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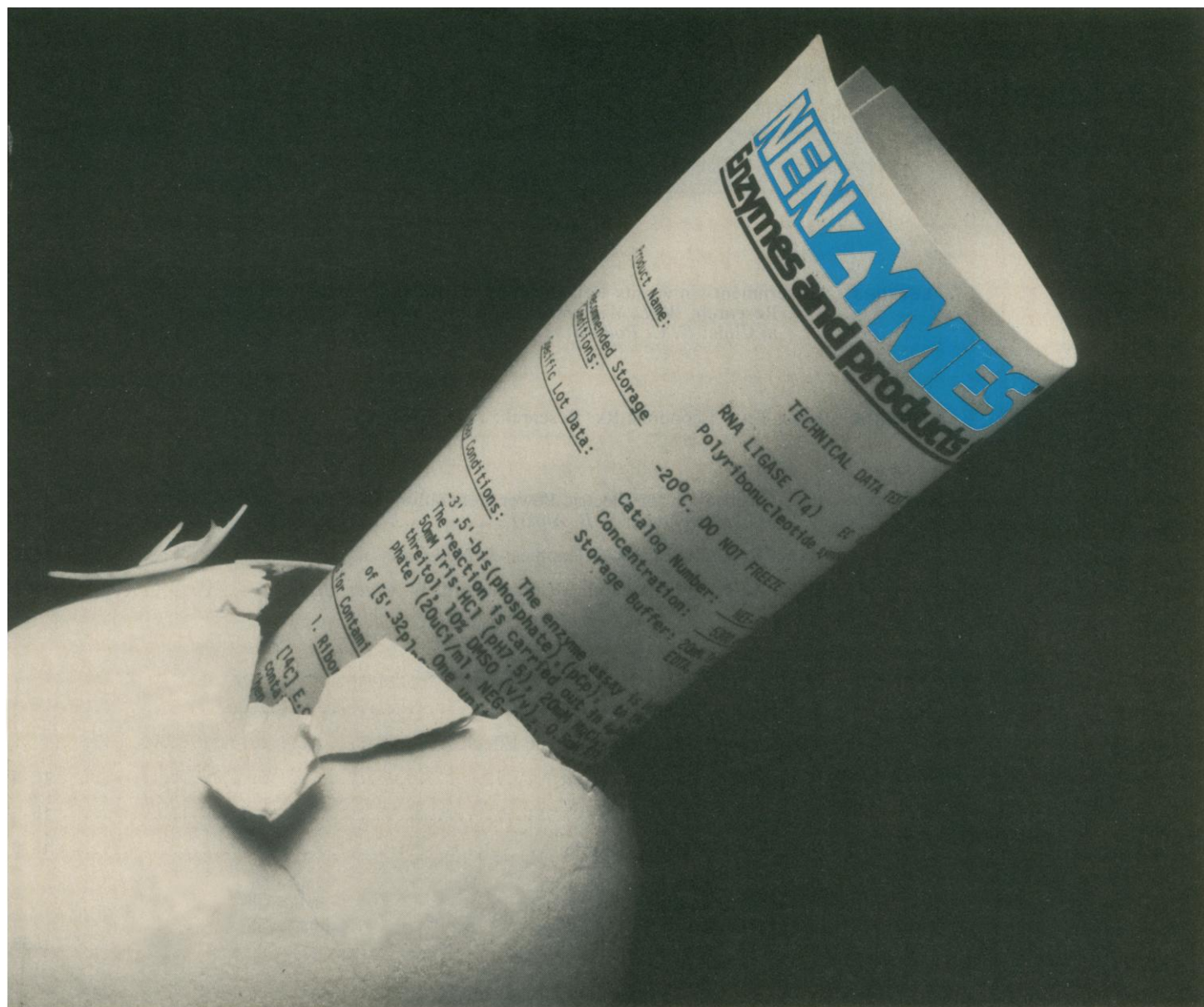
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LETTERS	Government-University Relationships: <i>B. Marshall</i> ; Small Business Research: <i>W. L. Walters</i> ; <i>B. R. Young</i> ; <i>H. A. Ory</i> ; Social Sciences in Chile: <i>G. C. Pollard</i>	1564
EDITORIAL	Long-Term Economic Rx: Research: <i>J. H. Glenn</i>	1569
ARTICLES	Coal Gasification for Electric Power Generation: <i>D. F. Spencer</i> , <i>M. J. Gluckman</i> , <i>S. B. Alpert</i>	1571
	Rapid Evolution of RNA Genomes: <i>J. Holland</i> et al.	1577
	Legal Abortion: The Public Health Record: <i>W. Cates, Jr.</i>	1586
NEWS AND COMMENT	Presidential Secrecy Order Gets No Defense	1591
	Spotlight on Pest Reflects on Pesticide	1592
	EDB Causes a Regulatory Ripple Effect.....	1593
	Nonproliferation Post Vacant	1594
	NAE Elects New Members	1595
	NRC Reviews Brittle Reactor Hazard.....	1596
	<i>Briefing</i> : Science Policy Wordsmith Responds to Bell; House Committees Choke on Small Business Bills; Researchers Predict Fewer NIH Grants; Preventive Research Office Suggested; Alaska Stakes a Claim for Arctic Research	1598
RESEARCH NEWS	Imaging the Earth (I): The Troubled First Decade of Landsat	1600
BOOK REVIEWS	Biological Cycles, reviewed by <i>D. E. Atkinson</i> ; Protein Phosphorylation, <i>P. Cohen</i> and <i>D. G. Hardie</i> ; Neuronal Mechanisms of Hearing, <i>W. Rhode</i> ; Solar Active Regions, <i>R. Rosner</i> ; The Behavioral Ecology of the Komodo Monitor, <i>R. Wassersug</i> ; Books Received.....	1604

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

REPORTS	Atmospheric Deposition of Metals to Forest Vegetation: <i>S. E. Lindberg, R. C. Harriss, R. R. Turner</i>	1609
	Global Sea Level Trend in the Past Century: <i>V. Gornitz, S. Lebedeff, J. Hansen</i>	1611
	Escape of Hydrogen from Venus: <i>M. B. McElroy, M. J. Prather, J. M. Rodriguez</i>	1614
	Growth Rates of Phosphate Nodules from the Continental Margin Off Peru: <i>W. C. Burnett, M. J. Beers, K. K. Roe</i>	1616
	Coral Gas: Oxygen Production in <i>Millepora</i> on the Great Barrier Reef: <i>N. Bellamy and M. J. Risk</i>	1618
	Proliferative Capacity of Murine Hematopoietic Stem Cells in vitro: <i>U. Reincke et al.</i>	1619
	Interspecies Variations in Mammalian Lens Metabolites as Detected by Phosphorus-31 Nuclear Magnetic Resonance: <i>S. J. Kopp, T. Glonek, J. V. Greiner</i>	1622
	Lower Devonian Gametophytes: Relation to the Phylogeny of Land Plants: <i>W. Remy</i>	1625
	Control of Vascular Contractility by the Cardiac Pacemaker: <i>A. Mangel, M. Fahim, C. van Breemen</i>	1627
	Cyanobacterial Blooms: Carbon and Nitrogen Limitation Have Opposite Effects on the Buoyancy of <i>Oscillatoria</i> : <i>A. R. Klemer, J. Feuillade, M. Feuillade</i> ..	1629
	Fast-Growing Rhizobia Isolated from Root Nodules of Soybean: <i>H. H. Keyser et al.</i>	1631
	Solubilized Adenosine Receptors in the Brain: Regulation by Guanine Nucleotides: <i>M. Gavish, R. R. Goodman, S. H. Snyder</i>	1633
	Impulse-Coded and Analog Signaling in Single Mechanoreceptor Neurons: <i>V. M. Pasztor and B. M. H. Bush</i>	1635
	Inhibition of Idiotypic-Anti-Idiotypic Interaction for Detection of a Parasite Antigen: A New Immunoassay: <i>P. Potocnjak et al.</i>	1637
	Prairie Dogs Avoid Extreme Inbreeding: <i>J. L. Hoogland</i>	1639
	Inner Ear: Dye Injection Reveals Peripheral Origins of Specific Sensitivities: <i>E. R. Lewis et al.</i>	1641
	Spinal Sympathetic Neurons: Possible Sites of Opiate-Withdrawal Suppression by Clonidine: <i>D. N. Franz, B. D. Hare, K. L. McCloskey</i>	1643

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Black-tailed prairie dog (*Cynomys ludovicianus*) at Wind Cave National Park, South Dakota. Black-tails are colonial, harem-polygynous rodents of the squirrel family (Sciuridae). Because of male dispersal patterns and female choice of mates, individual black-tails do not copulate with close genetic relatives such as parents, offspring, or siblings. See page 1639. [National Park Service, Wind Cave National Park, South Dakota]

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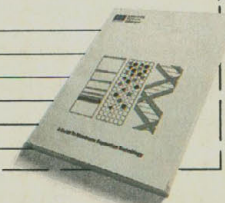
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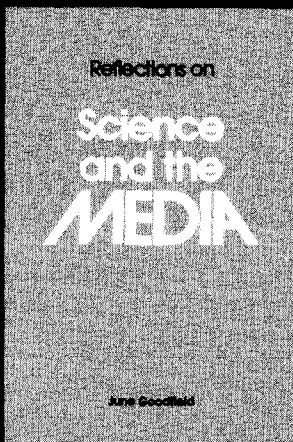
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luctant to talk about their research openly because they fear the complexities will be ignored or oversimplified; journalists tend to seek out that which is easily told and easily understood. The author also shows that both professions must come to some agreement about their mutual obligations to the public which supports them. *Reflections on Science and the Media* is a strong plea for such an understanding.

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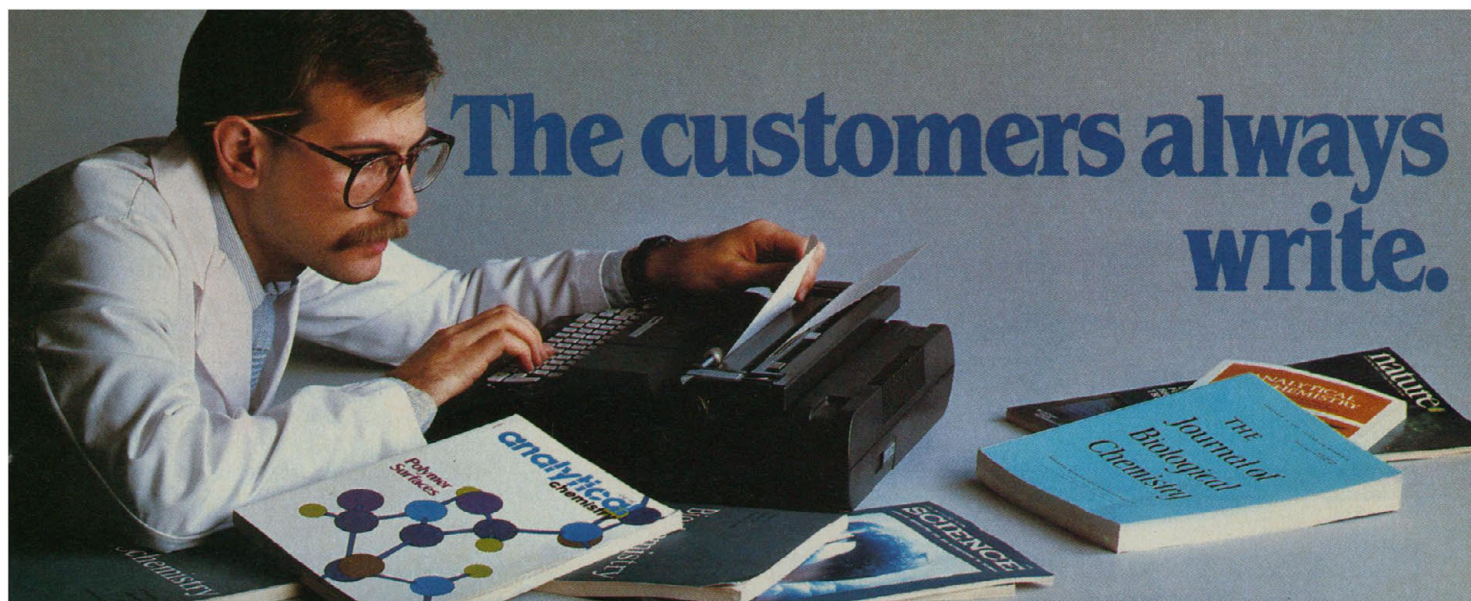
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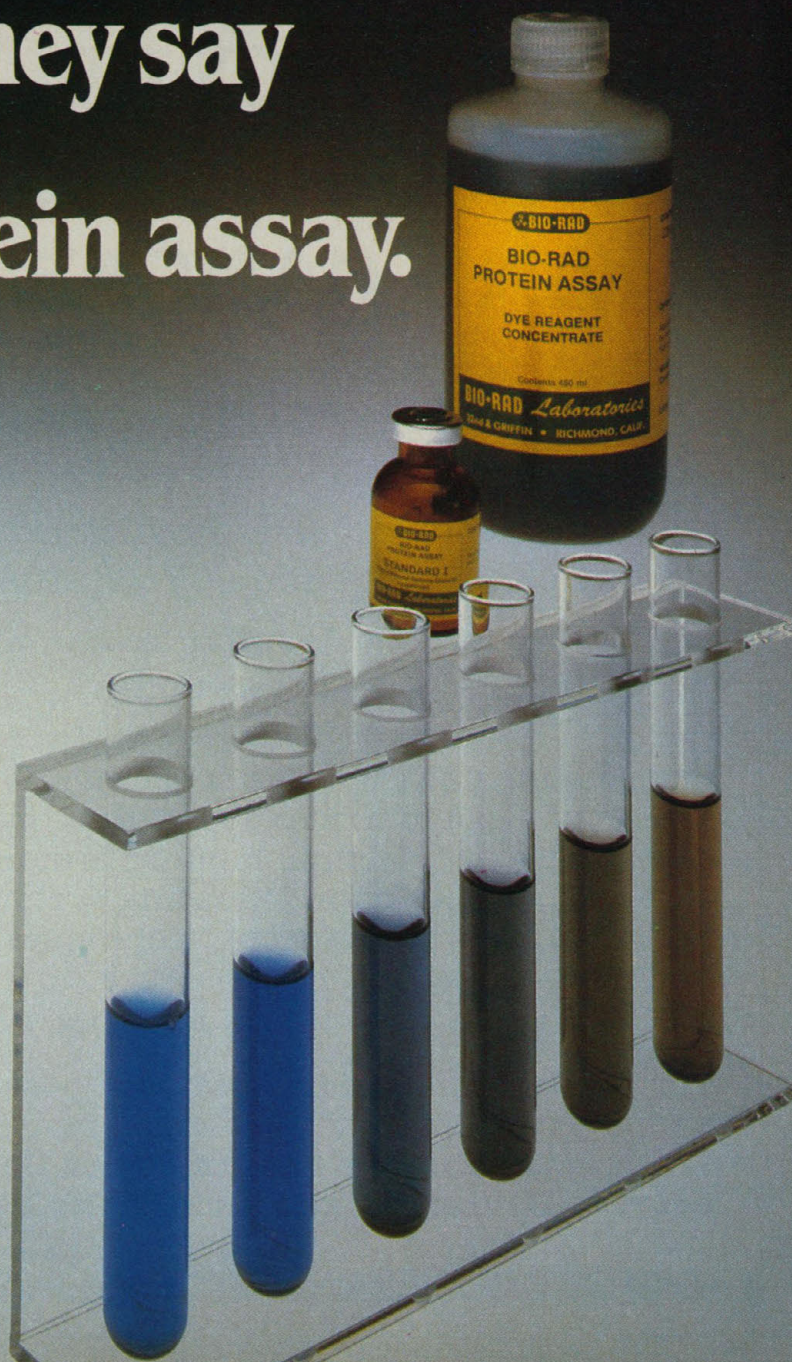
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for basic research is being severely restricted.

The announced philosophy of the current Administration is to reduce the role of government in our social and economic affairs. The objective of this NSF program is one which clearly should be fulfilled by private venture capitalism. I would hope that Congress and the Administration might redirect the funds allocated for SBIR into areas where they

will benefit the public at large. NSF should not be in the business of spending public funds to enrich private enterprise.

BRIAN R. YOUNG

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References

1. "Program Solicitation: Small Business Innovation Research" (National Science Foundation, Washington, D.C., no date), p. 1.

Congressman John J. LaFalce (Letters, 29 Jan., p. 456) cites the conclusion of a National Science Foundation study (1) that small R & D firms have been the primary generators of major technological innovations. While the conclusion appears to be well founded, one should bear in mind that the relationship between innovation and small R & D firms is more similar to that between the egg and chicken than the horse and cart. It may well be true that major technological innovations have been important, and perhaps the primary, generators of small R & D firms.

HORACE A. ORY

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1. National Science Board, *Science Indicators 1976* (National Science Foundation, Washington, D.C., 1977).

Social Sciences in Chile

As a follow-up to John Walsh's account of the status of universities and degree programs in Chile ("New university law decreed in Chile," News and Comment, 27 Mar. 1981, p. 1403), it may be of interest to *Science* readers that some easing of the restrictions on social science programs has begun to occur. On 1 March 1981, Roberto Escobar B. was designated director of a new Department of Sociological and Anthropological Sciences, which replaces previous units, at the University of Chile, Santiago. The department contains 22 full-time and 28 part-time professors. As of January 1982 the university is the only one in Chile to offer an advanced degree in the fields of sociology, anthropology, and archeology, along with a master's level program in social sciences. The new department has also been able to reinstate its publication series, including the *Boletín de Prehistoria*, which had been suspended since 1975, and the *Revista Chilena de Sociología y Antropología*; both journals will have an issue this year. Contributions are welcomed for either journal, with submissions to be directed to Roberto Escobar. Let us hope that this rerecognition of the social sciences in Chile continues and expands.

GORDON C. POLLARD

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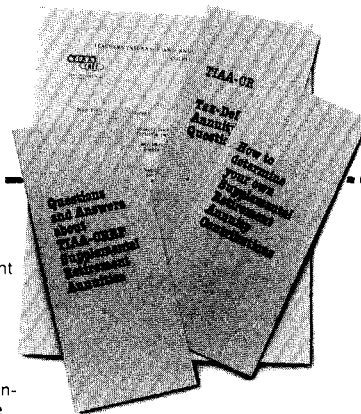
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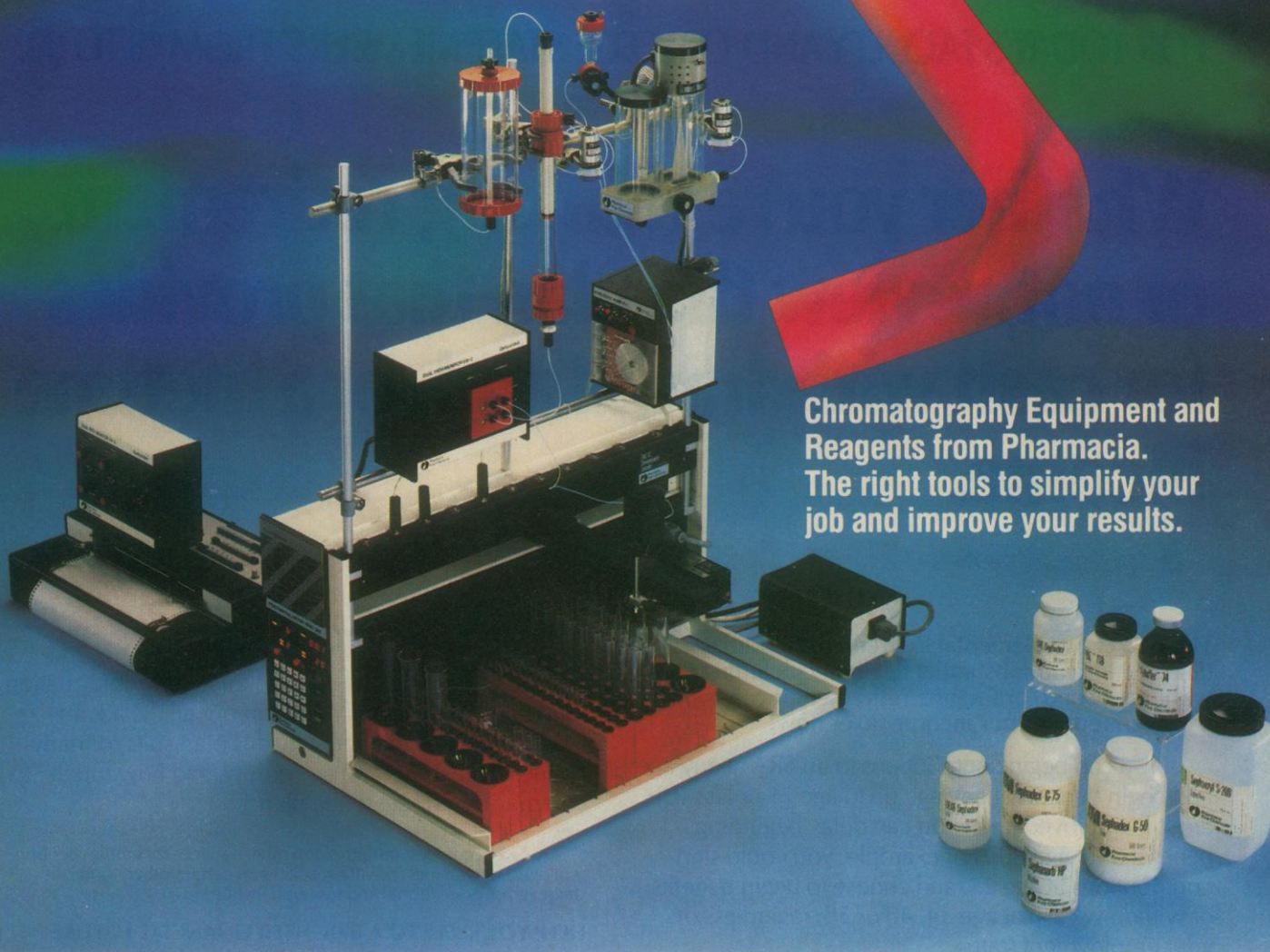
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Long-Term Economic Rx: Research

Research and development supported by both government and private sources transformed the United States into the dominant technological force in the world. But our commitment to maintain and extend the amount of research and development necessary to stay ahead in the technological race has slipped. Today, we are witnessing a wholesale retreat in the federal role in civilian research and development. This is manifest in the shrinking amount of research support for our universities, private nonprofit research laboratories, and national multi-program laboratories.

Over the past 15 years the proportion of the U.S. gross national product invested in research and development has steadily declined—dropping more than 20 percent since 1965. In the same period and by the same measure, the R & D investment in the Soviet Union climbed by 21 percent, in Japan by 27 percent, and in West Germany by 41 percent. In addition to this huge underinvestment in research and development, we are failing to produce the technically trained people that we need to sustain increases in productivity and to make advances in knowledge that will be the basis for our economic prosperity and national security in the coming decades. The intense demand for technically trained people has resulted in high salaries that are luring faculty and graduate students away from even our best universities. To complete this picture, there is mounting evidence that the research laboratories and instrumentation in American universities are rapidly becoming obsolete.

Let us examine the response of the Reagan Administration to this crisis in four specific areas: energy, space, science education, and the national laboratories.

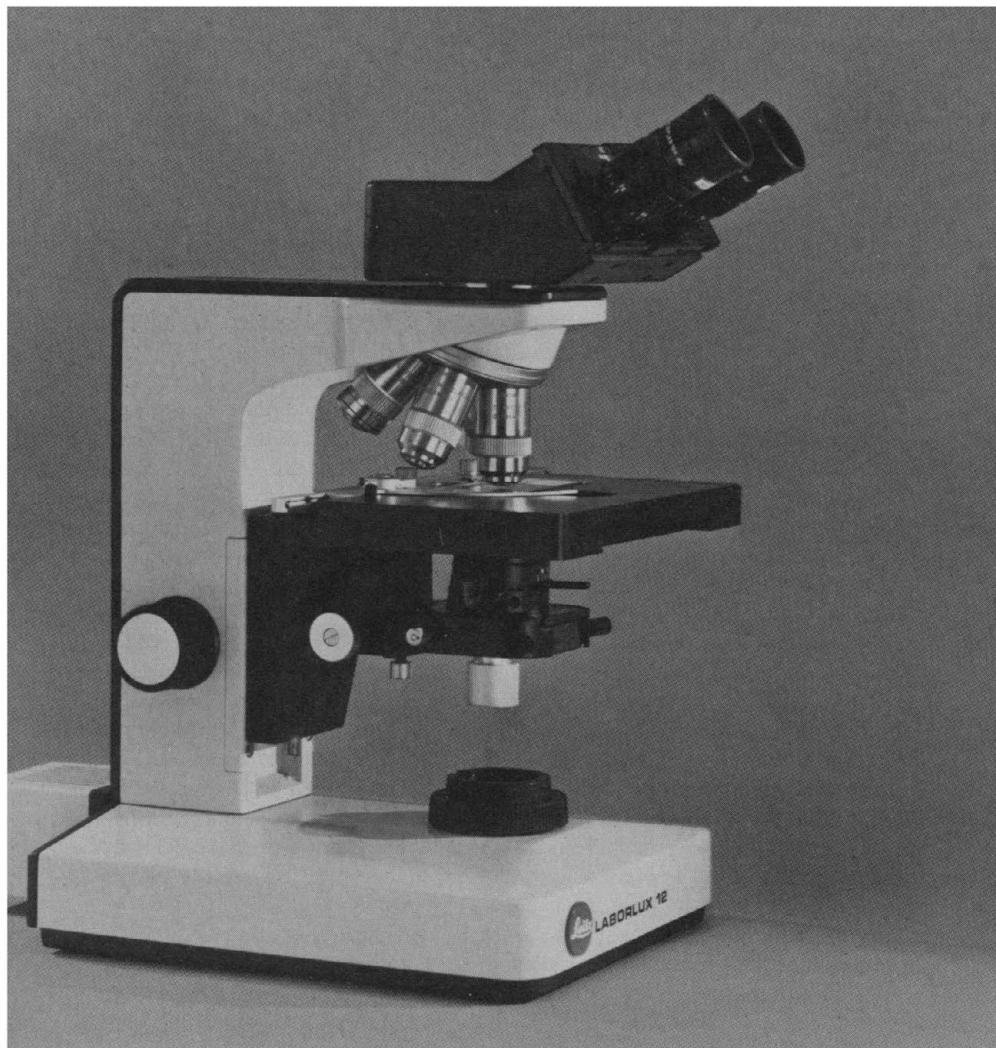
Productive R & D efforts in industrial energy conservation, energy-efficient buildings, energy storage, and solar energy have been zeroed out in the President's fiscal 1983 budget, thus helping to ensure an unnecessarily prolonged U.S. dependence on oil from the Arabian Gulf. There is no evidence that any of these programs will be picked up by private industry.

Decisions on the space program are equally egregious. The Galileo Program is now the only remaining U.S. planetary program in development, and some of the older space probes may be turned off. Funds have been cut for a satellite to test new advances in communication. Aeronautics research has been cut at a time when the Europeans are challenging us with the development of the airbus and the Japanese are thinking of launching major forays into the international aircraft market.

In science education, the National Science Foundation's (NSF) request for extra funds to upgrade university laboratories has been zeroed out, and a 70 percent reduction has been forced on NSF in the science education budget. As for the national laboratories, Argonne National Laboratory officials say that 25 percent of their work force may be eliminated within the year. Brookhaven National Laboratory, Fermi National Accelerator Laboratory, NASA-Lewis Laboratory, and Jet Propulsion Laboratory have also suffered.

Several steps can be taken to meet the R & D crisis in America. We must provide stable, predictable funding for scientific and technological research; alleviate shortages of technical personnel; provide incentives for better university-industry collaboration; restore the science education program at NSF and improve science and mathematics education at the precollege level; and develop a coherent national science and technology policy that includes a larger role for the science and technology community in the making of such policy. If the Office of Science and Technology Policy cannot be sufficiently effective in this role, we should think seriously about creating a cabinet-level department of science and technology as a focal point for federal nondefense research activities. I urge the science community to help us get back on the right track.—JOHN H. GLENN, *U.S. Senator (D-Ohio)*, Washington, D.C. 20510

From a speech before the IEEE Conference on Technology Policy, 24 February 1982, Washington, D.C.



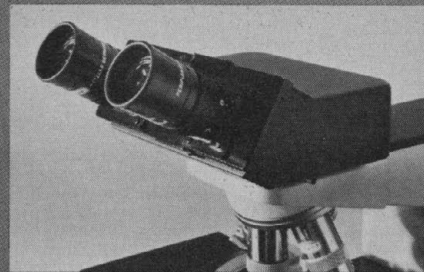
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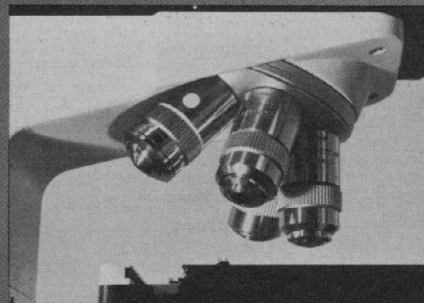
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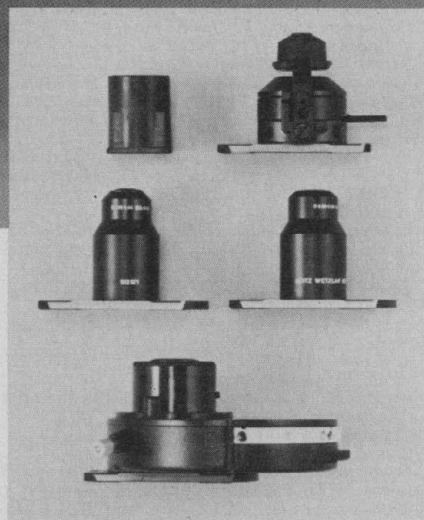
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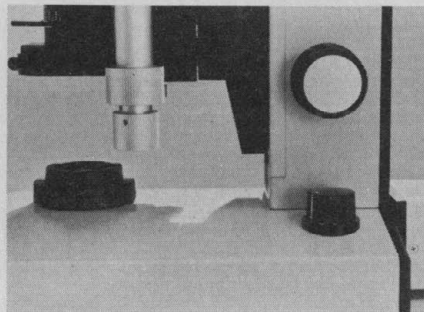
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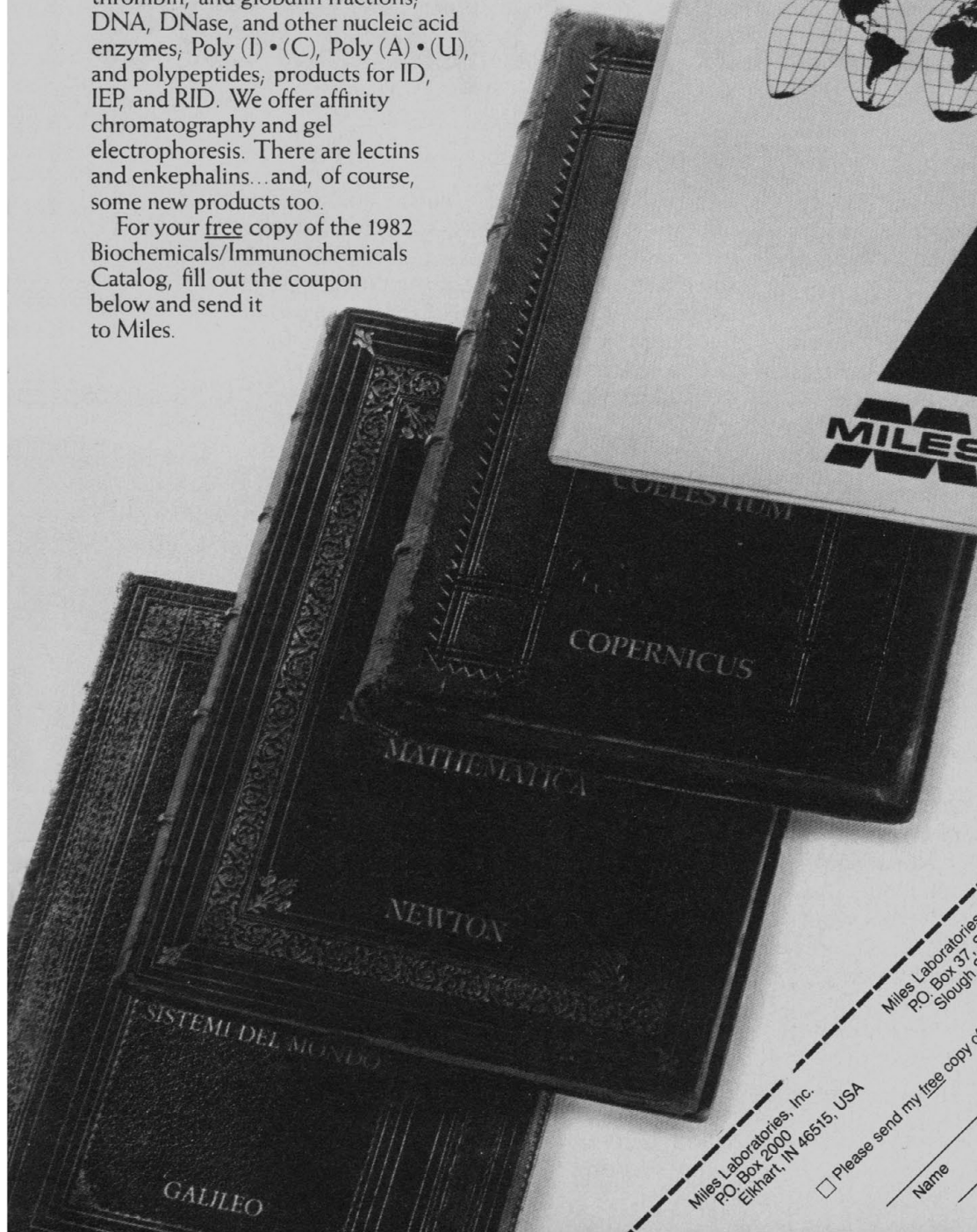
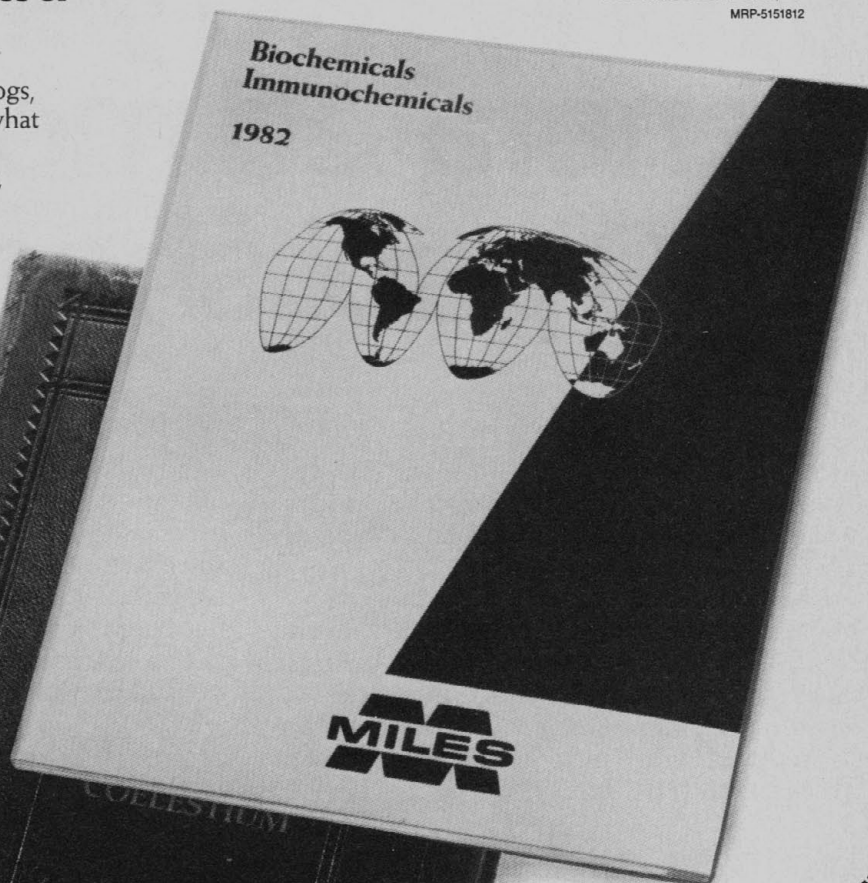
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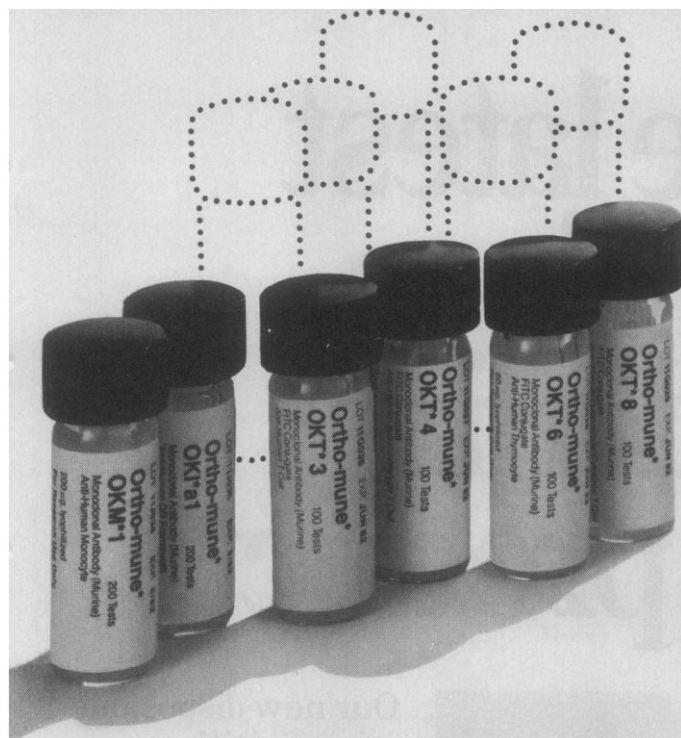


MONOCYTES AND Ia-POSITIVE CELLS

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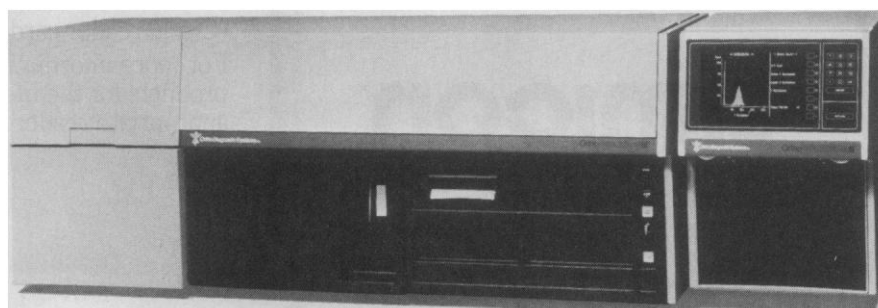
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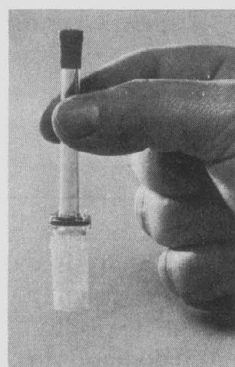
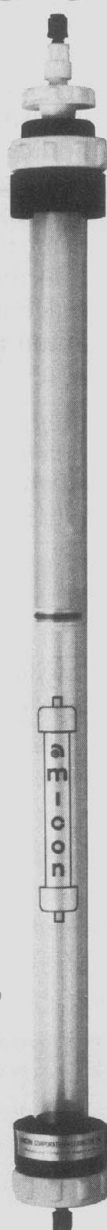
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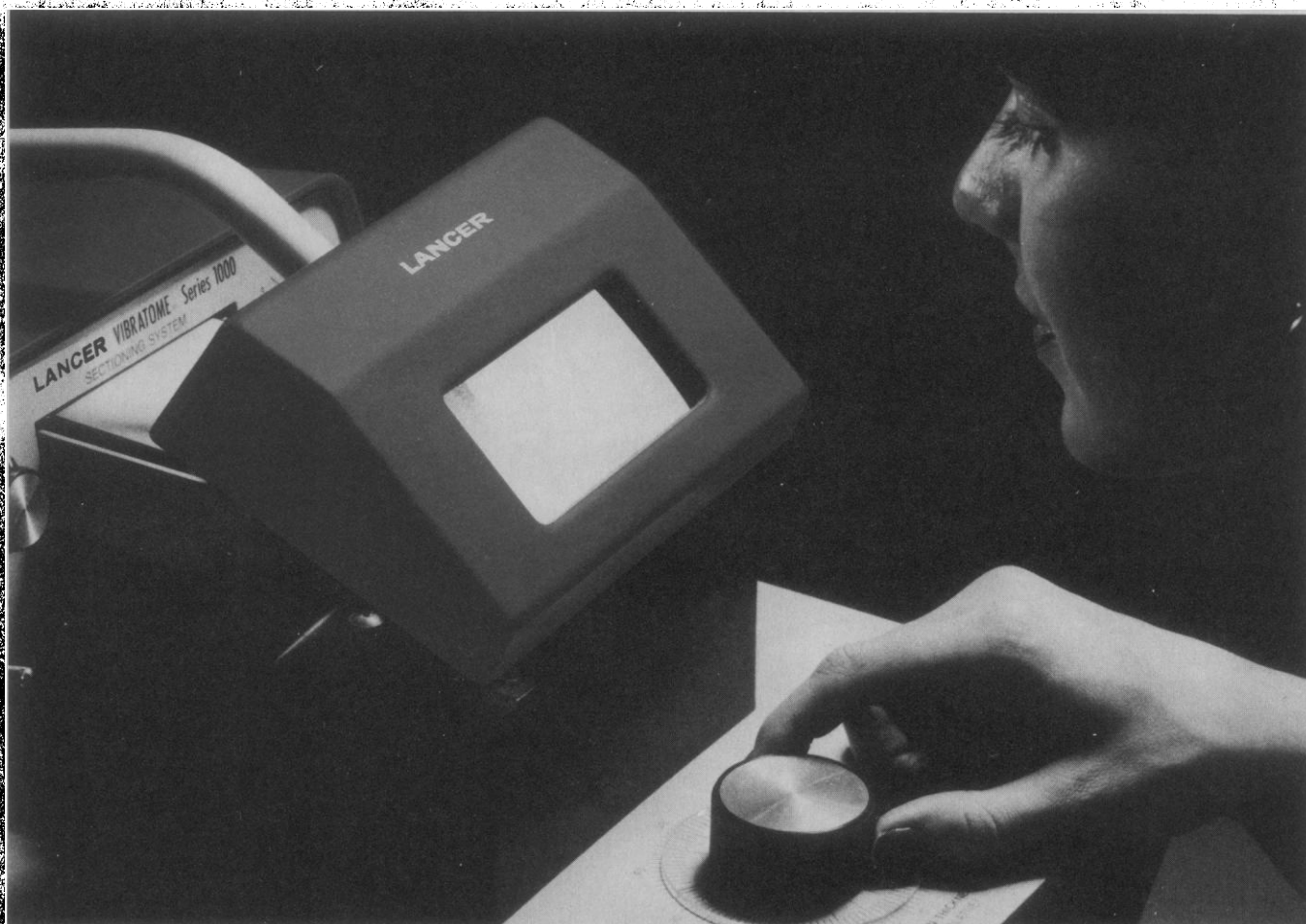
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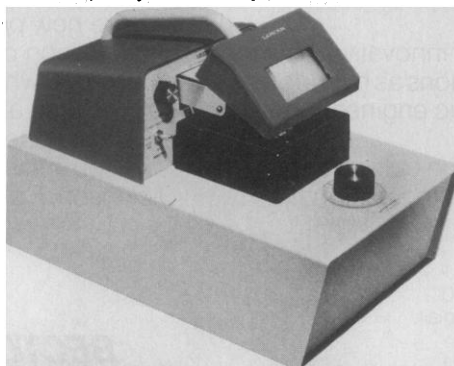
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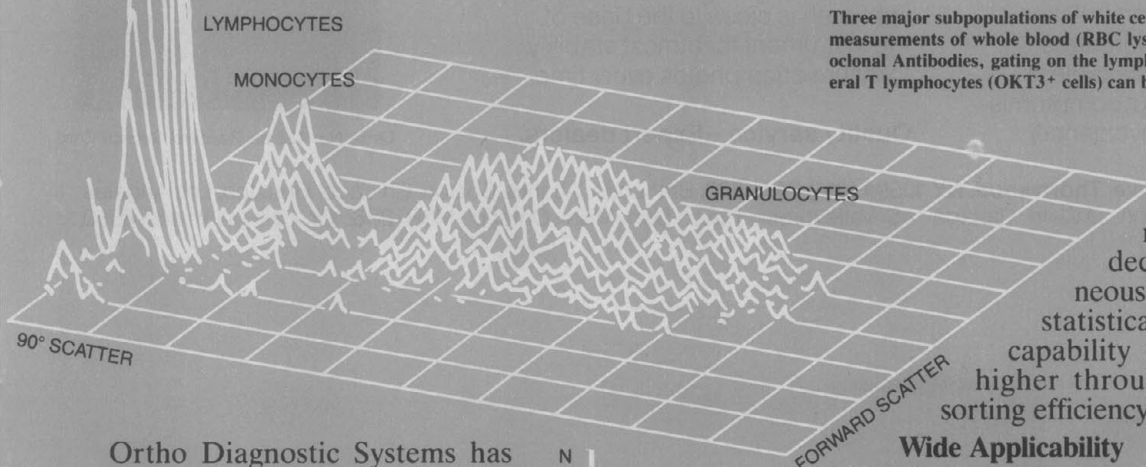


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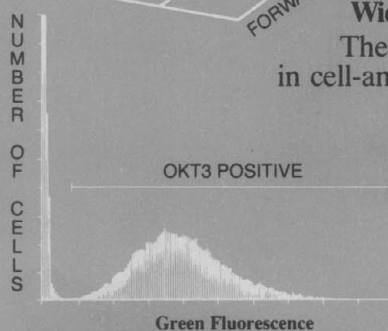
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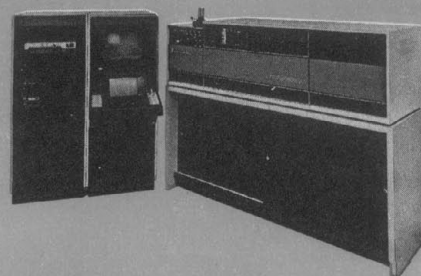
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