arts and Sciences*.

SDI: Technical Advances and Their Relationship to the ABM Treaty. Speakers: **Sidney Graybeal**, *Vice President, System Planning Corporation*; **Tom Karas**, *Director, OTA Study on SDI Technologies, Office of Technology Assessment*.

11:15 a.m. SMALL GROUP SESSIONS:

Emerging Technology Conventional Weapons: Technological Advances and Projected Role. Speakers: **Charles Zraket**, *President, The MITRE Corporation*; additional panelist to be announced.

Enhancing the U.S. Deterrent: Force Survivability and C³I Requirements. Speakers: **Robert Everett**, *President (Retired), The MITRE Corporation*; **Ashton Carter**, *Associate Director, CSIA, John F. Kennedy School of Government, Harvard University*.

Nuclear Proliferation in Developing Countries. Speakers: **Leonard Spector**, *Senior Associate, Carnegie Endowment for International Peace*; **Lewis Dunn**, *Senior Analyst, Science Applications International Corporation*.

1:00 p.m. CLOSING LUNCHEON ADDRESS: **Scientific Responsibility and National Security.** Speaker: **Sheila Widnall**, *Abby Rockefeller Mauze Professor of Aeronautics and Astronautics, Massachusetts Institute of Technology and President, AAAS*.

2:30 p.m. COLLOQUIUM ADJOURNS

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September 28–29, 1987 ♦ Hyatt Regency Crystal City, Arlington, VA

(Adjacent to Washington National Airport, Washington, DC)

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Packets will be mailed to preregistrants in early September; registrations received after 7 September will be held at the AAAS Registration Desk in the hotel. **Refund Policy:** Advance registration fees and meal tickets will be refunded **after the Colloquium** for cancellations received by 24 September; **no refunds will be made on cancellations received after this date.**

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AAAS Science and Security Colloquium ♦ September 28–29, 1987

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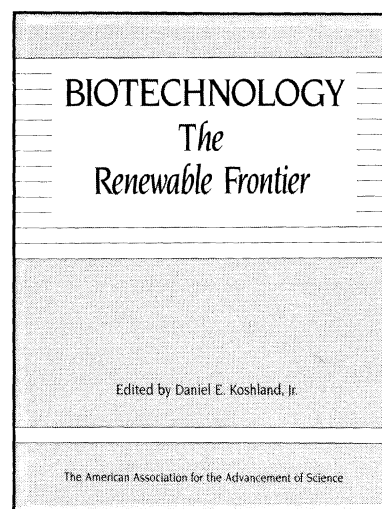
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Edited by
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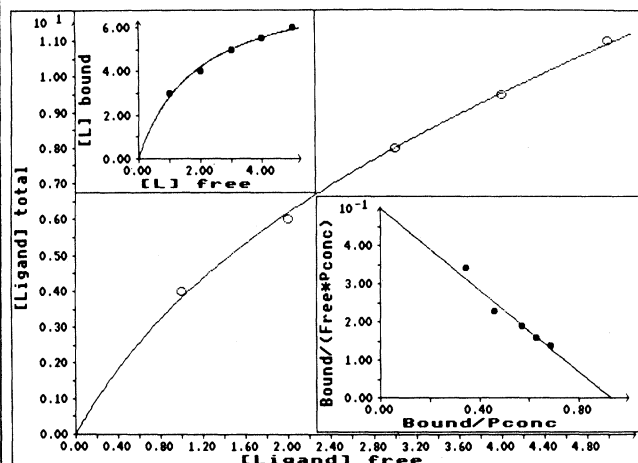
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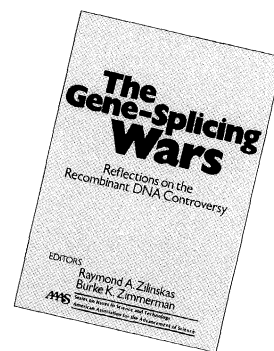
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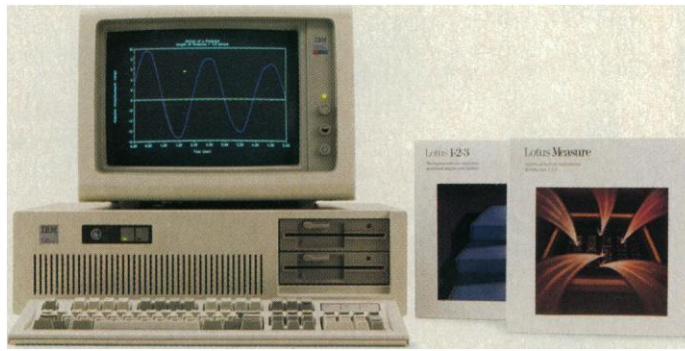
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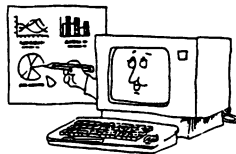
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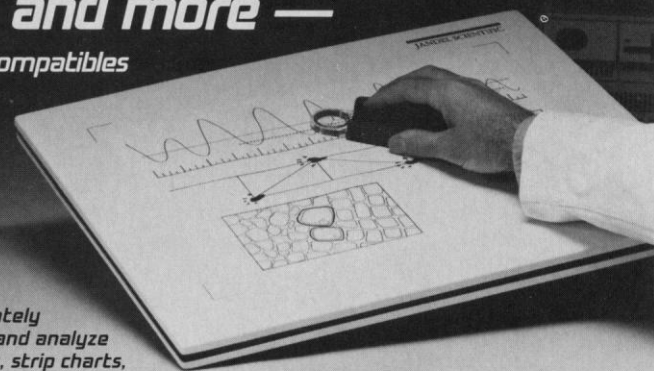
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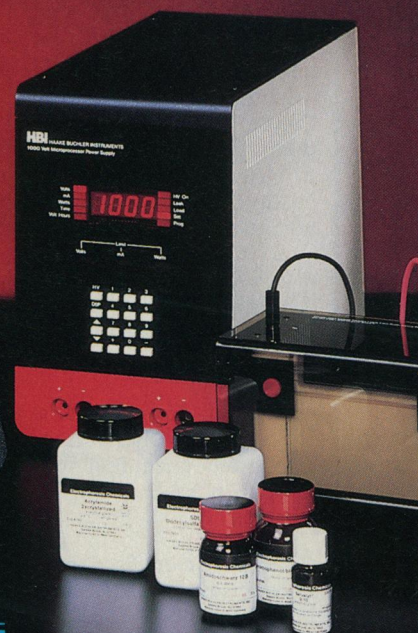
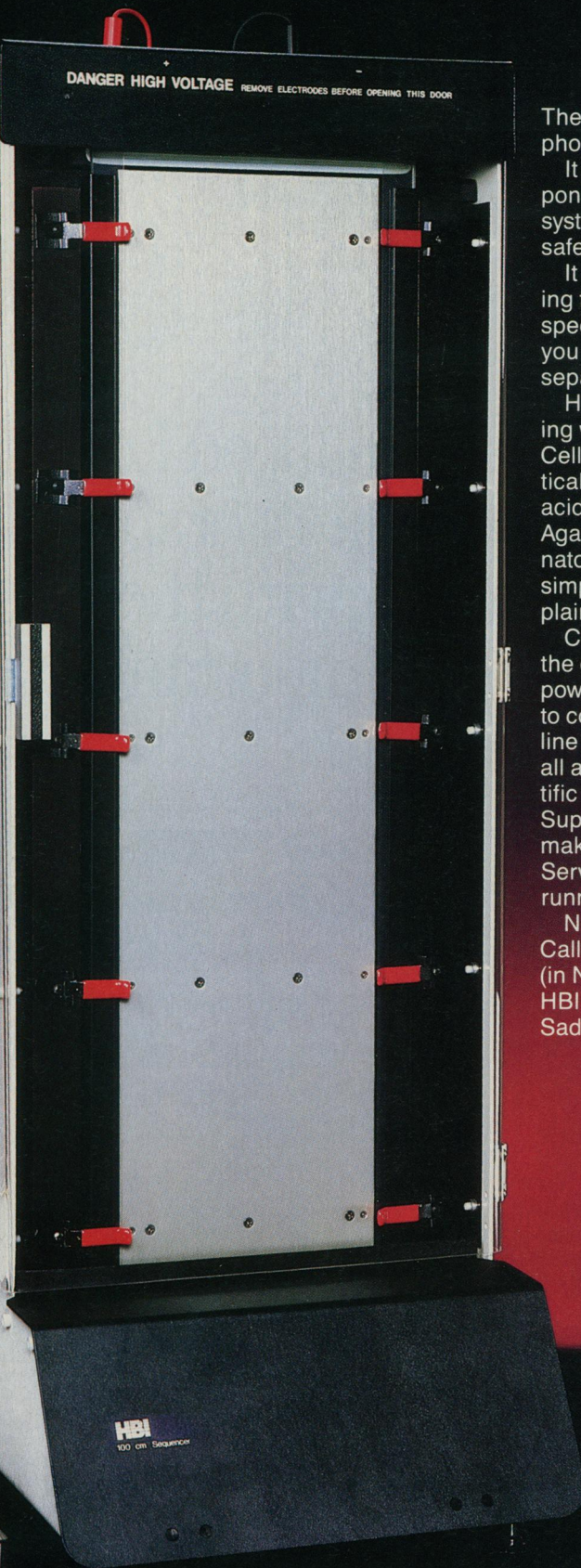
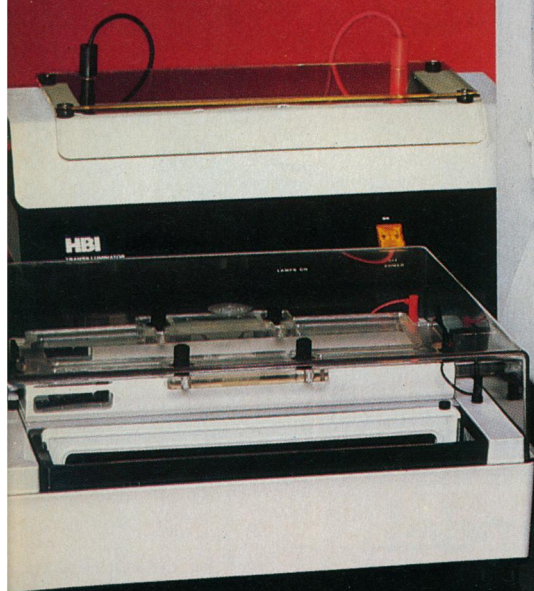
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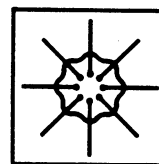
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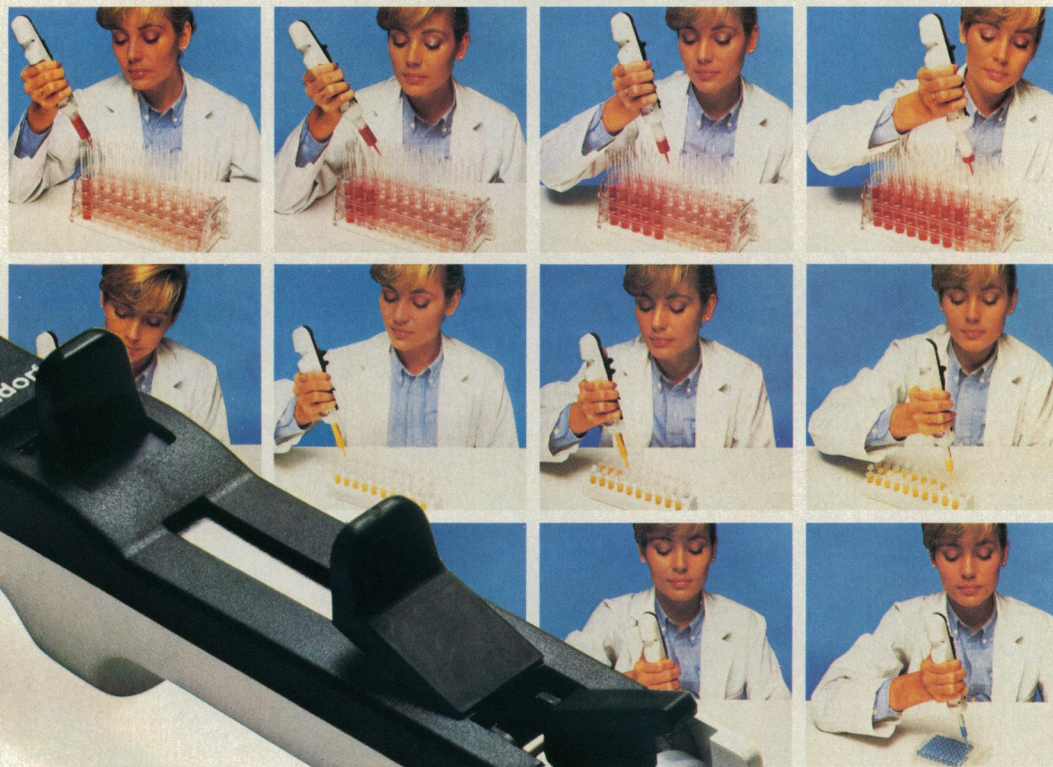
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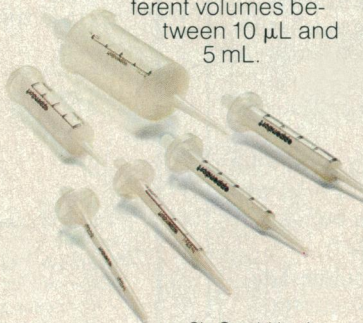
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