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SCIENCE

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



Instrument Issue

A photograph of a Beckman Model TJ-6 Centrifuge. The machine is a teal-colored box with a black lid that is open, revealing a circular rotor with four sample holders. Each holder contains a different colored liquid: yellow, blue, green, and red. The control panel on the front of the machine includes a speed dial, a brake dial, a time dial, a start button, and a power switch. The background is a collage of text from various sources, including "is an excellent product", "one", "It's", "with", "the TJ", "the colo", "and a", "It's a re", "recon", "Th", "the T", "h", "to", "ine", "W", "asy to", "types", "y quiet", and "1's".

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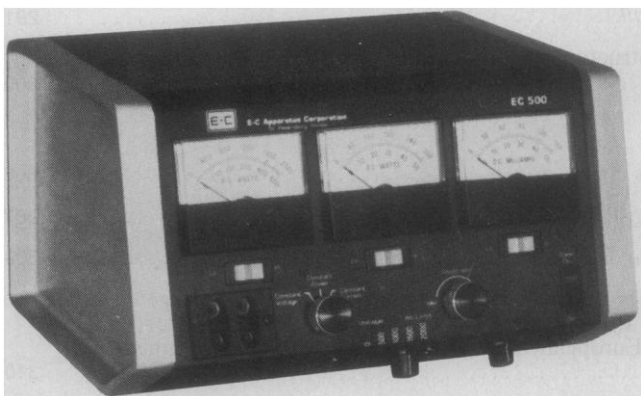
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LETTERS	Ethics Advisory Board: <i>J. C. Gaither</i> ; Citation in Astronomy: <i>J.-C. Pecker</i> ; Industrial Participation in Engineering Education: <i>T. J. van der Werff</i> ; Patent Rights: <i>A. J. Sinisgalli</i> ; Medfly Sterility: <i>I. A. Boussy</i> ; Nuclear Nitty-Gritty: <i>T. R. Blackburn</i>	254
EDITORIAL	New Cuts in Agency Budgets: <i>F. Press</i>	261
ARTICLES	The Spectroscopy of Very Cold Gases: <i>D. H. Levy</i>	263
	Automated Synthesis of Gene Fragments: <i>G. Alvarado-Urbina et al.</i>	270
	Airborne Microwave Remote-Sensing Measurements of Hurricane Allen: <i>W. L. Jones et al.</i>	274
	Tandem Mass Spectrometry: <i>F. W. McLafferty</i>	280
	Bioselective Membrane Electrode Probes: <i>G. A. Rechnitz</i>	287
	Recent Developments in Nuclear Magnetic Resonance Spectroscopy: <i>G. C. Levy and D. J. Craik</i>	291
	New Approaches to Surface Structure Determinations: <i>P. Eisenberger and L. C. Feldman</i>	300
NEWS AND COMMENT	EPA Hard Hit by Budget Cuts	306
	Weapons Builders Eye Civilian Reactor Fuel	307
	Reagan Proposes Huge Nuclear Buildup	309
	<i>Briefing</i> : Atomic Agency Agrees on Leadership, Israel; Bills Would Enlarge Special Patent Umbrella; Budget Cuts May Cost U.S. One Accelerator; Kendrick to Retire from European Laboratory; Armand Hammer Named to Head Cancer Panel	310
	Reagan Eyes the Message Gap	312
RESEARCH NEWS	National Synchrotron Light Source Readied	313
	Reevaluation of Cancer Data Eagerly Awaited	316
ANNUAL MEETING	Chronological Summary of Symposia and Lectures; Advance Registration and Housing Reservation Forms	319

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BOOK REVIEWS	The Greatest Power on Earth, reviewed by K. Hufbauer; City Behind a Fence, A. A. Needell; Infrared Astronomy, D. N. B. Hall; Cognitive Responses in Persuasion, M. R. Lepper; The Population Ecology of Cycles in Small Mammals, N. Chr. Stenseth; Books Received.....	324
REPORTS	High-Latitude Stratospheric Aerosols Measured by the SAM II Satellite System in 1978 and 1979: M. P. McCormick et al.	328
	Superheavy Elements: An Early Solar System Upper Limit for Elements 107 to 110: S. Nozette and W. V. Boynton	331
	Spectroscopic Detection of Stratospheric Hydrogen Cyanide: M. T. Coffey, W. G. Mankin, R. J. Cicerone	333
	Substance P in Principal Sympathetic Neurons: Regulation by Impulse Activity: J. A. Kessler et al.	335
	Phase Variation of Type I Fimbriae in <i>Escherichia coli</i> Is Under Transcriptional Control: B. I. Eisenstein	337
	Modulation of Parallel Fiber Excitability by Postsynaptically Mediated Changes in Extracellular Potassium: R. C. Malenka et al.	339
	Instrumental Control of Cardioacceleration Induced by Central Electrical Stimulation: J. A. Joseph and B. T. Engel	341
	Pigeons with a Deficient Sun Compass Use the Magnetic Compass: R. Wiltschko, D. Nohr, W. Wiltschko	343
	Modification of the Discharge of Vagal Cardiac Neurons During Learned Heart Rate Change: M. R. Gold and D. H. Cohen.....	345
	Supraoptic Nucleus of the Brattleboro Rat Has an Altered Afferent Noradrenergic Input: J. Schöler and J. R. Sladek, Jr.	347
	Oculomotor Reaction Time in Dementia Reflects Degree of Cerebral Dysfunction: F. J. Pirozzolo and E. C. Hansch.....	349
	Technical Comments: Ureterosigmoidostomy and Colon Carcinogenesis: J. B. Bristol and R. C. N. Williamson; M. M. Crissey, G. D. Steele, R. F. Gittes; Plankton Productivity and the Distribution of Fishes on the Southeastern U.S. Continental Shelf: M. P. Weinstein; J. A. Yoder et al.; R. E. Turner.....	351
PRODUCTS AND MATERIALS	Peptide and Protein Sequencer; Plastic Carboys; In situ Soil Testing; Transcription System; Census Summary Data Base; Computer for Tests of Cognitive Function; Automated High-Pressure Liquid Chromatography; Literature	358

COVER

The inner eye structure of Hurricane Allen as seen from 10,000 feet, 7 August 1980. The photograph was taken from a NOAA aircraft flying within the outer eye wall while the storm was centered over the Gulf of Mexico. The characteristic spiral rain bands are wrapped around the inner eye (horseshoe-like form in center of picture). The inner eye is approximately 3 miles across. The main eye of the hurricane occupies the entire field of view and is cloud-covered below 8000 feet. Measurements of near-surface rain rate and wind velocity were made with microwave remote-sensing instruments carried by an aircraft flying safely above the cloud deck. See page 274. [C. B. Emmanuel, Research Facilities Center, NOAA, Miami, Florida 33151]

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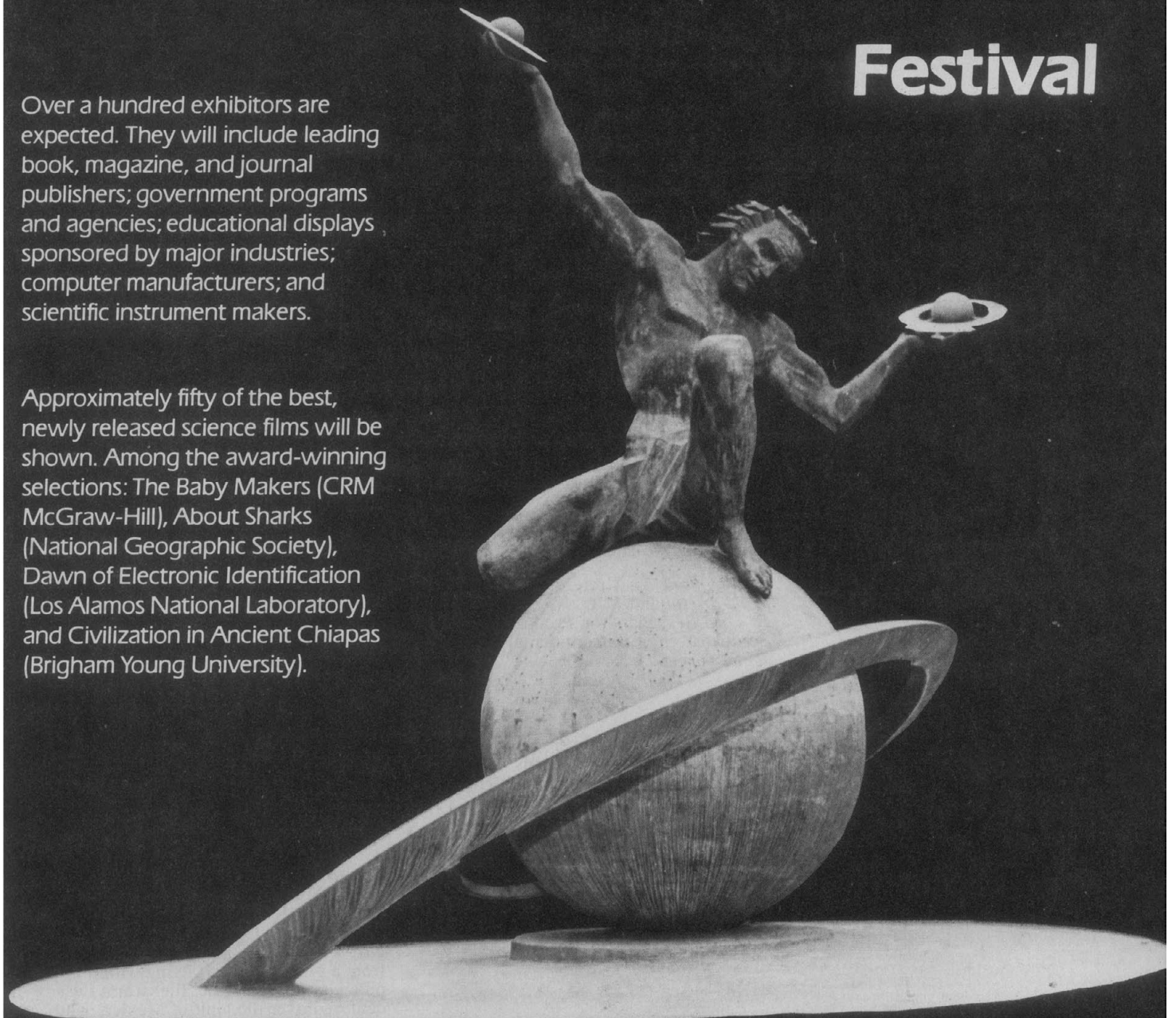
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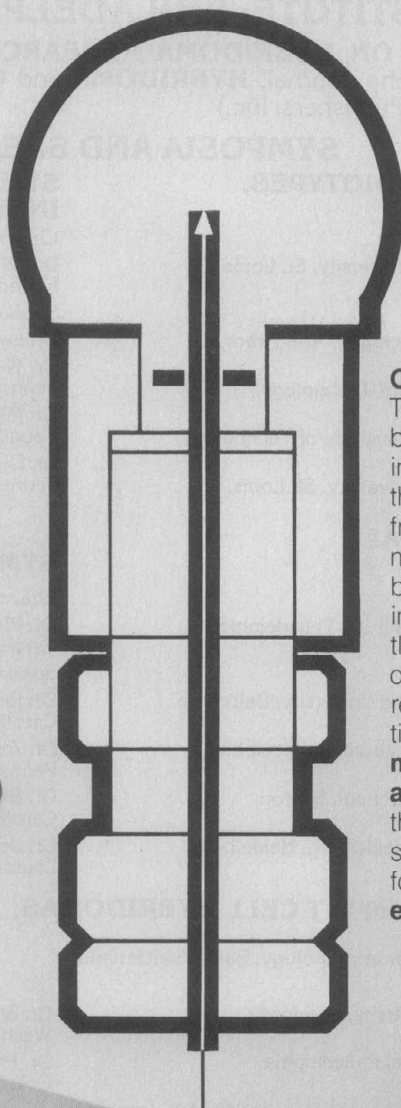
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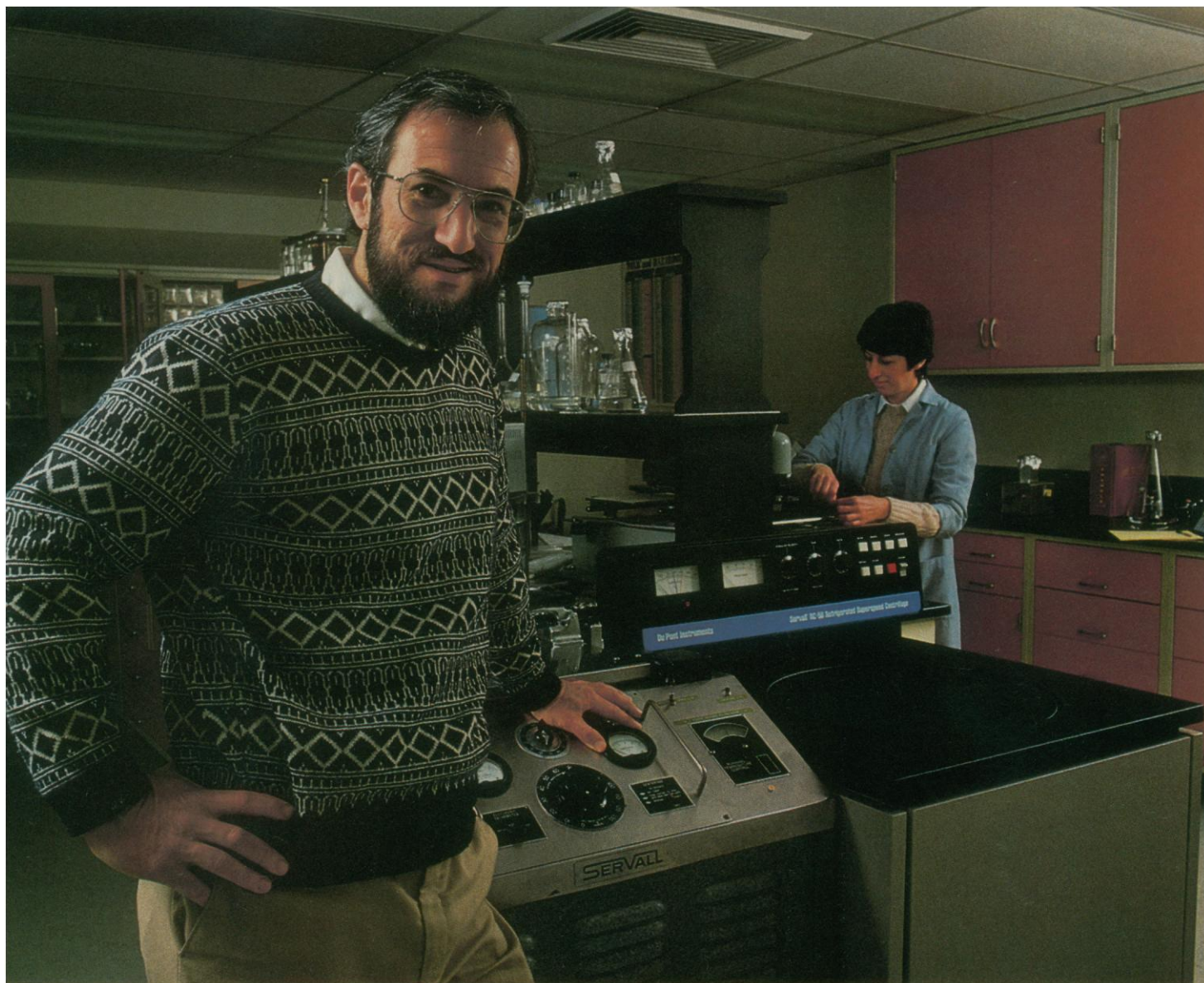
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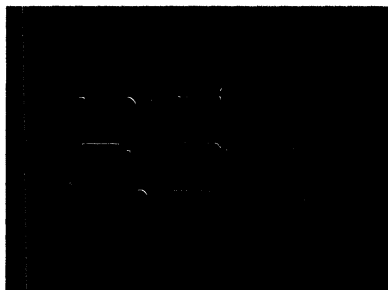
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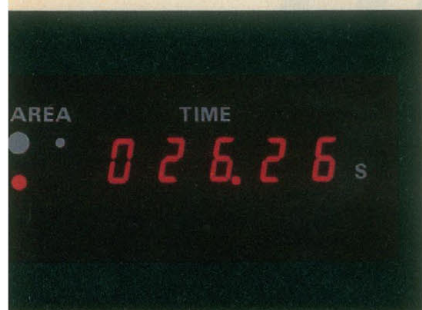
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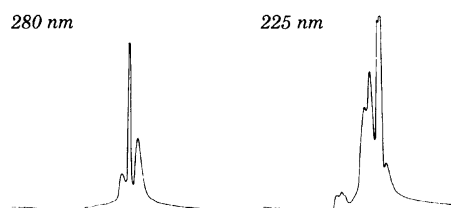
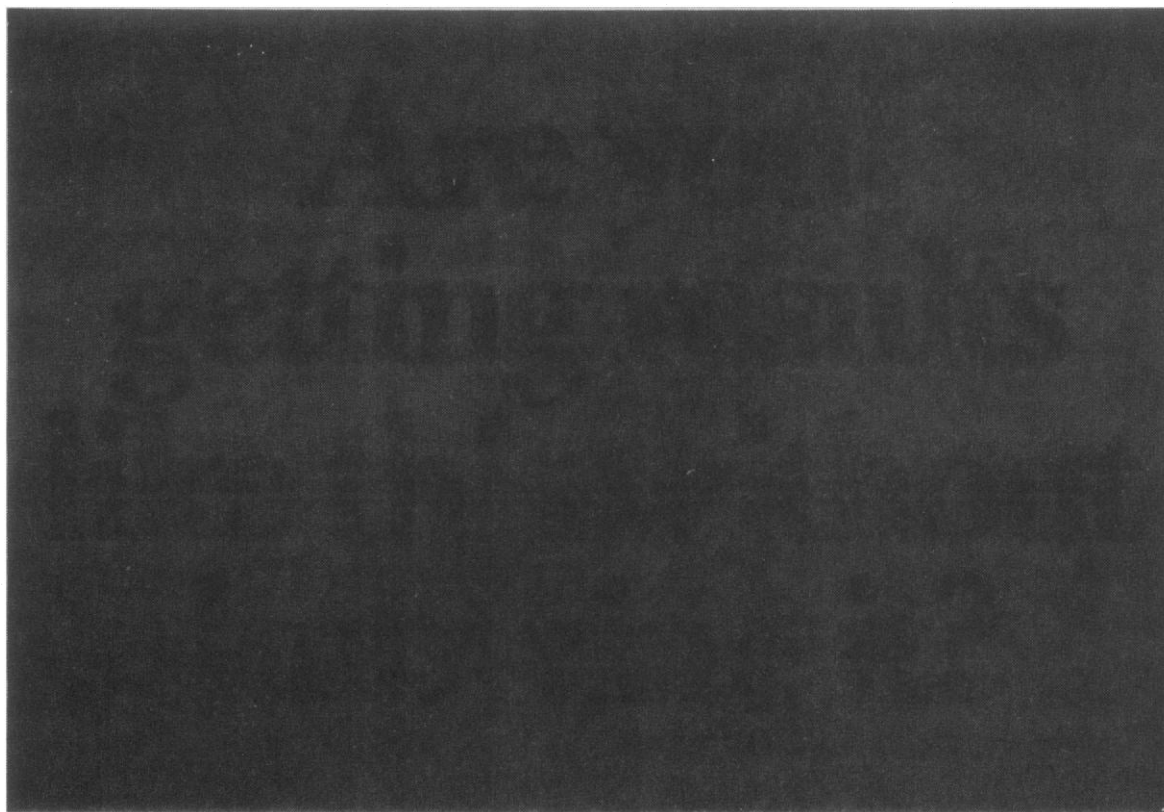
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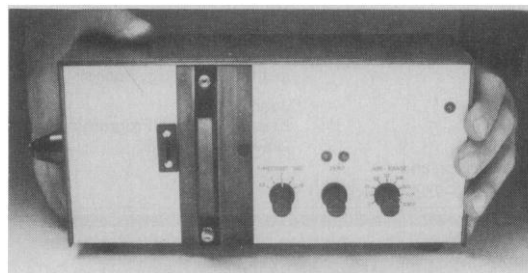
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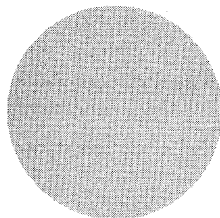
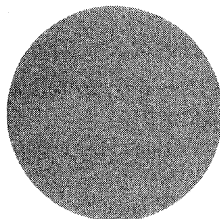
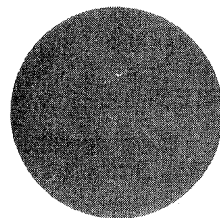
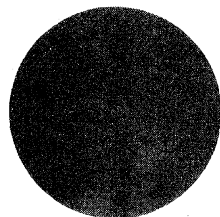
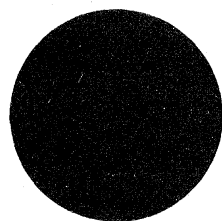
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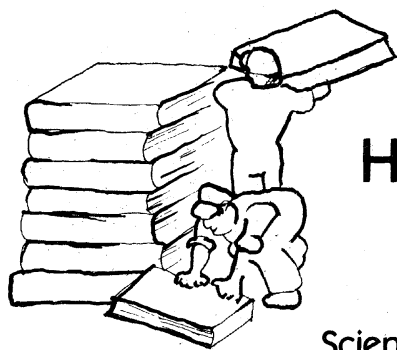


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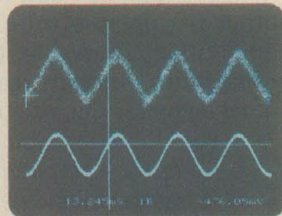
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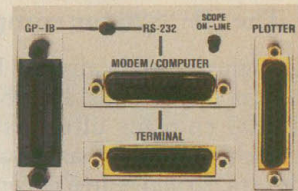
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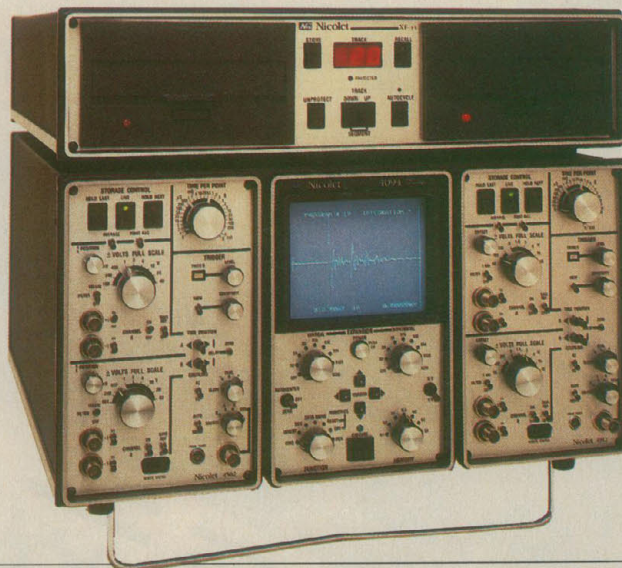
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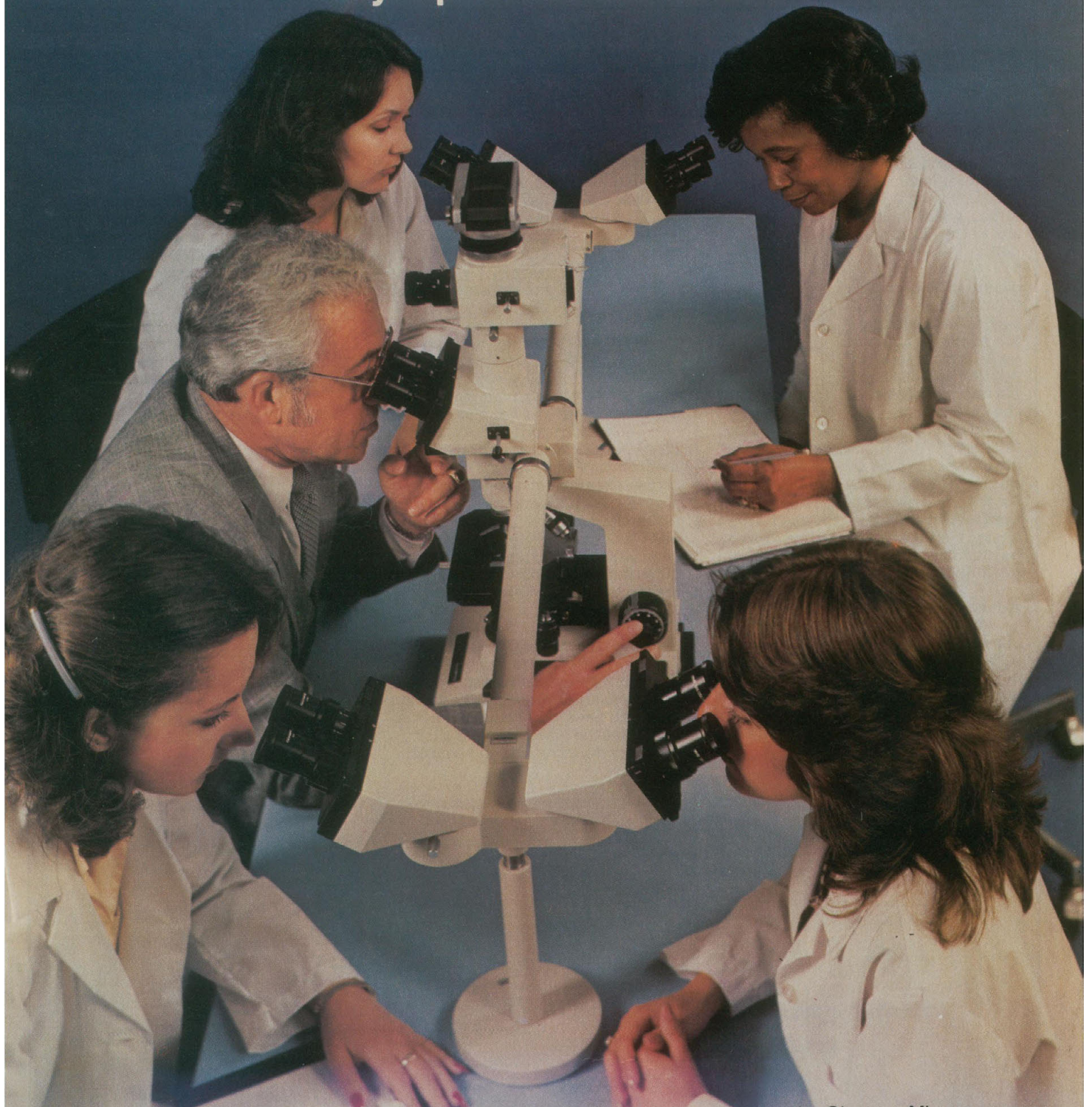


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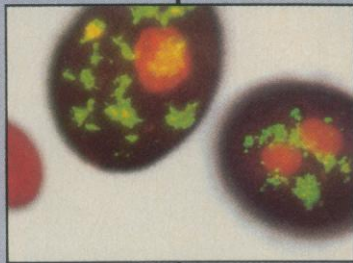
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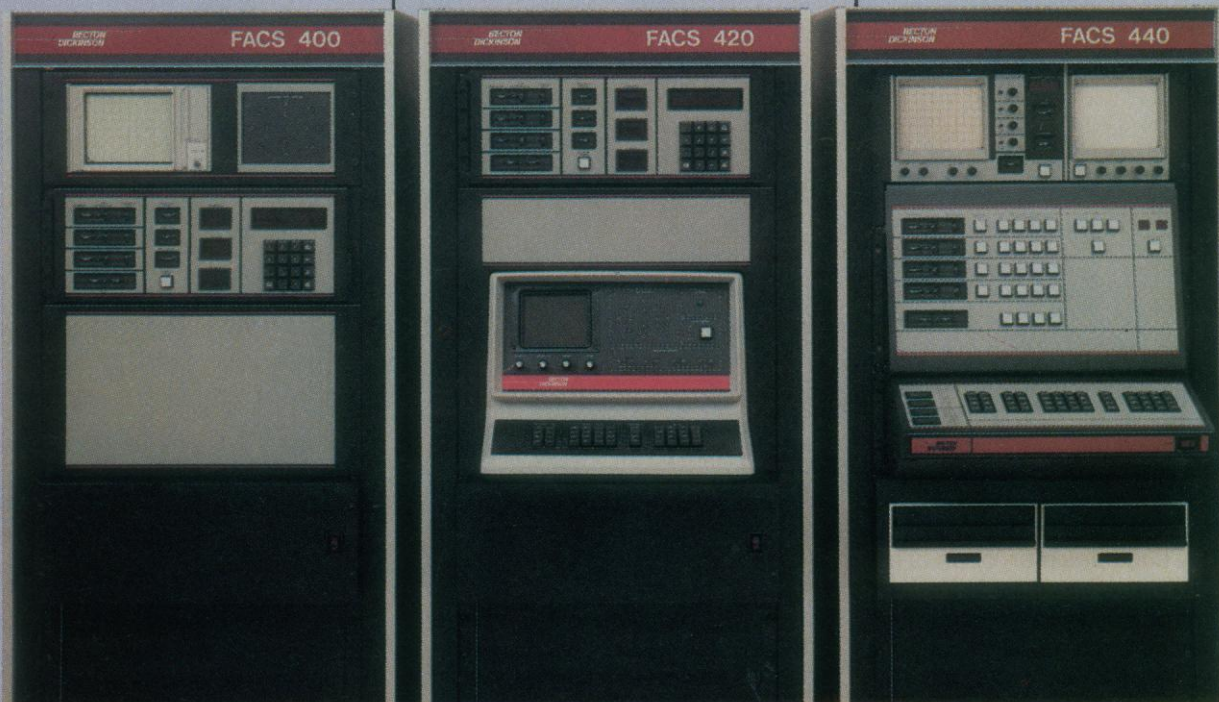
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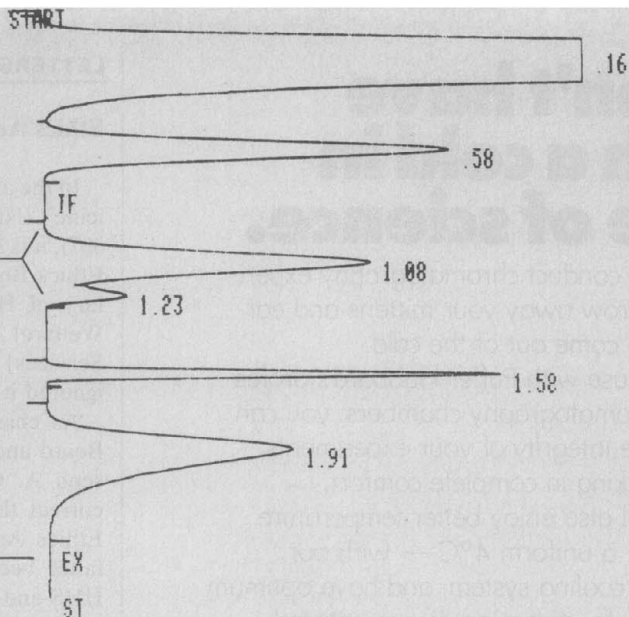
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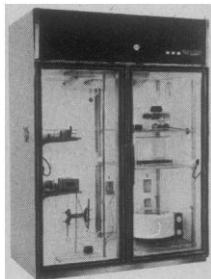
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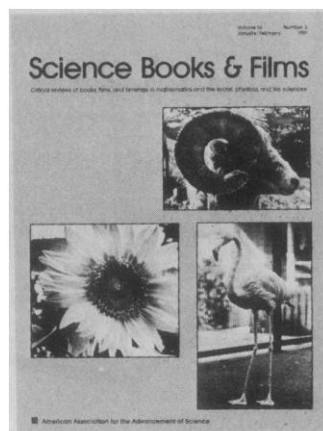
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LETTERS

Ethics Advisory Board

In the article "Ethical risks in biomedicine" (News and Comment, 17 Apr., p. 307), it is stated that "the work of the old Ethics Board has not yet found a secretary of HEW [Health, Education, and Welfare] or HHS [Health and Human Services] willing to endorse it. Califano ignored it."

As chairman of the Ethics Advisory Board under former HEW Secretary Joseph A. Califano, Jr., I would like to correct the record. First, I believe the Ethics Advisory Board experiment did falter because of disinterest at HEW-HHS and the Office of Management and Budget, but only after Secretary Califano left office. Second, Secretary Califano did not to my knowledge ever ignore the Board or its work. Indeed, I believe, as I think all members of the Board do, that Secretary Califano felt it was extremely important for an independent body like the Board to advise the Secretary on the complex and important ethical issues arising in federal health policies and programs. Moreover, Secretary Califano acted positively upon all recommendations which the Board made to him except for some about in vitro fertilization, which he published for public comment before taking action. Final action was prevented not by disinterest but by departure from office.

JAMES C. GAITHER

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Citation in Astronomy

A certain systematic parochialism is too often found in scientific literature—in the United States as well as in other countries. In the science I know best—astronomy—many review articles published in the United States contain few or no references to papers written in languages other than English or to groups of authors working outside the United States. Has science, in this field, been developing only in the United States? No one really thinks so.

J. Lequeux, editor of *Astronomy and Astrophysics* (a journal that, about 20 years ago, resulted from the merging of many important Western European astronomy journals), has found (1) that, in 1978, the "impact factor" worldwide (derived from the Science Citation Index) was 9.91 for the *Annual Review of Astronomy and Astrophysics*; 2.71 for

the *Monthly Notices of the Royal Astronomical Society*; 2.31 for *Astronomy and Astrophysics*; and less for other journals.

One concludes that, nowadays, American scientists quote only themselves; the process is dangerous. Languages other than English are discouraged. Young (or not so young) scientists elsewhere in the world publish in English, but sometimes in broken English, missing the opportunity to be clear. This usually does not help, however, as American scientists do not quote them.

This kind of parochialism is spreading, and it is leading to a new form of American intellectual colonialism: only Americans do well; American science is exported or good scientists are imported from abroad, where they are transformed into American scientists; foreign science is good only when submitted to American leadership. I am possibly darkening the picture; I have many good friends and colleagues in the United States, and elsewhere, who have always been extremely fair; and I cannot fail to pay here a due tribute to all I owe American science, and to American astronomers in particular. But in the present situation, I see severe threats to the universality of science and to the independence of non-American scientists in their choice of a language, a subject, and a channel for publication.

I hope my friends will pardon me, and I hope they will understand what I mean—in time.

JEAN-CLAUDE PECKER

*Laboratoire d'Astrophysique
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References

1. J. Lequeux, *J. Astron. Fr.* (No. 9), (June 1980).

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At the recent Sixth Annual AAAS Colloquium on R&D Policy, much consideration was given to the health of the science and engineering educational enterprise. Particular attention was focused on the cutbacks in the Reagan Administration's budget for science and engineering educational support within the National Science Foundation. Many speakers suggested that the industrial world pick up some of the slack created by federal funding cutbacks. Since Seat-

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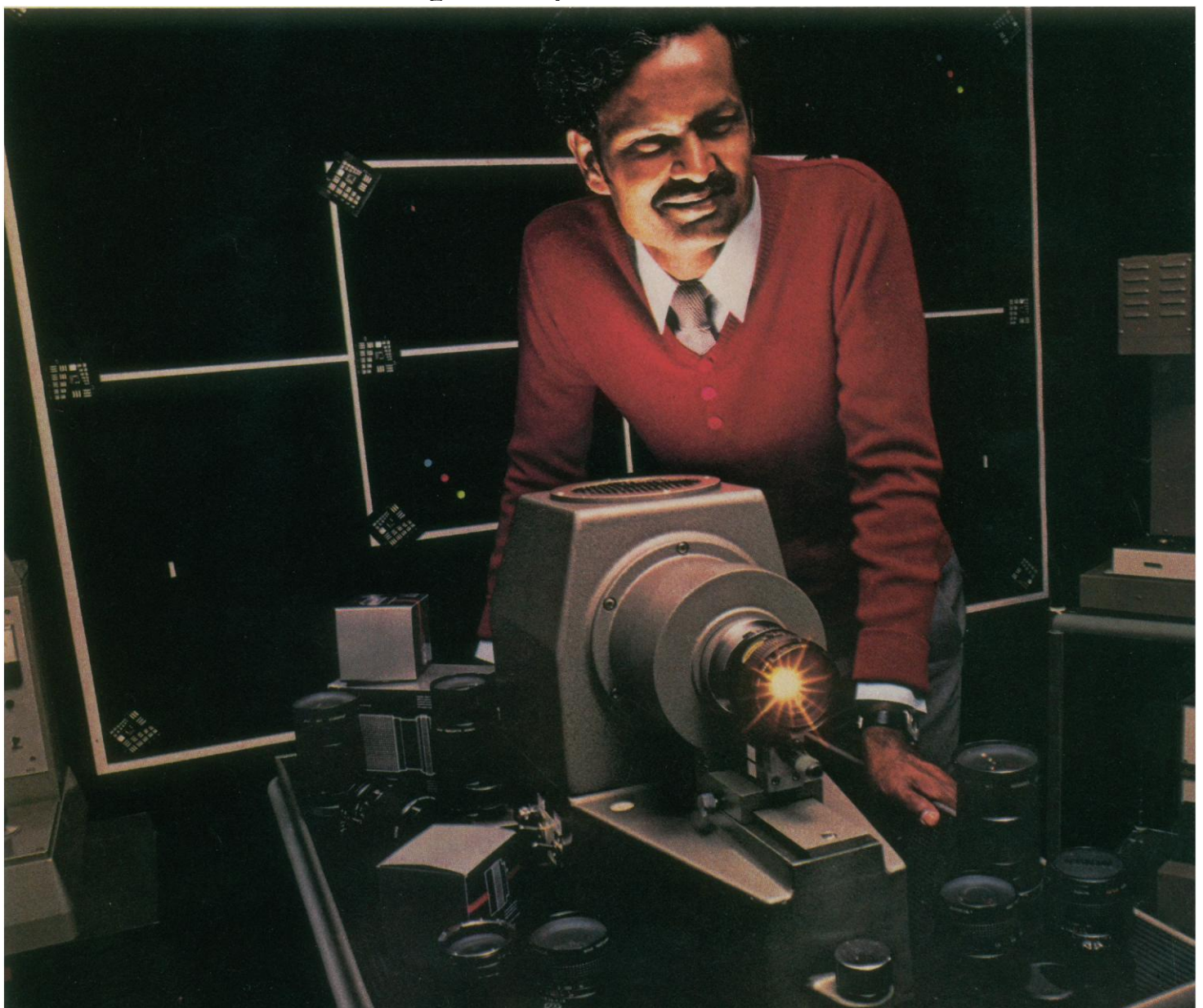
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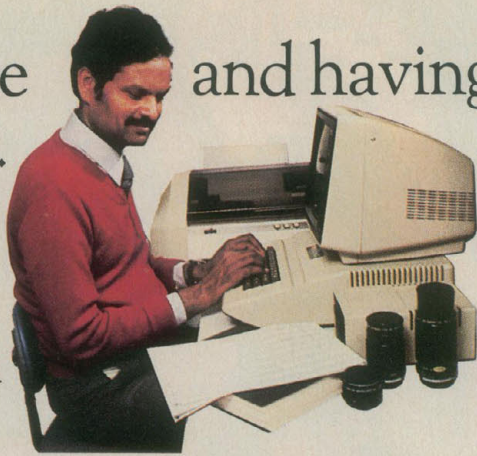
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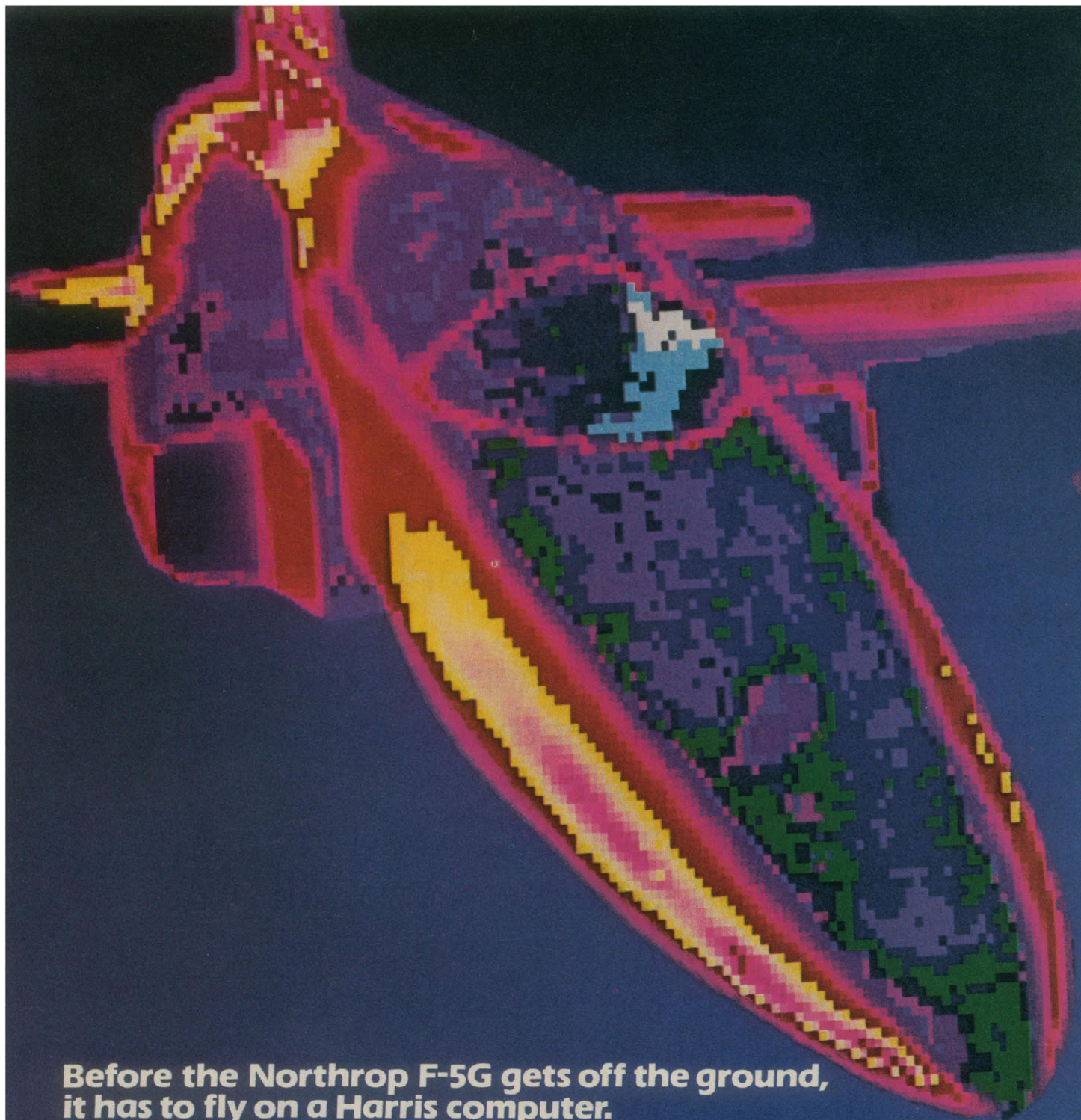
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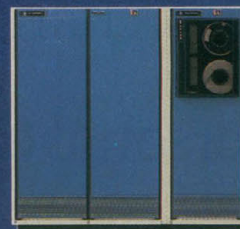
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New Cuts in Agency Budgets

President Reagan's announcement on 24 September that the fiscal year 1982 budget for most government agencies was to be reduced a further 12 percent sent a wave of apprehension through our national laboratories and major research universities. The earliest impact will be felt in the national laboratories. Hundreds of scientists and technicians will be dismissed during the next several months in anticipation of budgetary reductions yet to come. The concern on university campuses is no less in degree, even though the impact will be less precipitate. Prospects for FY 1983 are still worse, if a balanced FY 1985 budget remains an Administration goal. Alarm is deep and pervasive.

Previous cuts by the Reagan Administration in the R&D budget, although damaging to social science research and science education in particular, were of a different order than what may now follow. Those cuts were more surgical in nature, protecting the hard sciences and cutting back on large demonstration projects, with the belief that these would be more appropriately taken up by industry. The Administration accepted the principle that federal support was warranted to preserve the strength of the national effort in basic research. But if an across-the-board cut of 12 percent is now imposed, with even deeper cuts in succeeding years, it is clear that the nurturing relationship between science and government may be changing in a manner quite different from the oscillations of the past. Science and government may be approaching a moment of decision in which the health of both is at risk.

The Reagan Administration believes that a new austerity in government spending is warranted and that it has a popular mandate to that end. But there remains a general responsibility, which the scientific community certainly shares, to point up the consequences of specific cuts and to ensure that the remaining federal resources are allocated wisely and to maximum effect. What avenues are open to the scientific community to make its case? Indeed, what kind of case does it have?

- It must point out more effectively—with documentation, if necessary—that the nation's economic strength and military security (both goals of the Administration) are tightly coupled to achievements in high technology and that, in turn, high technology is dependent upon scientific accomplishment. It must continue to point out that less than 15 percent of the \$38 billion in the federal budget for R&D goes to basic research; the bulk is spent on development. The required cuts could be made in the overall R&D budget, while allowing for modest growth in fundamental research.

- It may have to take its case to the authorization and appropriations committees of Congress, hoping to find support through public rather than quiet diplomacy.

- It might also direct its attention inward, offering to reexamine the national research enterprise—including academic research, national laboratories, and industrial research—to learn whether new institutional relationships and other structural changes can preserve our scientific strengths in a period of financial stringency. All sectors of the scientific community must be prepared to set aside the shibboleths of the past and perhaps propose new modes of research just as effective yet less costly. There has been no truly comprehensive examination of the relationship between the federal government and the scientific community since shortly after World War II. Out of this time of trial may emerge a totally new environment for science in the United States, perhaps even a better one.

It is clear that present circumstances require broad and informed consideration at the highest level. Accordingly, the National Academy of Sciences is calling a national convocation of scientific and engineering leaders to meet with government officials for a clarification of the prospects for science and technology in the light of proposed federal budgets and, if consensus permits, to suggest a course of action.—FRANK PRESS, *President, National Academy of Sciences, Washington, D.C. 20418*

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