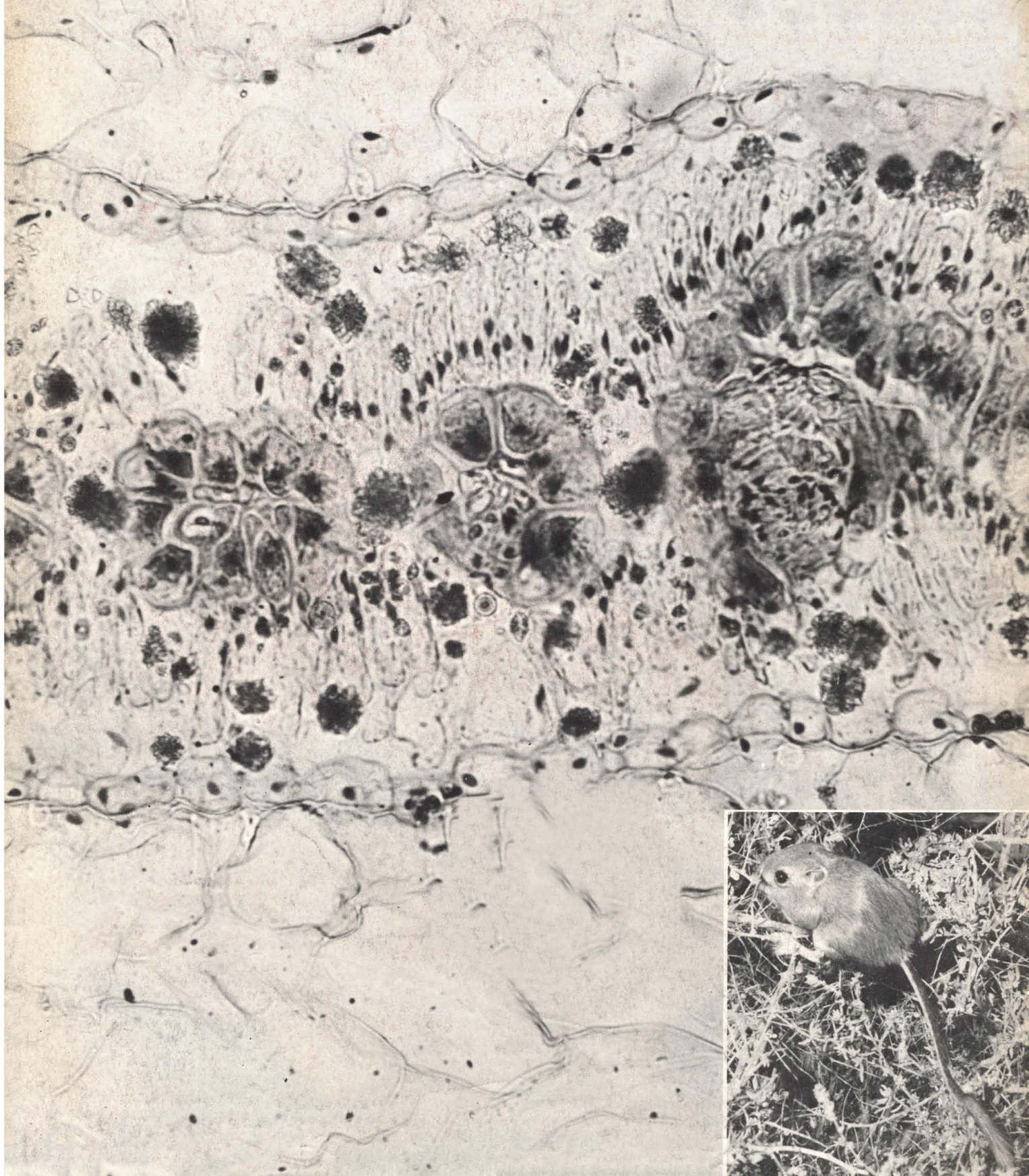


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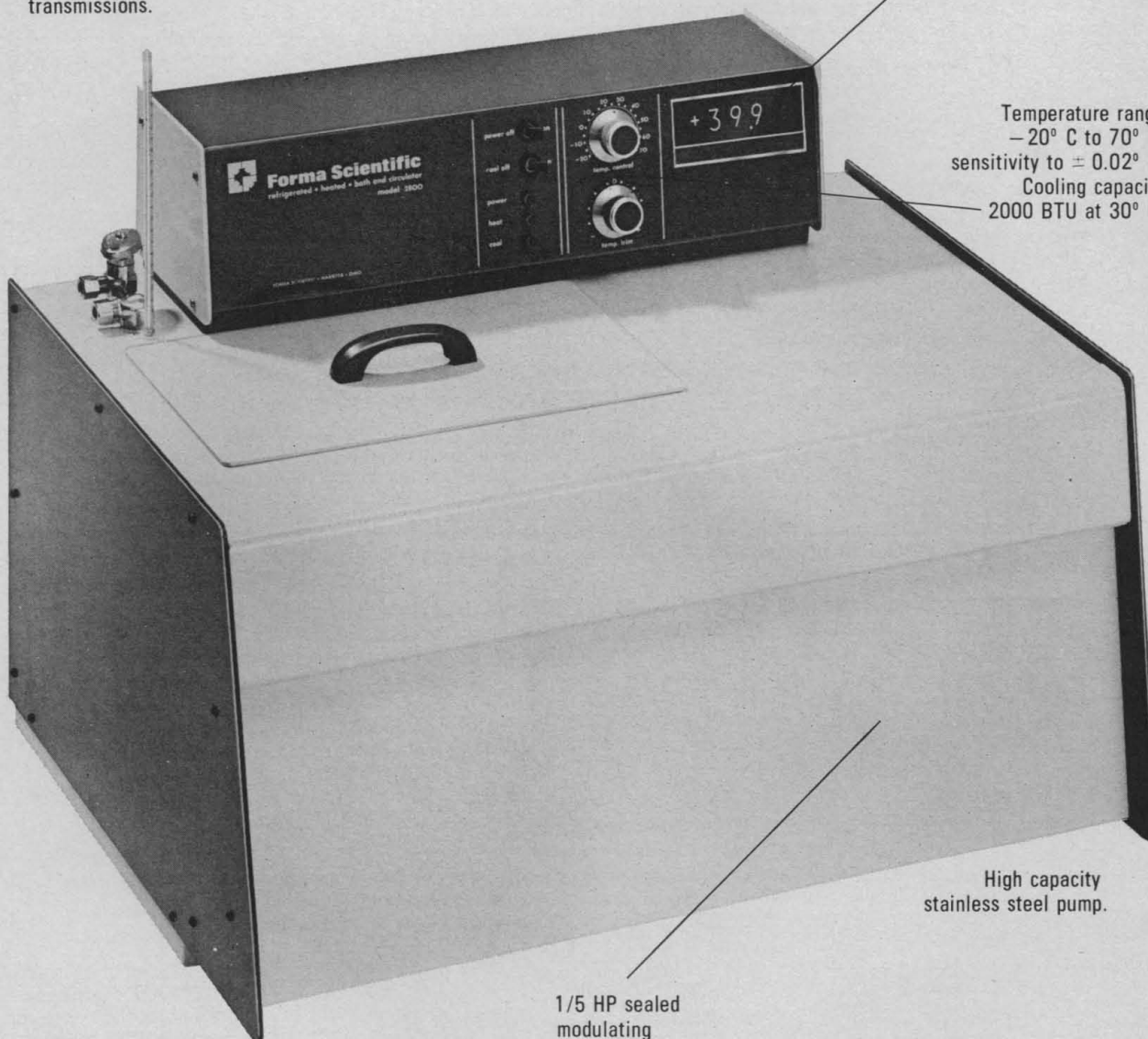
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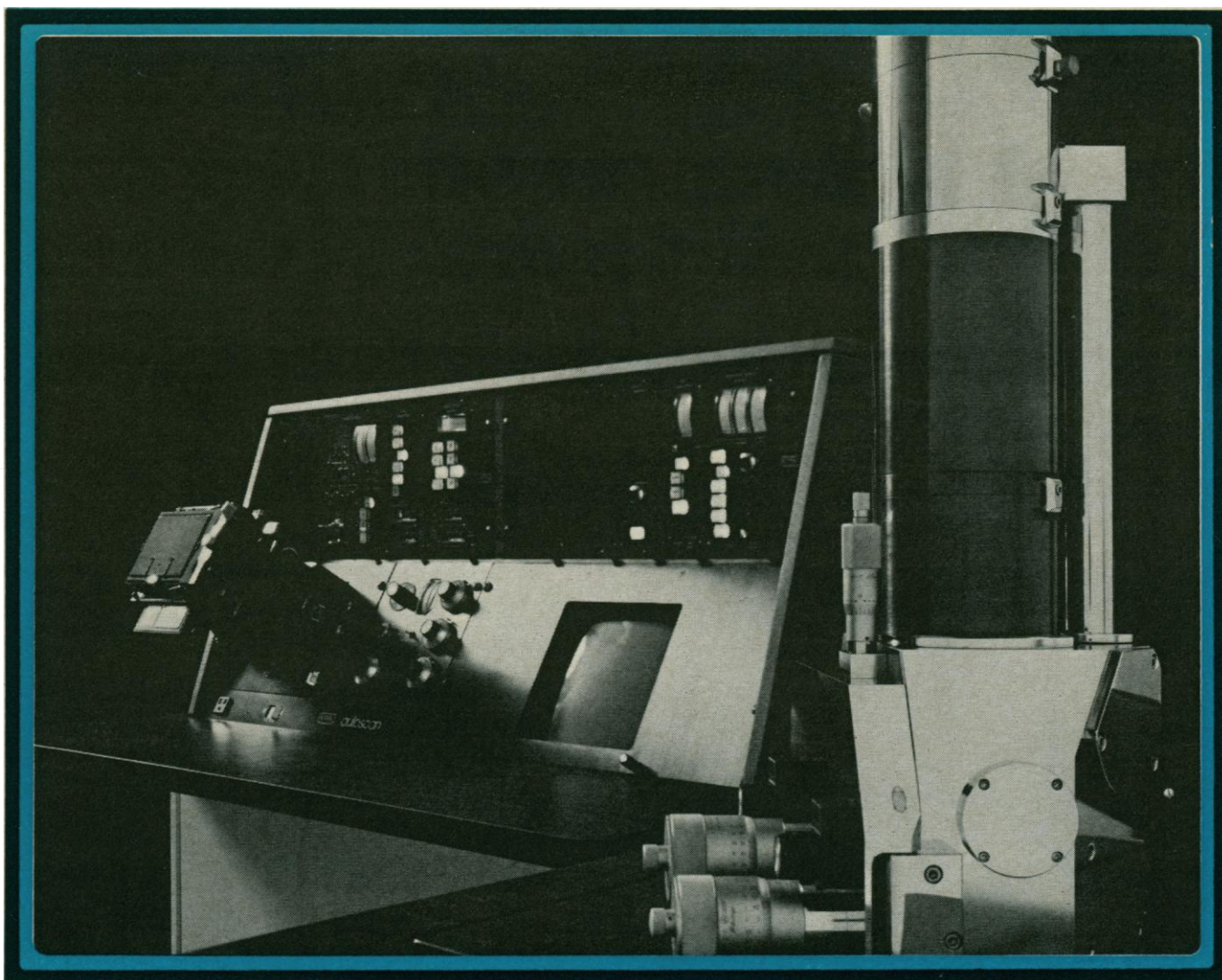
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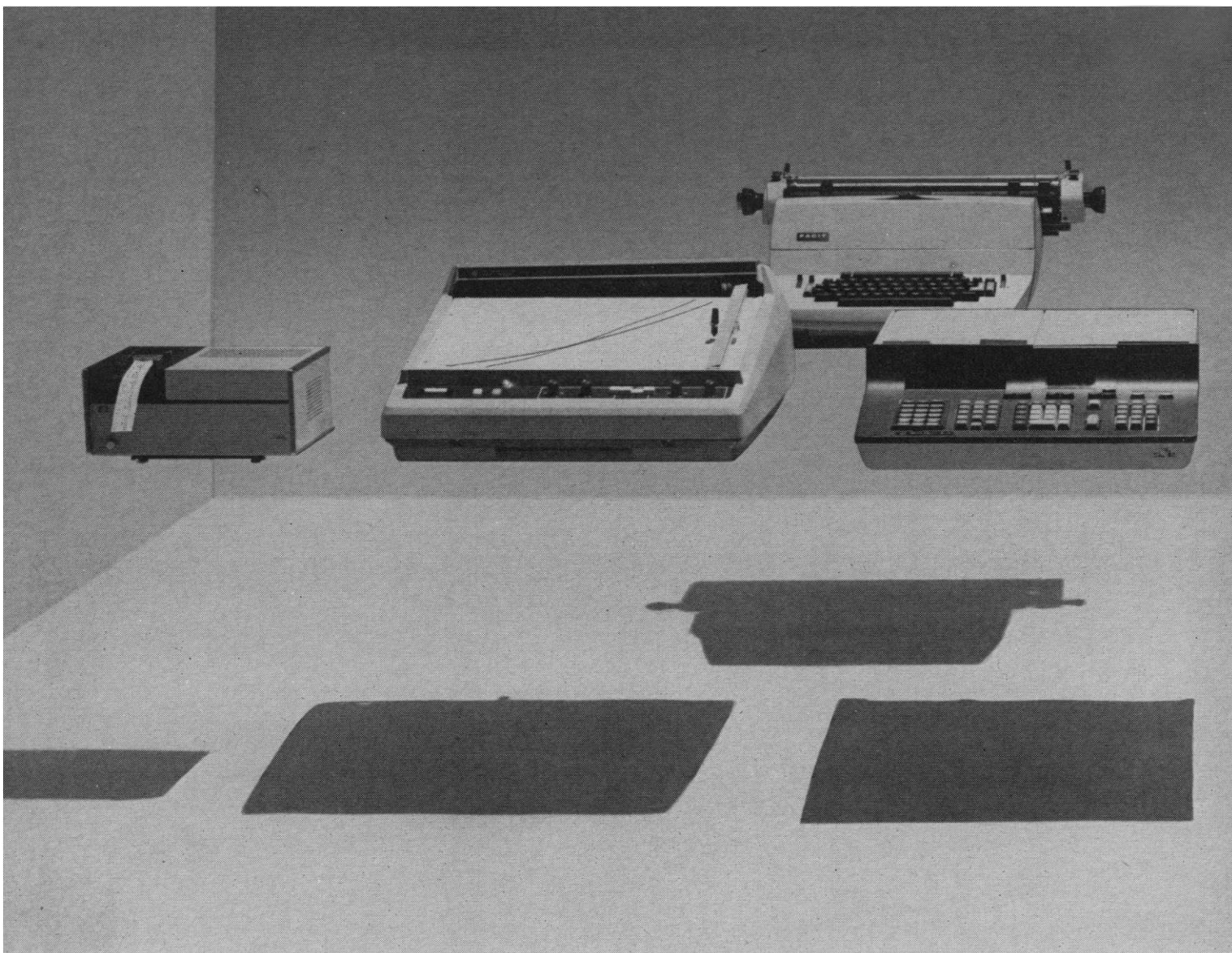
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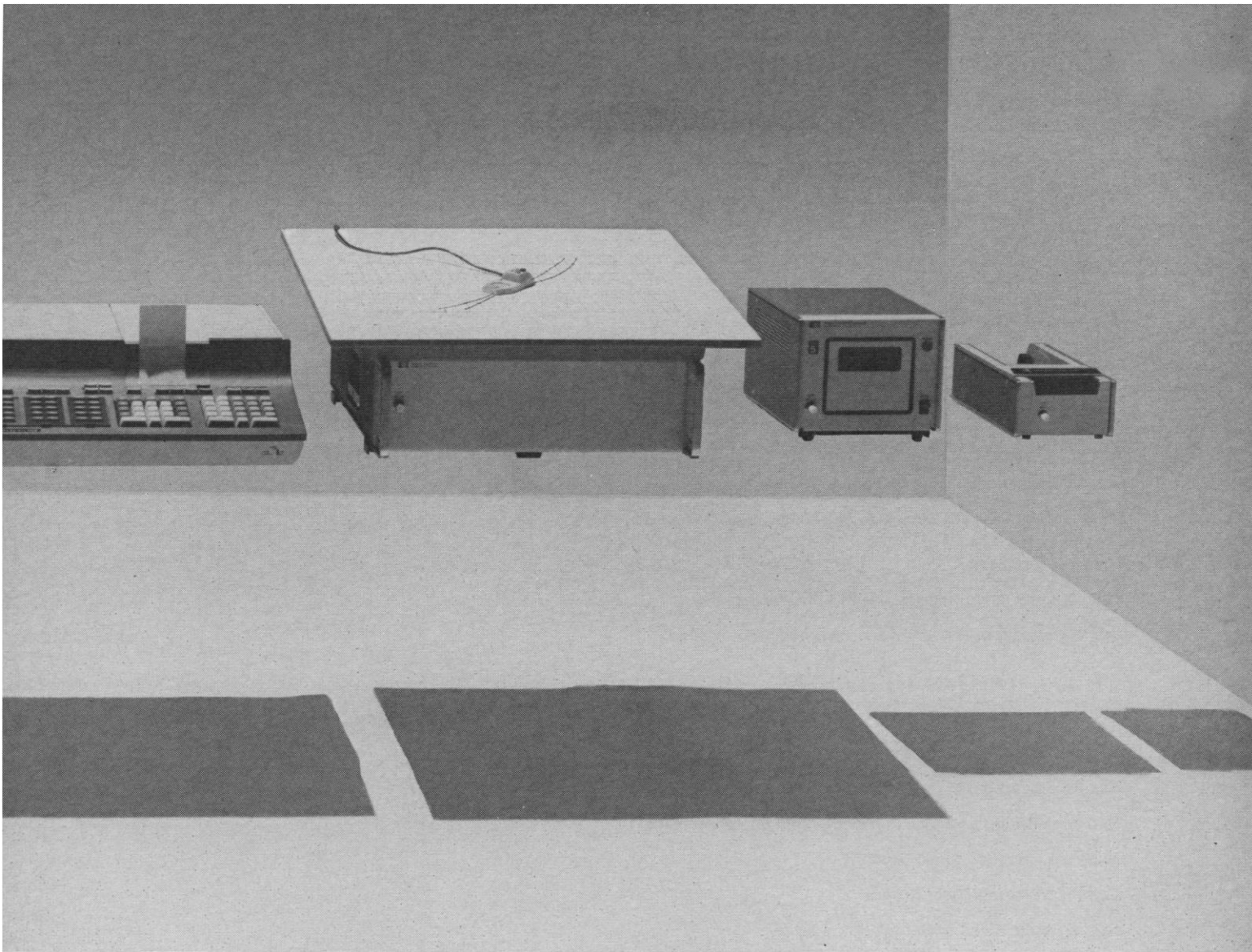
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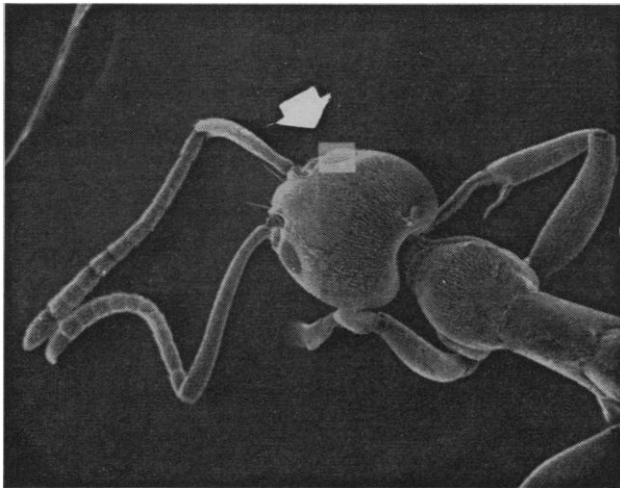
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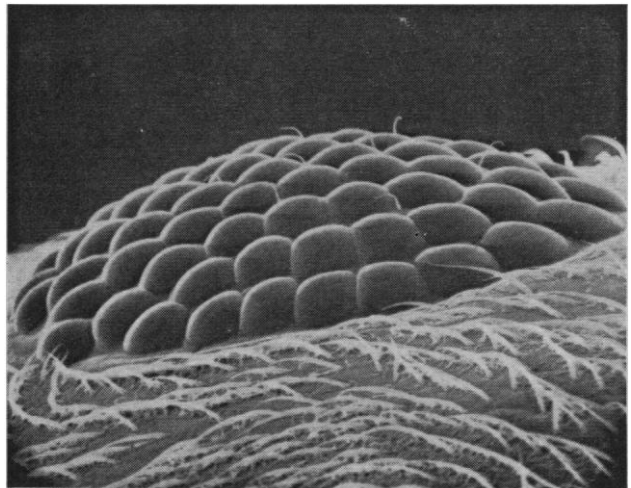


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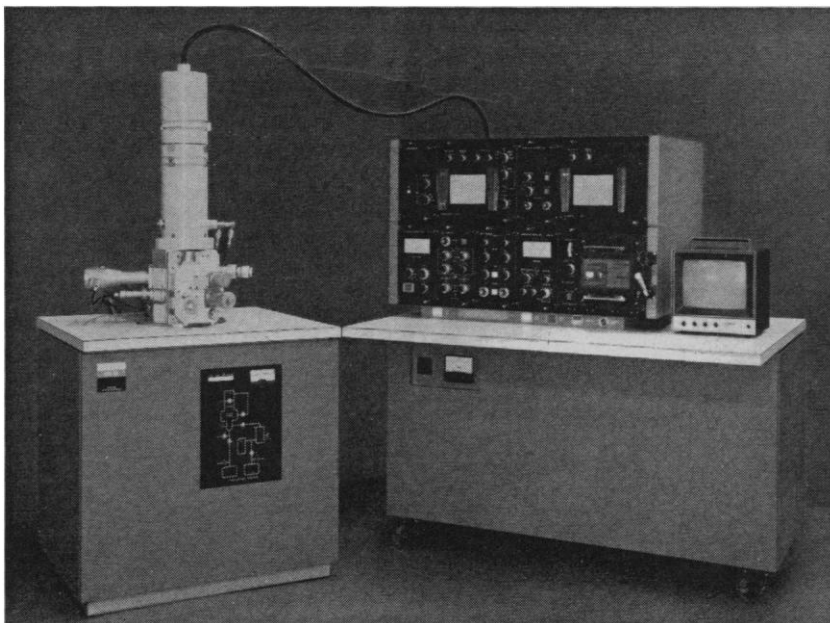


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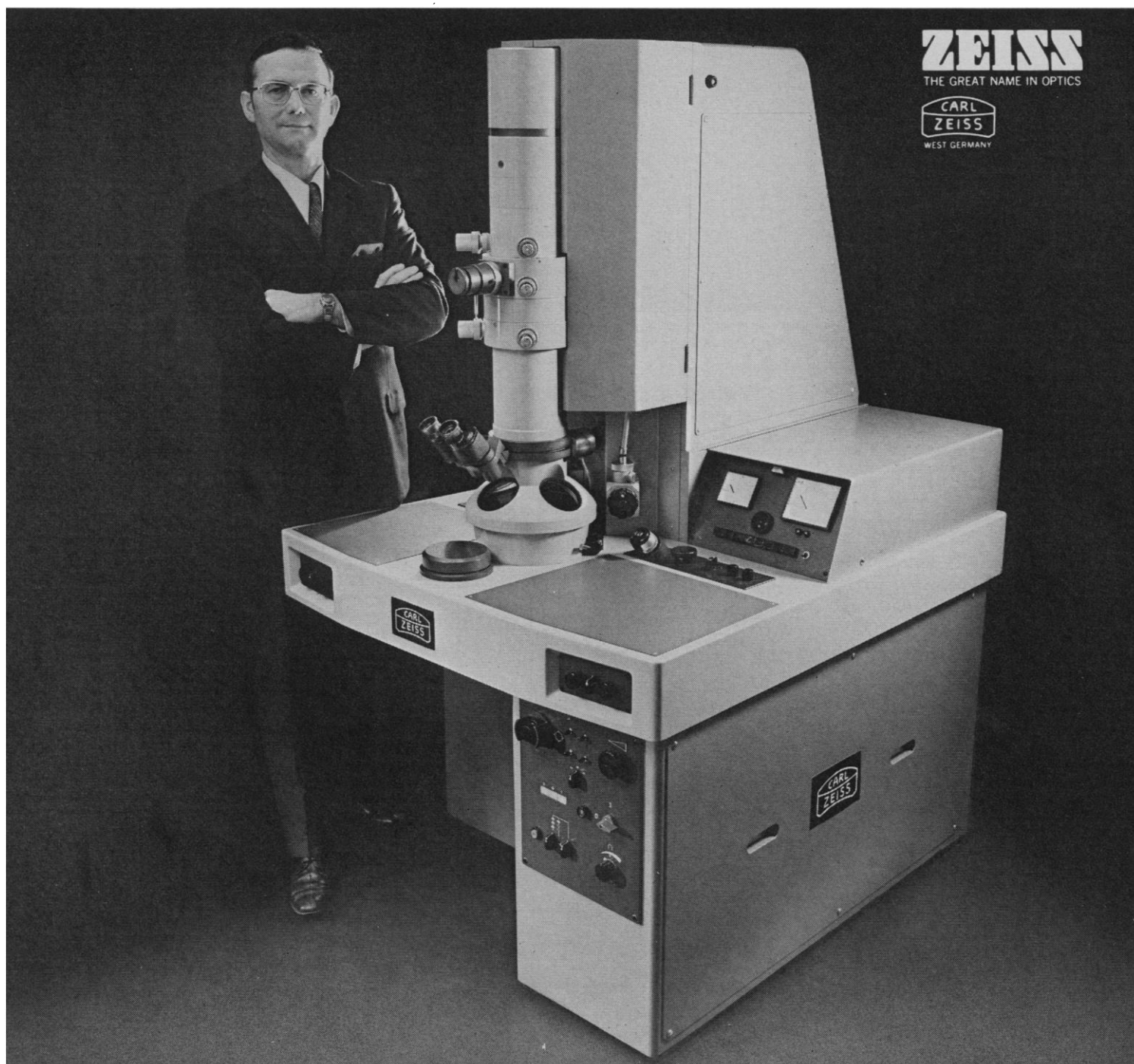
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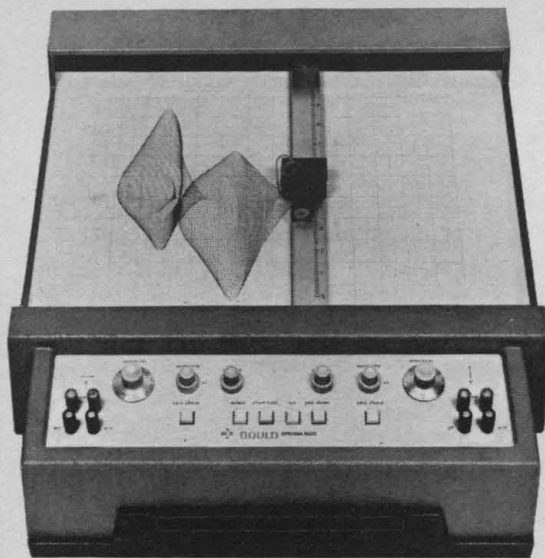
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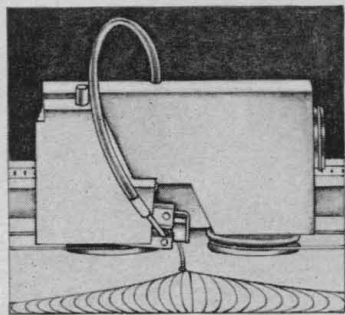


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RELIABILITY. It's guaranteed by our exclusive Metrisite® non-contact servo-loop feedback system. You get 99.85% linearity. But you don't get noise, slide wire troubles, dirty pots, wear and the maintenance problems of potentiometric feedback systems.

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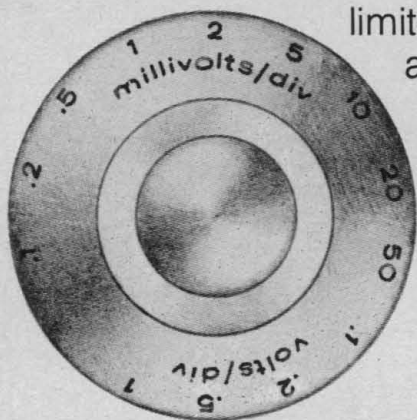


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SPEED. The 500 does a fast 40 inches a second. Which makes it 50% or 100% faster than most anyone else's. And it

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For information on this excellent XY recorder with built-in preamps with a sensitivity range of 100 μ V/div. to 1.0 V/div., write Gould Inc., Instrument Systems Division, 3631 Perkins Avenue, Cleveland, Ohio 44114. Or Rue Van Boeckel 38, Brussels 1140, Belgium.

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These wavelength programmed operations are made possible with our Series 635 UV-Vis spectrophotometers. Double-beam scanning instruments with linear readout of Abs, %T and Conc. Two basic instruments — 635M with multi-range meter readout, 635D with full 4-digit readout — BCD too! Both with wide wavelength range (190 to 900 nm) and high photometric accuracy (better than 0.002 abs).

Our Wavelength Programmer accessory operates in 2 modes.

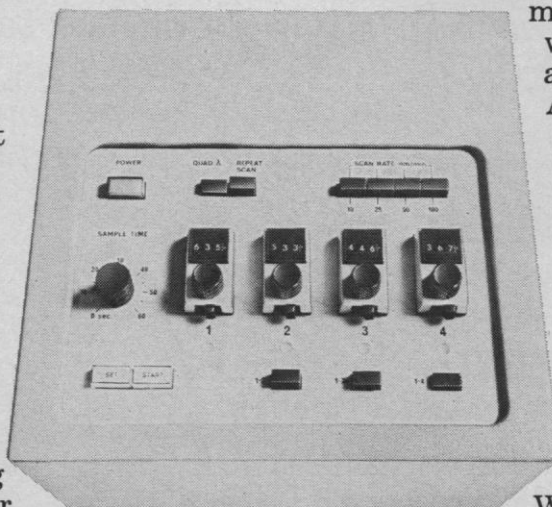
"Repeat Scan" permits wavelength scanning between selected limits at any of 4 scan speeds. "Quad λ " mode permits selection of 2, 3 or 4 discrete measuring wavelengths with sample time adjustable to 60 seconds. All wavelengths selected by dials reading directly in nanometers.

Rapid scan of approximately 1200 nm/min between selected wavelengths minimizes cycle time. Synchronized with the Auto-5 Cell Programmer, and Recorder or Digital Printer, the Wavelength Programmer

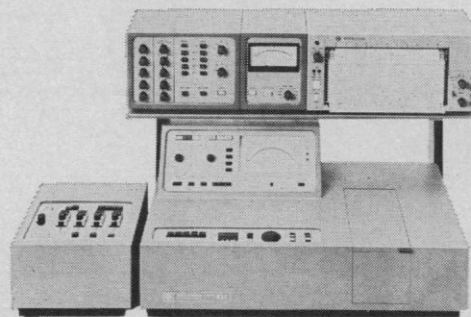
can be a part of the versatile 635K Kinetics Systems.

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If you're looking for a stable, reliable and versatile UV-Vis spectrophotometer which can be wavelength programmed — we'd like to tell you more about our Series 635.



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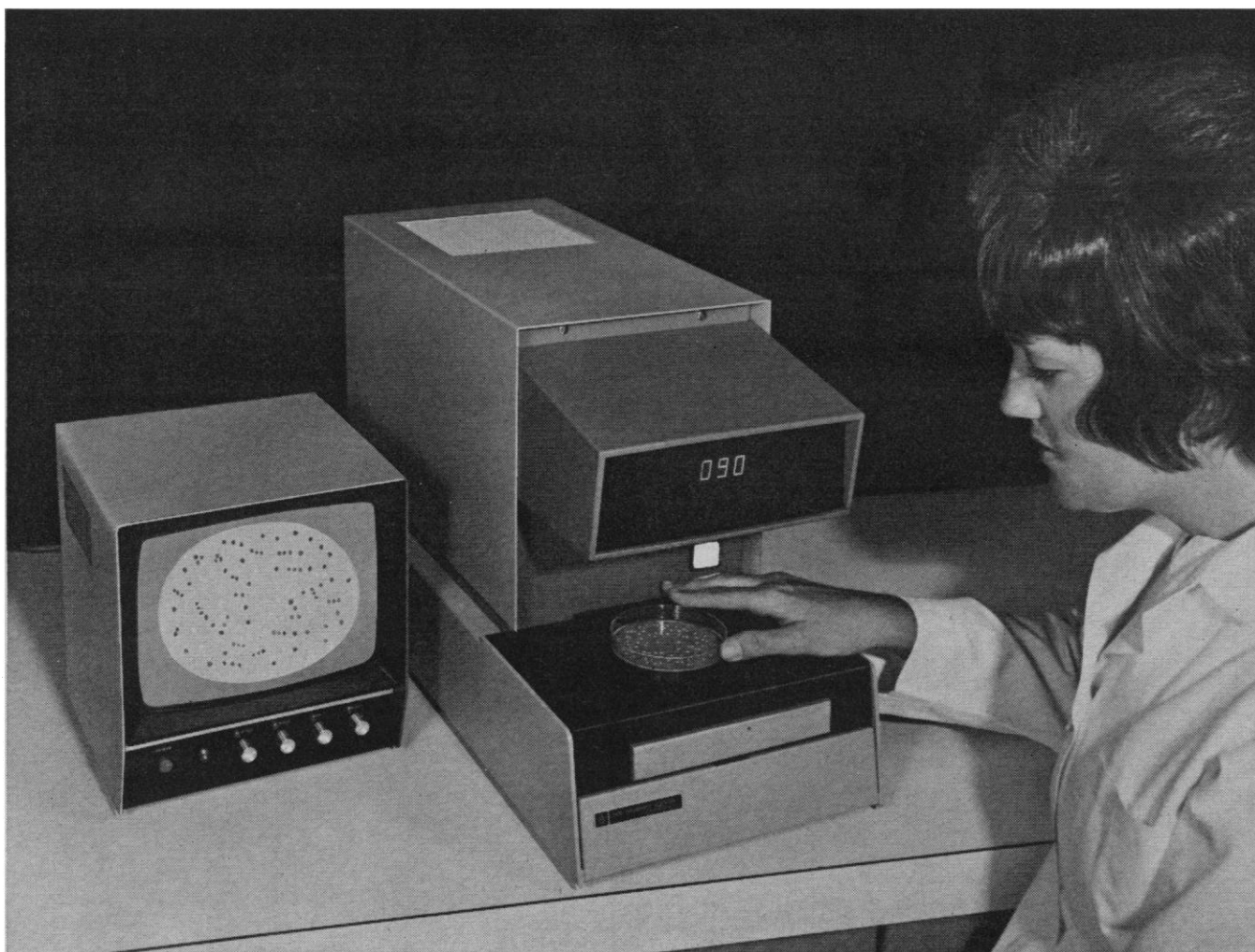
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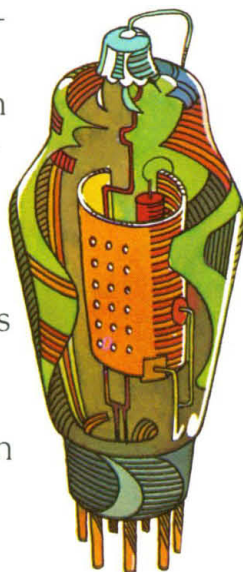
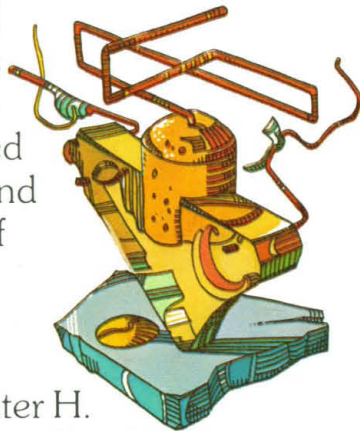


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Since Bell Labs invented the transistor

On December 23, 1947, a team of Bell Laboratories scientists demonstrated that they could manipulate the behavior of electrons in a crystal of germanium and thereby amplify an electric current and the sound of a voice being carried by the current. This invention, the transistor, revolutionized communications and affected the lives of just about everybody in the world. For their work, John Bardeen, Walter H. Brattain, and William Shockley received a Nobel Prize.

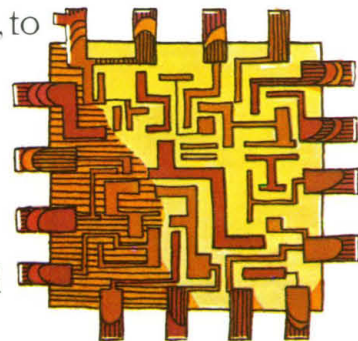
The story of the transistor began in the late 1930s. Telephone equipment used vast numbers of vacuum tubes and relays, but seemed to have inherent limitations for handling the ever-growing, ever more complex communications needs of the future. Devices without the shortcomings of tubes and relays were needed. Bell Labs scientists sought to find the answer through research in semiconductor materials. World War II interrupted their efforts until 1945 when the quest was resumed. Out of this research came the discovery of the transistor effect—the amplification and control of the flow of electrons in a solid material.



Bell Labs immediately mounted a major effort to understand fully the new phenomenon, devise new transistor structures, and develop methods for preparing and purifying germanium, and later silicon. The early “point-contact” transistor was soon followed by the “grown-junction,” the “diffused-base,” and the “field-effect” designs, and more recently by the combining of large numbers of transistors, diodes, and resistors on a single chip of silicon to form the “integrated circuit.”

Western Electric in turn set out to apply its broad manufacturing expertise to producing economically the large numbers of transistors needed for telephone uses. Methods were required to refine semiconductor materials to extreme levels of purity, to grow perfect single crystals out of them, to diffuse appropriate “impurity” atoms into the semiconductor for altering its properties, to form individual devices, and to encapsulate them. Western Electric had to design and build factories where this work is done under microscopes in hospital-clean, dust-free environments.

In the Bell System, transistors and other semiconductor devices have made possible Touch-Tone® dialing,



your world has never been the same.

high-speed data transmission, and highly reliable under-sea cables.

These devices have increased enormously the capacities and dependability of buried coaxial cables for carrying communications across the country. They have also made possible new switching machines for rapidly connecting telephone callers and providing such new services as automatic call transfer. Without the transistor—and its minute size, heat-free operation, and high reliability—many of today's and tomorrow's communications services would not be possible.

It was evident early that the transistor would also have wide applications outside the telephone business. So, Western Electric and Bell Labs made information about it available to other companies, universities, and the Federal Government through technical talks, publications, and symposia. As a result, a large effort in research, development, and manufacture of transistors soon got going outside the Bell System.

Today, transistors are widely used in space exploration, satellite communications,

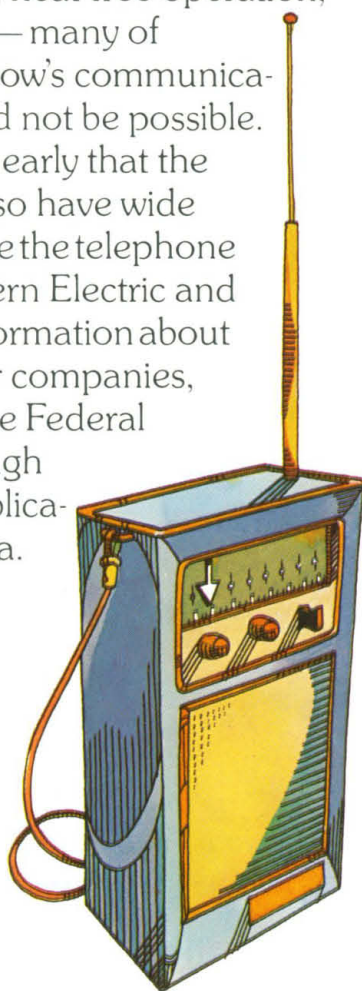
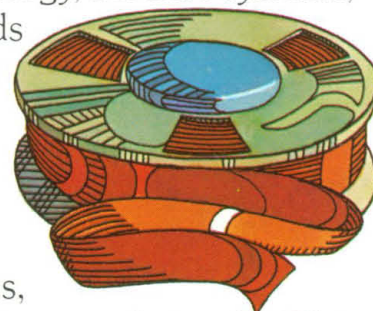
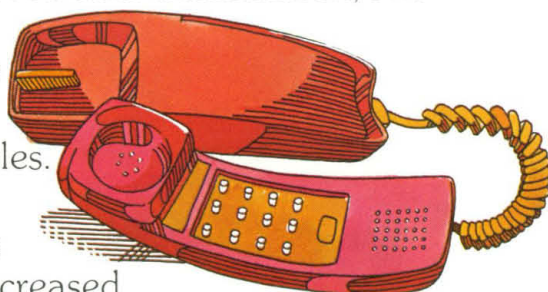
medical technology, defense systems, and in hundreds of such diverse products as television sets, hearing aids, automobile ignition systems, and the ubiquitous pocket radio. The transistor revolutionized the computer industry by making possible millions of accurate calculations in less than a second.

The transistor spawned a whole new industry of “solid-state electronics.” Worldwide sales of semiconductor devices are estimated to add up to \$2.7 billion this year.

In the USA, nearly

8 million people are employed in the manufacture of equipment using these devices.

All this started 25 years ago. The same philosophy of technical innovation that created and made practical the transistor continues to operate today in Bell Labs and Western Electric. They are working together to bring you better communications services at lower cost through your local Bell operating company. At the same time, spin-offs from their creativity are benefiting all mankind.



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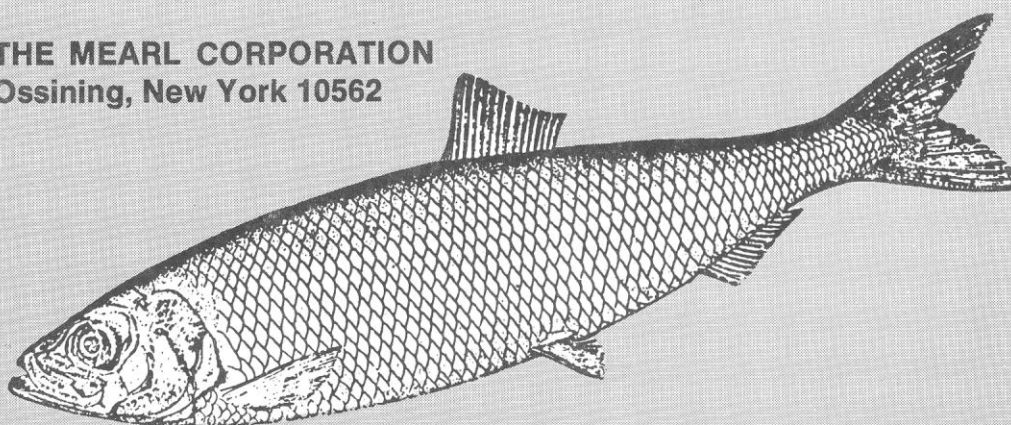
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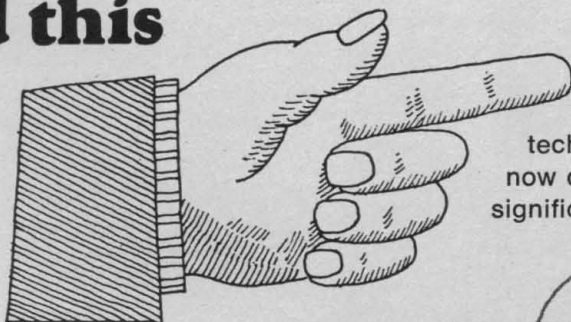


Add sample and NCS to the counting vial (usually 4-6 parts NCS to 1 part sample).

Bring temperature to (but not exceeding) 50°C until the sample is digested.

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read this**




NCS possesses the remarkable ability to solubilize a variety of biological samples and aqueous solutions in toluene cocktails.

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Thanks to the ever-increasing acceptance of NCS and the even more sophisticated production techniques currently being used, we can now offer this exceptional product at a significant price reduction. See for yourself:

NCS Patent 3,506,828

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HAMILTON 



teed up to 13 million volts and a tube voltage warranty to 15 million volts. This is the first such kit ever produced and sold by HVEC. The model MP (Emperor) tandem accelerator is rated at 10 million volts, and no MP has ever operated substantially above this value except HVEC's own machine in brief tests prior to their shipping the kit to us early in January 1972. We are therefore in unknown territory and, not unexpectedly, are encountering difficulties. In solving our problems we have had, and I am certain will continue to

have, complete, friendly, and helpful cooperation from HVEC.

The Chalk River Nuclear Laboratories have always maintained a close relationship with HVEC, which began when Chalk River funded HVEC for a design study, and subsequently the construction, of the first tandem. The success of this venture (the EN tandem) led to the purchase by Chalk River of one of the first MP tandems, and recently to our decision to be the first to upgrade an MP to 15 million volts. In this nearly half-million-dollar upgrading

program, by far the largest and most important item was the purchase of new stainless steel accelerating tubes from HVEC. The kit was accepted from HVEC on 1 September 1972 and has been operating very satisfactorily for 2 months at voltages over 13 million. We expect to be able to operate these tubes eventually at 15 million volts. Our recent acquisition of the new high gradient tubes can only be interpreted as a substantial vote of confidence in the capabilities of the High Voltage Engineering Corporation.

J. C. D. MILTON

*Nuclear Physics Branch,
Chalk River Nuclear Laboratories,
Chalk River, Ontario, Canada*

I read with interest the report on the High Voltage Engineering Corporation. My quoted statement that we "have had more than our fair share of little annoyances with detailed designs" is correct, but incomplete. An EN accelerator manufactured for us by HVEC in 1959, guaranteed to 5 million volts, ran reliably for 10 years at up to 6 million volts and was only shut down so that it could be replaced by a larger model (the Super FN), guaranteed to 9 million volts on terminal.

This accelerator was installed 2 years ago and is basically a sound machine; it has been tested at 10 million volts and is run regularly to 9.5 million volts for research. We have had trouble with many detailed design problems, but the Super FN is, to some extent, one of a new generation of accelerators, and some problems were to be expected. These problems have been solved as they have occurred, and HVEC has noted the changes we have made for consideration in their future installations. The accelerator has become increasingly reliable and, before a recent tank opening to replace a belt, which had run for almost 10,000 hours, had run for several months without any need to open the pressure tank.

With a new generation of machines that run at considerably increased voltage gradients, the possibilities for testing in the plant are limited. HVEC has given us all the help we could reasonably expect in correcting faults, and the Super FN accelerator is now settling down to the reliability we had learned to expect from the previous machine.

K. R. CHAPMAN

*Department of Physics, Florida
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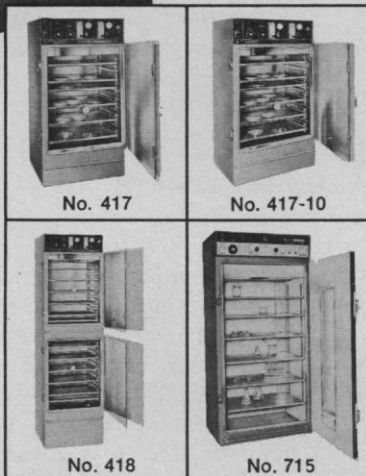
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S-12



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Auto-Arrest dispenses with the conventional beam arrest lever on the side of the balance. Instead, this operation is automated through a motorized system, and all you do to release or arrest the beam is push the appropriate illuminated button on the front of the balance.

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Three new Series 2400 Sartorius

Balances offer Auto-Arrest—Models 2472, 2474 and 2492. All these models have automatic pre-weighing too. Model 2492 also introduces another Sartorius 'first', Full-Range Mechanical Taring. This feature permits taring to zero of any weight up to the 200 gram balance capacity. Taring values are indicated separately, so that after taring, any weighing can start with weight counter and optical scale both reading 'zero.'

Someday, all analytical balances may have push-button beam arrest and release and Full-Range Mechanical Taring, but Sartorius offers it now. Instead of waiting, why not get our free literature describing these new features? Just write: Sartorius Division, Brinkmann Instruments, Cantiague Road, Westbury, New York 11590.

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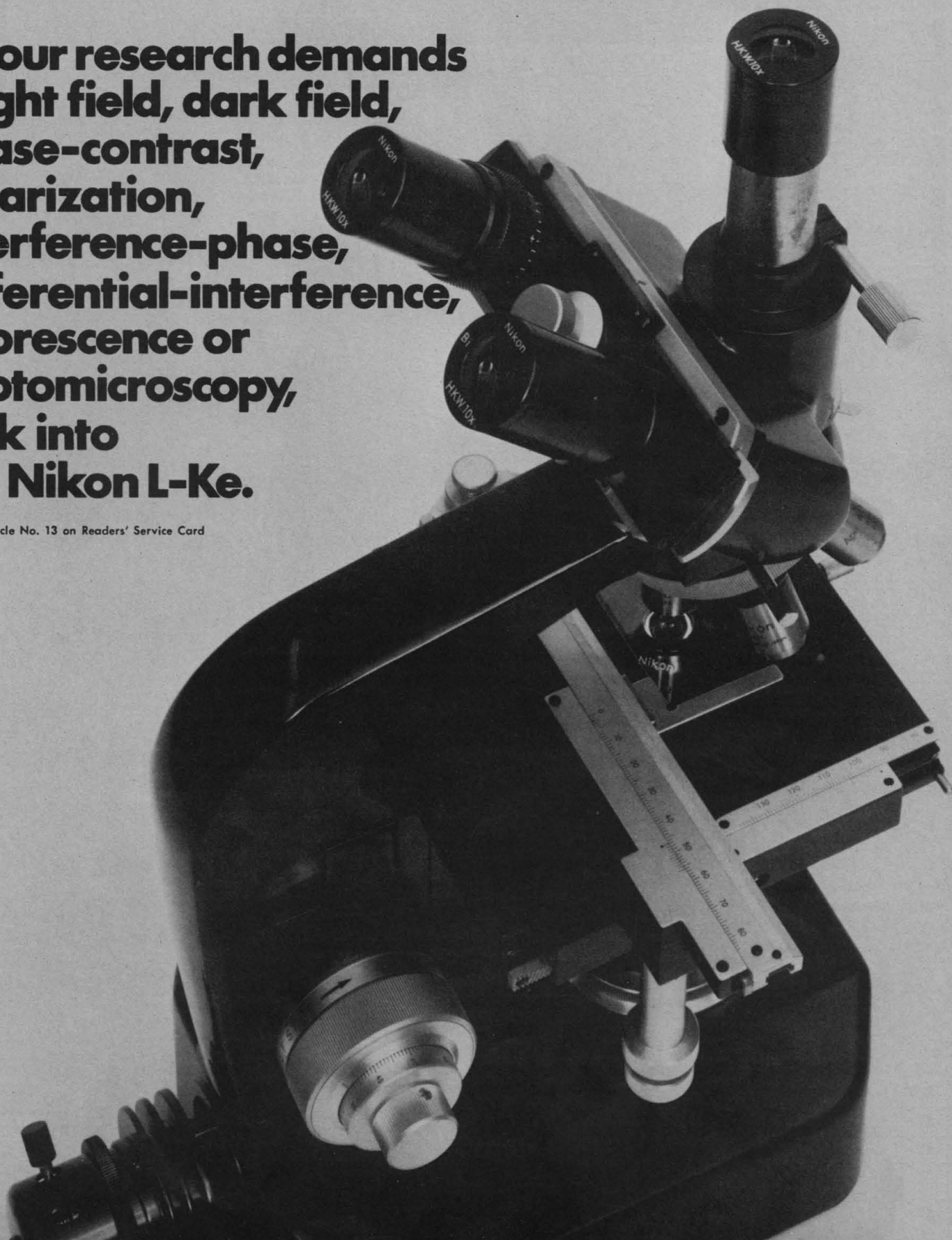
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Adjusting to Normal Times

It is now clear that the 20 years from 1946 to 1966, during which federal funds for research and development doubled nearly four times, were really quite abnormal in the way that the golden ages of Greece or Florence were abnormal in their cultures. The scientific world must now carry on, in ways more appropriate to sterner times, what was best about the age just past.

It is characteristic of golden ages to be presided over by small elites of unusual vision and vigor, and ours was no exception. The budget for science was developed each year by a small number of presidential advisers in the White House and in what is now called the Office of Management and Budget. The budget was defended by representatives of a few universities, the National Academy of Sciences, and certain other private groups, and the funds were appropriated through the good offices of an equally small number of informed and devoted congressional leaders. Much has changed in the last 5 or 6 years. In terms of constant dollars, funds for all levels of research have actually declined. The emphasis is swinging away from aerospace and toward more earthy considerations, away from building up the infrastructure of science and toward the solution of immediate problems.

To a considerable but not accurately known extent, the people, the Congress, and the executive have lost confidence in the scientific establishment and its governing elite. The long series of reports from the National Academy of Sciences on the present state and foreseeable needs of science, painstaking and thorough though they were, may actually have been counterproductive, with their undeniable odor of special pleading for more of the same. In any case, time alone is enough to change the faces of White House advisers and even of congressional committees.

It's a new ball game, and the scientific world might well give more thought to how to play it. If that world no longer enjoys the prestige that a Bush or a Conant brought with him out of the war, it has what they did not have, a large army of scientists deployed through every state in the Union in an educational and research network such as the world has never seen. For various reasons, most of which are not their fault, these members of the rank and file, and even many of the institutions which they serve, have never learned how to make themselves felt in the positive determination of science policy. For example, nothing is clearer than that congressmen listen to their constituents; but how many working scientists ever speak to them? There is at least one exception to the prevailing reticence. High school teachers of science do talk to congressmen, and year after year the appropriations committee restores to the National Science Foundation the funds for the summer institutes for high school teachers which the executive would like to take away.

The fading away of the *ancien régime* provides an opportunity for the silent majority to make themselves heard, and the AAAS could more effectively advance science if it found how to "raise the consciousness" of that majority and give it a firmer voice.—ROBERT S. MORISON, *Program on Science, Technology and Society, Cornell University, Ithaca, New York 14850*

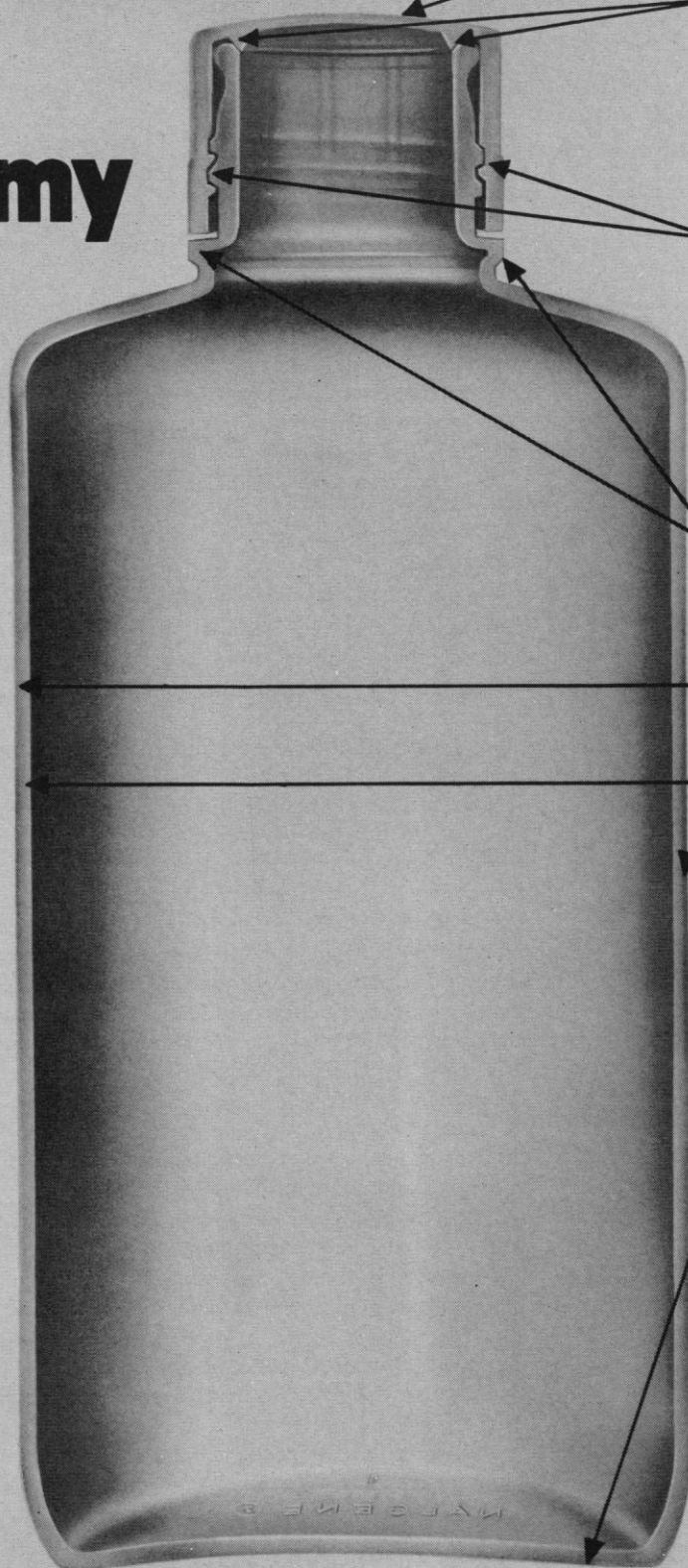
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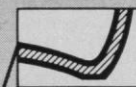
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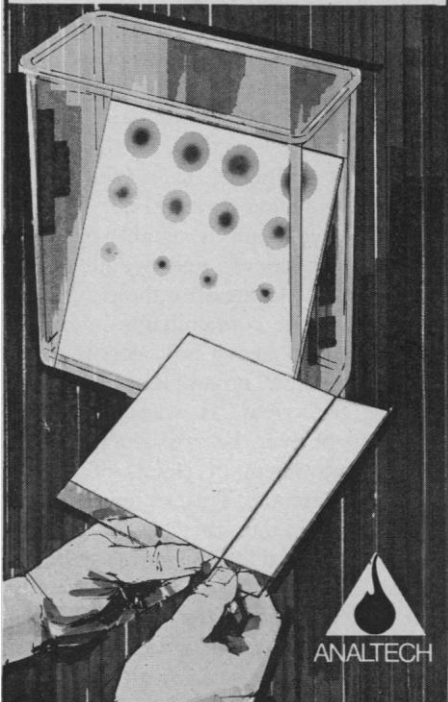
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Seattle meeting confirmed an opinion that is held by certain astronomers that their data are a useful adjunct to routine air pollution monitoring activities. While there are limitations in astronomical data, these are usually smaller and better known than the errors in other types of data. Astronomers can provide (i) nighttime extinction data, (ii) a new set of remote locations as well as some new urban ones, (iii) a lengthy data record (beginning in 1902 in the case of Abbot's data), and (iv) a variety of new measuring techniques.

Some conclusions reached through astronomical research that are of special interest to atmospheric scientists are as follows:

1) No global trends in extinction that can be ascribed to human causes have been detected at remote locations so far.

2) Both volcanic activity and some apparently natural cycling of the biosphere affect astronomical extinction; the latter effect produces an annual pattern.

3) The transparency of the atmosphere near cities continues to deteriorate in most cases.

4) The anomalous wavelength dependence of extinction suggests a unique aerosol size distribution in background locations.

Also from the meteorological viewpoint, a number of gaps became apparent in available knowledge. Perhaps the most obvious one is the need for coordinating extinction measurements with local and synoptic meteorological data. Certain biases exist because of the lack of extinction data for cloudy periods. Also, effects have been discovered that are due to dust derived from upslope winds on mountaintops. Since regional effects of human activity will certainly be apparent before global effects, studies of the transport of air masses to and from observing sites may be possible.

Finally, another kind of pollution is of less concern to meteorologists but of vital concern to astronomers. Light pollution, caused by the rapid expansion of outdoor lighting in cities and even in open western countryside, has been of great concern in many observatories recently. Greater public awareness of the problem, research on more efficient lamps (from the point of view of increased ground illumination and reduced light loss to the sky), and political action through the introduction of city ordinances are among the

goals of astronomers in various research centers of the Southwest.

At the Seattle meeting astronomers emphasized their concern about the deterioration of the atmosphere, through which most of the information about the universe must pass. Progress in the application of certain kinds of astronomical data to research on atmospheric deterioration has begun. Much more must be done to understand fully the implications of the data and even more, of course, to turn the tide. Charles Abbot may not have expected that his data and methods would be used for these purposes, but his are the best optical data available over such a long time base and they have come to us only because of his painstaking care in gathering and recording all available information in his experiments.

P. W. HODGE
NELS LAULAINEN
R. J. CHARLSON

Department of Astronomy, University of Washington, Seattle 98195

References

1. N. Laulainen and P. W. Hodge, Eds., *Project ASTRA Publication 15* (Univ. of Washington, Seattle, 1972).
2. C. G. Abbot, *The Sun and the Welfare of Man* (Smithsonian Institution, New York, 1929), p. 68.

Forthcoming Events

January

9-12. American Astronomical Soc., Las Cruces, N.M. (H. M. Gurin, AAS, 211 FitzRandolph Rd., Princeton, N.J. 08540)

9-13. National Soc. of Professional Engineers, Salt Lake City, Utah. (P. H. Robbins, NSPE, 2029 K St., NW, Washington, D.C. 20006)

14-19. Protein Phosphorylation in Control Mechanisms, Miami, Fla. (W. J. Whelan, Dept. of Biochemistry, School of Medicine, Univ. of Miami, P.O. Box 875, Biscayne Annex, Miami 33152)

15-16. Regional Environmental Management Conf., San Diego, Calif. [L. E. Coate, REMC, County of San Diego, Environmental Development Agency, Integrated Regional Environmental Management (IREM) Project, 1600 Pacific Hwy., San Diego 92101]

15-17. Lunar Dynamics and Observational Coordinate Systems, Houston, Tex. (J. D. Mulholland, Lunar Science Inst., 3303 NASA Rd. 1, Houston 77058)

15-18. American Crystallographic Assoc., Gainesville, Fla. (Mrs. E. E. Snider, ACA, 335 E. 45 St., New York 10017)

15-19. Geophysics of the Earth and the Oceans, 2nd intern. conf., Australian Inst. of Physics and Australian Soc. of Exploration Geophysicists, Sydney. (B. D.

THE COMPARATIVE MOLECULAR BIOLOGY OF EXTRACELLULAR MATRICES

Proceedings of an International Conference held at the Univ. of Southern California Marine Biological Laboratory, Santa Catalina Island, Big Fisherman's Cove, Cal. June 4-8, 1972

edited by HAROLD C. SLAVKIN, Department of Biochemistry, School of Dentistry, Univ. of Southern California, Los Angeles

This volume provides up-to-date coverage of the most significant issues in the molecular biology of extracellular matrices. It assesses the structural and functional components of invertebrate and vertebrate matrices and incorporates a number of new and exciting concepts in matrix biology—including: a re-evaluation of embryonic induction and the expression of a potential during cell differentiation; a new approach to epigenetic influences; a critical assessment of electron microscopic techniques dealing with mineralizing tissues; a detailed discussion of proteoglycans—collagen interactions during chondrogenesis; a careful examination of coral and mollusc shell formation and their application to studies of vertebrate calcification.

1972, 492 pp., \$15.00

NONHUMAN PRIMATES AND MEDICAL RESEARCH

edited by GEOFFREY H. BOURNE, Director, Yerkes Regional Primate Research Center, Emory University, Atlanta, Georgia

Here is perhaps the most complete available collection of information on primates in biomedical research. It describes, in detail, not only the role primates have played in conquering diseases like yellow fever and malaria, but also the roles they are playing today in attacking problems like heart disease, cancer, degenerative diseases, and transplantation. In addition, it discusses the use of primates in more general biomedical research involving neurology, learning and performance, and human evolution.

1972, 538 pp., \$25.00

THEORY OF PHARMACEUTICAL SYSTEMS

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This two-volume treatise deals in detail with the scientific principles and applications of advanced pharmaceutical chemistry. Volume 1 treats general principles—statistical and physicochemical—and then takes up the pharmaceuticals of solutions. Volume 2 shows how the principles are applied to the pharmaceuticals of heterogeneous systems—emulsions, suspensions, powders, and tablets—emphasizing not only the underlying principles but also the effect of ingredients and processing.

Volume 1/GENERAL PRINCIPLES

1972, about 271 pp., in preparation

Volume 2/HETEROGENEOUS SYSTEMS

1972, about 355 pp., in preparation

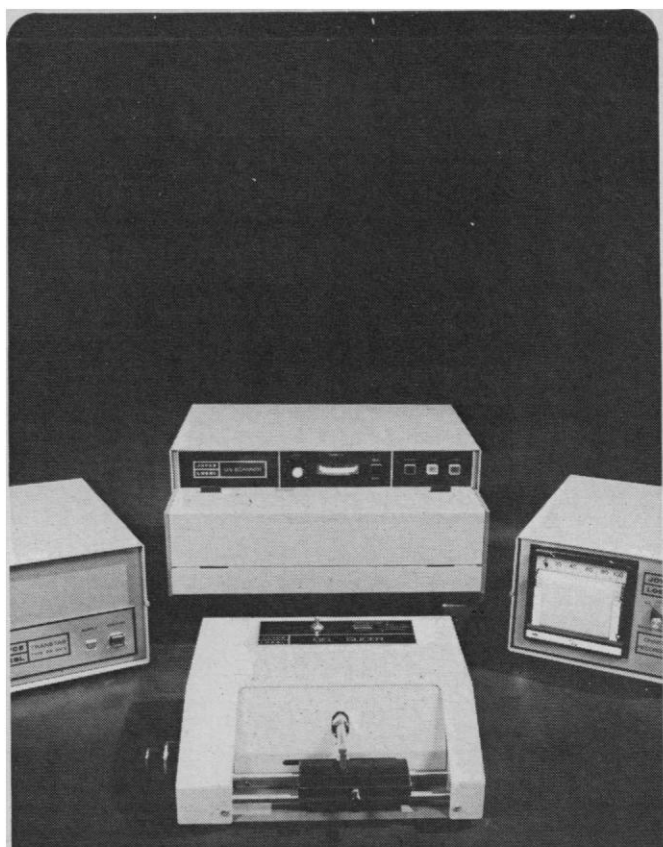
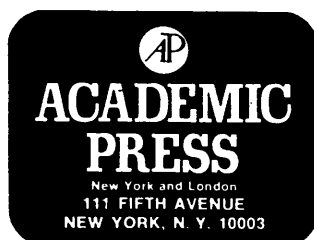
LIPIDS AND BIOMEMBRANES OF EUKARYOTIC MICROORGANISMS

edited by JOSEPH A. ERWIN, Department of Biology, Illinois Institute of Technology, Chicago

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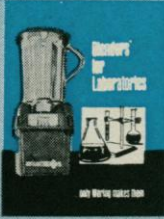


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Johnson, School of Earth Sciences, Macquarie Univ., North Ryde, New South Wales 2113, Australia)

15-22. International Symp. on **Taxonomy of Fungi**, Madras, India. (C. V. Subramanian, Centre for Advanced Studies in Botany, Univ. of Madras, Madras-5)

22-26. **Nuclear Power Plant Control and Instrumentation**, Intern. Atomic Energy Agency, Prague, Czechoslovakia. (J. H. Kane, Office of Information Services, U.S. Atomic Energy Commission, Washington, D.C. 20545)

24-28. American College of **Psychiatrists**, New Orleans, La. (P. A. Martin, 16300 N. Park Dr., Southfield, Mich. 48075)

25-29. American **Mathematical Soc.**, Dallas, Tex. (G. L. Walker, AMS, P.O. Box 6248, Providence, R.I. 02904)

26. **Bibliographical Soc. of America**, New York, N.Y. (Miss C. Hover, Box 397, Grand Central Sta., New York 10017)

27-29. **Mathematical Assoc. of America**, Dallas, Tex. (H. Alder, Dept. of Mathematics, Univ. of California, Davis 95616)

28-1. American Soc. of **Heating, Refrigeration, and Air-Conditioning Engineers**, Chicago, Ill. (A. T. G. Boggs III, ASHRAE, 345 E. 47 St., New York 10017)

28-2. **Power Engineering Soc.**, Inst. of Electrical and Electronics Engineers, New York, N.Y. (J. W. Bean, IEEE-PES, 345 E. 47 St., New York 10017)

28-3. American **Library Assoc.**, Washington, D.C. (R. Wedgeworth, ALA, 50 E. Huron St., Chicago, Ill. 60611)

28-6. North American Conf. on **Fertility and Sterility**, U.S. Intern. Foundation for Studies in Reproduction, Acapulco, Mexico. (Mrs. F. Royce, 112-44 69th Ave., Forest Hills, N.Y. 11375)

29-1. American Assoc. of **Physics Teachers**, Albany, N.Y. (W. V. Johnson, AAPT, 1785 Massachusetts Ave., NW, Washington, D.C. 20036)

31-2. Western **Spectroscopy Assoc.**, Pacific Grove, Calif. (G. R. Haugen, L-404, Univ. of California, Lawrence Livermore Lab., Livermore 94550)

February

7-8. **Organic Matter in Water Supplies: Occurrence, Significance, and Control**, 15th water quality conf., Champaign, Ill. (V. L. Snoeyink, Dept. of Civil Engineering, Univ. of Illinois at Urbana-Champaign, Urbana 61801)

8-9. **Geodesy/Solid Earth and Ocean Physics Research**, 2nd conf., American Geophysical Union, Columbus, Ohio. (A. F. Spilhaus, Jr., AGU, 1707 L St., NW, Washington, D.C. 20036)

8-9. Association for **Hospital Medical Education**, Chicago, Ill. (T. G. Kummer, AHME, 1911 Jefferson Davis Hwy., Arlington, Va. 22202)

9-16. American Soc. of **Clinical Pathologists**, Honolulu, Hawaii. (G. F. Stevenson, ASCP, 2100 W. Harrison St., Chicago, Ill. 60612)

10-11. **Medical Education**, 69th annual congr., American Medical Assoc., Chicago, Ill. (C. H. W. Ruhe, AMA Council on Medical Education, 535 N. Dearborn St., Chicago 60610)

10-14. American Acad. of **Allergy**,

Washington, D.C. (J. O. Kelley, AAA, 225 E. Michigan St., Milwaukee, Wis. 53202)

10-15. Society for Range Management, Boise, Idaho. (F. T. Colbert, SRM, 2120 S. Birch St., Denver, Colo. 80222)

12-13. Psychopharmacologic Treatment in Psychiatry, Gainesville, Fla. (Dr. H. C. B. Denber, Dept. of Psychiatry, College of Medicine, J. Hillis Miller Health Center, Gainesville 32601)

12-14. Energy: Demand, Conservation and Institutional Problems, National Science Foundation RANN Program and Massachusetts Inst. of Technology, Cambridge, Mass. (M. R. Bateman, Industrial Liaison Office, Massachusetts Inst. of Technology, Cambridge 02139)

14-16. Solid-State Circuits, intern. conf., Inst. of Electrical and Electronics Engineers, Inc., Philadelphia, Pa. (L. Winner, 152 W. 42 St., New York 10036)

14-18. American College of Cardiology, San Francisco, Calif. (W. D. Nelligan, ACC, 9650 Rockville Pike, Bethesda, Md. 20014)

16-17. Symposium on Immunopharmacology, New York Heart Assoc., New York, N.Y. (I. Saulpaugh, NYHA, 2 E. 64 St., New York 10021)

18-24. Effects of Low-Frequency Magnetic and Electric Fields on Biological Communication Processes, Natl. Science Foundation, Neuroelectric Soc., and Intern. Inst. for Medical Electronics and Biological Engineering, Snowmass-at-Aspen, Colo. (A. Sances, Jr., NS, 8700 W. Wisconsin Ave., Milwaukee, Wis. 53226)

19-22. International Symp. on Hydrometallurgy, Chicago, Ill. (D. J. I. Evans, Research and Development Div., Sherritt Gordon Mines Ltd., Fort Saskatchewan, Alta., Canada)

20. National Assoc. of Medical Examiners, Las Vegas, Nev. (P. Hudson, P.O. Box 2488, Chapel Hill, N.C. 27514)

20-23. American Acad. of Forensic Sciences, Las Vegas, Nev. (J. T. Weston, 44 Medical Dr., Salt Lake City, Utah, 84113)

21-22. Educational Technology Symp., Washington, D.C. (N. E. Rogers, NSIA, Suite 700, 740 15th St., N.W., Washington, D.C. 20005)

21-24. Society of Professors of Education, Chicago, Ill. (R. E. Bayles, School of Education, Atlanta Univ., Atlanta, Ga. 30314)

21-6. American Medical Assoc. and Weizmann Inst. of Science, Tel Aviv, Israel. (Israel Scientific Conf., Dept. of Intern. Medicine, AMA, 535 N. Dearborn St., Chicago, Ill. 60610)

24-27. American Assoc. of Pathologists and Bacteriologists, Washington, D.C. (A. J. French, Univ. of Michigan Medical Center, Ann Arbor 48104)

24-3. International Acad. of Pathology, U.S.-Canadian Div., Washington, D.C. (L. D. Stoddard, Dept. of Pathology, Medical College of Georgia, Augusta 30902)

25. Oregon Acad. of Science, Salem. (H. D. Reese, Dept. of Chemistry, Oregon State Univ., Corvallis 97331)

25-1. American Inst. of Mining, Metallurgical and Petroleum Engineers, Chicago, Ill. (J. B. Alford, AIMPE, 345 E. 47 St., New York 10017)

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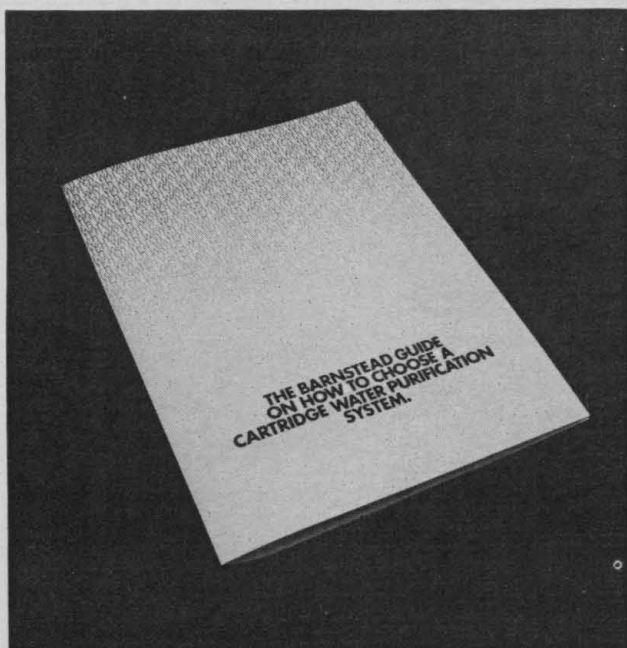
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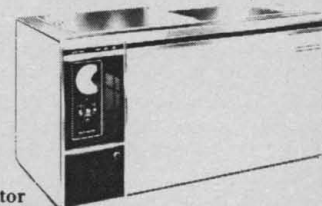
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SCIENCE, VOL. 178

25-3. Continuing Education for **Excellence in Medicine and Surgery**, American Soc. of Contemporary Medicine and Surgery, Miami Beach, Fla. (Miss V. Kendall, Suite 1629, ASCMS, 30 N. Michigan Ave., Chicago, Ill. 60602)

26-1. **American Educational Research Assoc.**, New Orleans, La. (R. A. Der-shimer, AERA, 1126 16th St., NW, Wash-ington, D.C. 20036)

27-2. **Biophysical Soc.**, Columbus, Ohio. (M. O. Dayhoff, Natl. Biomedical Re-search Foundation, Georgetown Univ. Medical Center, 3900 Reservoir Rd., NW, Washington, D.C. 20007)

28-3. **American Assoc. of Petroleum Geologists**, Rocky Mountain Div., Salt Lake City, Utah. (Miss K. Watson, AAPG, 1444 S. Boulder, Tulsa, Okla. 74101)

28-4. **American Psychological Assoc.**, Div. of Psychotherapy, Freeport, Grand Bahama Island. (V. Rosenthal, 815 Indian Rd., Glenview, Ill. 60025)

March

1-2. **Fracture and Flaws**, 13th annual symp., American Soc. of Mechanical En-gineers and American Soc. for Metals, Albuquerque, N.M. (D. Buchanan, Or-ganization 9310K, Sandia Labs., Albu-querque 87115)

2-3. **International Geobotany Conf.**, Knoxville, Tenn. (C. Amundsen, Graduate Program in Ecology, Univ. of Tennessee, Knoxville 37916)

3-9. **American Concrete Inst.**, annual, Atlantic City, N.J. (ACI, Box 4754 Red-ford Sta., Detroit, Mich. 48219)

5-7. **Particle Accelerator Conf.**, 5th, San Francisco, Calif. (E. J. Lofgren, Lawrence Radiation Lab., Univ. of Cali-fornia, Berkeley 94720)

5-7. **National Federation of Science Abstracting and Indexing Services**, Phila-delphia, Pa. (S. Kennan, NFSAIS, 2102 Arch St., Philadelphia 19103)

5-9. **Medical Data Processing Symp.**, Inst. for Research and Automation, Tou-louse, France. (E. E. Van Brunt, Perma-nente Medical Group, 3779 Piedmont Ave., Oakland, Calif. 94611)

6-10. **Lymphology**, 4th intern. congr., Tucson, Ariz. (C. L. Witte, Dept. of Surgery, Univ. of Arizona College of Medicine, Tucson 85721)

8-11. **Southern Anthropological Soc.** (9th annual) and **American Ethnological Soc.**, Wrightsville Beach, N.C. (T. Fitz-gerald, Dept. of Sociology and Anthro-pology, Univ. of North Carolina at Greensboro, Greensboro 27412)

9-10. **Pennsylvania Acad. of Science**, Carlisle. (G. C. Shoffstall, Jr., 214 Whit-more Lab., Pennsylvania State Univ., University Park 16802)

11-16. **Symposium on Membranes**, Squaw Valley, Calif. (W. Stoeckenius, Dept. of Bacteriology, Univ. of Cali-fornia, Los Angeles 90024)

11-16. **American Soc. of Photogram-metry**, Washington, D.C. (L. P. Jacobs, 105 N. Virginia Ave., Falls Church, Va. 22046)

12-13. **Drugs, Hormones and the Kid-ney**, 4th annual nephrology conf., Amer-ican Heart Assoc., Inc., Philadelphia, Pa. (Dept. of Councils, AHA, 44 E. 23 St., New York 10010)

12-15. **American Soc. for Neurochem-istry**, 4th, Columbus, Ohio. (L. A. Hor-rocks, Dept. of Physiological Chemistry, Ohio State Univ., 1645 Neil Ave., Co-lumbus 43210)

12-15. **Conference on Prevention and Control of Oil Spills**, American Petroleum Inst., Environmental Protection Agency, U.S. Coast Guard, Washington, D.C. (J. R. Gould, Suite 700, 1629 K St., NW, Washington, D.C. 20006)

12-16. **Symposium on Applications of Nuclear Data in Science and Technology**, Intern. Atomic Energy Agency, Paris, France. (J. H. Kane, Office of Information Services, U.S. Atomic Energy Commis-sion, Washington, D.C. 20545)

13-16. **Optical Soc. of America**, Denver, Colo. (M. E. Warga, OSA, 2100 Pennsyl-vania Ave., NW, Washington, D.C.)

14-16. **American Assoc. of Petroleum Geologists**, Southwest Div., Fort Worth, Tex. (K. Watson, AAPG, 1444 S. Boulder, Box 979, Tulsa, Okla. 74101)

15-16. **Advanced Analytical Concepts for the Clinical Laboratory**, 5th annual, Oak Ridge, Tenn. (C. D. Scott, Oak Ridge Natl. Lab., P.O. Box X, Oak Ridge 37830)

15-16. **Symposium on Drugs and the Unborn Child**, National Foundation—March of Dimes, New York, N.Y. (M. New, Dept. of Pediatrics, Div. of Pedi-atric Endocrinology, New York Hospital—Cornell Medical Center, 525 E. 68 St., New York 10021)

15-16. **Estuaries of the Pacific North-west**, 3rd technical conf., Corvallis, Ore. (L. S. Slotta, Ocean Engineering Programs, School of Engineering, Oregon State Univ., Corvallis 97331)

15-17. **Association for Children with Learning Disabilities**, 10th intern. conf., Detroit, Mich. (K. M. Tillotson, ACLD, 2200 Brownsville Rd., Pittsburgh, Pa. 15210)

15-17. **Symposium on Reproductive Biology, Mating Behavior and Captive Breeding of Felids**, World Wildlife Safari and Inst. for the Study and Conservation of Endangered Species, Winston, Ore. (R. L. Eaton, Box AL, Winston 97496)

16. **Mississippi Acad. of Sciences**, Biloxi. (D. L. Dodgen, University Medical Center, Jackson, Miss. 39216)

18-21. **Wildlife Management Inst.**, Washington, D.C. (L. R. Jahn, WMI, 709 Wire Bldg., Washington, D.C. 20005)

18-22. **Society of Toxicology**, New York, N.Y. (R. A. Scale, ST, Esso Research and Engineering Co., P.O. Box 45, Linden, N.J. 07036)

18-23. **Deafness**, 4th intern. conf., World Federation of the Deaf and Assoc. of the Deaf and Mute in Israel, Tel Aviv, Israel. (A. Reich, Organizing Committee, P.O. Box 16271, Tel Aviv)

18-23. **Symposium on Molecular Biol-ogy** (Virus Research), Intern. Chemical and Nuclear Corp. and Molecular Biol-ogy Inst., Univ. of California, Squaw Valley. (C. F. Fox, Dept. of Bacteriology, Univ. of California, Los Angeles 90024)

19-23. **Characterization of Corrosion Products**, Natl. Assoc. of Corrosion Engi-neers, Anaheim, Calif. (W. D. France, Jr., General Motors Research Labs., General Motors Technical Center, Warren, Mich. 48090)

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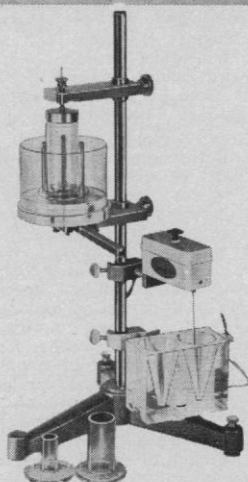
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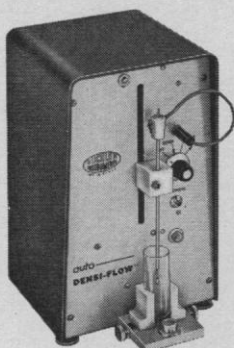
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20-23. American Astronomical Union (Planetary Sciences Div.), Tucson, Ariz. (B. Smith, Dept. of Astronomy, New Mexico State Univ., Las Cruces 88001)

22-23. Information Sciences and Systems, 7th conf., Princeton, N.J. (T. Pavlidis, Dept. of Electrical Engineering, School of Engineering/Applied Science, Engineering Quadrangle, Princeton 08540)

23-25. Future Status of Earth Resources in Society, Natl. Assoc. of Geology Teachers, Central Section, Chicago, Ill. (M. K. Sood, Dept. of Earth Sciences, Northeastern Illinois Univ., Bryn Mawr at St. Louis Ave., Chicago 60625)

26-28. Engineering Aspects of Magneto-hydrodynamics, Stanford, Calif. (M. Mitchner, Dept. of Mechanical Engineering, Stanford Univ., Stanford 94305)

26-29. Institute of Electrical and Electronics Engineers, New York, N.Y. (D. G. Fink, IEEE, 345 E. 47 St., New York 10017)

26-30. Symposium on New Developments in Radiopharmaceuticals and Labeled Compounds, Intern. Atomic Energy Agency, Copenhagen, Denmark. (J. H. Kane, Office of Information Services, U.S. Atomic Energy Commission, Washington, D.C. 20545)

27-29. Reduction of Pollutants in Heterogeneous Combustion Processes, Combustion Inst., Central States Section, Champaign, Ill. (R. A. Strehlow, 105 Transportation Bldg., Univ. of Illinois, Urbana 61801)

27-29. National Assoc. for Research in Science Teaching, Detroit, Mich. (R. W. Lefler, Dept. of Physics, Purdue Univ., Lafayette, Ind. 47907)

28-30. Conference on Nuclear Structure and High Energy Physics (Nuclear Physics Sub-Committee), Inst. of Physics, Liverpool, England. (Meetings Officer, IP, 47 Belgrave Sq., London SW1X 8QX, England)

29-30. Rural Health, American Medical Assoc., Dallas, Tex. (B. L. Bible, AMA, 535 N. Dearborn St., Chicago 60610)

29-31. American Philosophical Assoc., Pacific Div., Seattle, Wash. (N. E. Bowie, Hamilton College, Clinton, N.Y. 13323)

29-31. Northwest Scientific Assoc., Walla Walla, Wash. (G. H. Deitschman, U.S. Forest Service, P.O. Box 469, Moscow, Idaho 83843)

29-1. Society for Research in Child Development, Philadelphia, Pa. (M. K. Harlow, 22 N. Charter St., Madison, Wis. 53706)

30-3. National Science Teachers Assoc., Detroit, Mich. (R. H. Carleton, NSTA, 1201 16th St., NW, Washington, D.C. 20036)

31. New Jersey Acad. of Science, West Long Branch (M. L. Branin, Box 61, Cranbury, N.J. 08512)

31-6. American Pharmaceutical Assoc., Chicago, Ill. (W. S. Apple, APA, 2215 Constitution Ave., NW, Washington, D.C. 20037)

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2-7. American College of Radiology, San Francisco, Calif. (W. C. Stronach, ACR, 20 N. Wacker Dr., Chicago, Ill. 60606)

3-5. Reliability Physics Symp., Inst. of Electrical and Electronics Engineers, Las

Vegas, Nev. (H. Lauffenburger, IIT Research Inst., 10 W. 35 St., Chicago, Ill. 60616)

3-13. Education of Teachers for Integrated Science, Committee on Teaching of Science, International Council of Scientific Unions, College Park, Md. (M. Dietz, Science Teaching Center, Univ. of Maryland, College Park 20742)

4-7. American Fertility Soc., San Francisco, Calif. (W. C. Stronach, AFS, 1801 Ninth Ave. S., Birmingham, Ala. 35205)

5-7. Alabama Acad. of Science, Huntsville. (T. Denton, Biology Dept., Samford Univ., Birmingham, Ala. 35209)

5-7. Michigan Acad. of Science, Arts and Letters, Ann Arbor. (T. G. Overmire, MASAL, 2117 Washtenaw Ave., Ann Arbor 48104)

5-7. West Virginia Acad. of Science, Fairmont. (E. A. Bartholomew, West Virginia Univ., Morgantown 26506)

5-7. National Council of Teachers of Mathematics, Charleston, S.C. (F. A. Kirby, Union County Public Schools, P.O. Box 629, Union, S.C.)

5-9. Combustion Engines, 10th intern. Congr., American Soc. of Mechanical Engineers, Washington, D.C. (Meetings Officer, ASME, United Engineering Center, 345 E. 47 St., New York 10017)

6-8. American Psychosomatic Soc., 30th annual, Denver, Colo. (M. T. Singer, 265 Nassau Rd., Roosevelt, N.Y. 11575)

7-12. American College of Allergists, Atlanta, Ga. (E. Bauers, 2100 Dain Tower, Minneapolis, Minn. 55402)

8-11. American Assoc. of Dental Schools, Washington, D.C. (B. F. Miller, III, AADS, 211 E. Chicago Ave., Chicago, Ill. 60611)

8-13. American Chemical Soc., 165th natl., Dallas, Tex. (Meetings Manager, ACS, 1155 16th St., NW, Washington, D.C. 20036)

8-14. Turbulent Diffusion in Environmental Pollution, 2nd symp., American Geophysical Union, Charlottesville, Va. (A. F. Spilhaus, Jr., American Geophysical Union, 1707 L St., NW, Washington, D.C. 20036)

9-11. Frontiers in Education, Education Group of the Inst. of Electrical and Electronics Engineers, West Lafayette, Ind. (Meetings Officer, IEEE, 345 E. 47 St., New York 10017)

9-11. Interaction of Particle Beams with Surfaces, Lancaster, England. (Meetings Officer, Inst. of Physics, 47 Belgrave Sq., London SW1X 8QX, England)

9-11. American Vacuum Soc., New Mexico chapter, Albuquerque. (R. L. Gerlach, Sandia Labs., Albuquerque)

9-12. American Assoc. of Anatomists, New York, N.Y. (J. E. Pauly, Dept. of Anatomy, Univ. of Arkansas School of Medicine, Little Rock 72201)

9-12. Cancer Detection and Prevention, 2nd intern. symp., Intern. Union against Cancer and Intern. Agency for Research on Cancer of the World Health Organization, Bologna, Italy. (2nd Intern. Symp. on CDP, Istituto di Oncologia "F. Ad-darii," Viale Ercolani 4/2, 40138 Bologna)

9-12. American Acad. of Pediatrics, Boston, Mass. (R. G. Frazier, AAP, 1801 Hinman Ave., Evanston, Ill. 60201)

10-12. Vibration Problems in Industry,

intern. symp., United Kingdom Atomic Energy Authority, Keswick in Cumberland, England. (J. R. Wakefield, UKAEA, Windscale, Seascale, Cumberland, England, CA20 1PF)

10-13. Acoustical Soc. of America, Boston, Mass. (B. H. Goodfriend, ASA, 335 E. 45 St., New York 10017)

11-13. American Assoc. for Cancer Research, Inc., 64th annual, Atlantic City, N.J. (H. J. Creech, AACR, Inst. for Cancer Research, Fox Chase, Philadelphia, Pa. 19111)

11-14. Symposium on Physiological Ecology of Estuarine Organisms, Georgetown, S.C. (F. J. Vernberg, Belle W. Baruch Coastal Research Inst., Univ. of South Carolina, Columbia 29208)

12-14. Society for Applied Anthropology, 33rd annual, Tucson, Ariz. (T. E. Downing, Bureau of Ethnic Research, Univ. of Arizona, Tucson 85721)

12-14. American Assoc. of Physical Anthropologists, Dallas, Tex. (E. I. Fry, Dept. of Anthropology, Box 339, Southern Methodist Univ., Dallas 75222)

12-14. Association of Southeastern Biologists, Bowling Green, Ky. (M. L. Gilbert, Biology Dept., Florida Southern College, Lakeland 33802)

12-15. International Assoc. for Dental Research, North American Div., Washington, D.C. (A. R. Frechette, IADR, 211 E. Chicago Ave., Chicago, Ill. 60611)

13. Utah Acad. of Sciences, Arts and Letters, Logan. (H. Buehnan, Dept. of Botany, Weber State College, Ogden 84403)

13-14. Socio-Economics of Health Care, American Medical Assoc., Chicago, Ill. (J. Rowland, Div. of Medical Practice, AMA, 535 N. Dearborn St., Chicago 60610)

15-18. Association of American Geographers, Atlanta, Ga. (J. W. Nystrom, AAG, 1710 16th St., NW, Washington, D.C. 20009)

15-19. Industrial Aspects of Biochemistry, Federation of European Biochemical Soc., Dublin, Ireland. (B. Masterson, FEBS Meeting Secretariat, IMA Conf. Centre, 10, Fitzwilliam Pl., Dublin 2)

15-20. American Soc. of Biological Chemists, Atlantic City, N.J. (R. A. Harte, ASBC, 9650 Rockville Pike, Bethesda, Md. 20014)

15-20. Federation of American Soc. for Experimental Biology, Atlantic City, N.J. (A. Nixon, FASEB, 9650 Rockville Pike, Bethesda, Md. 20014)

15-20. American Physiological Soc., Atlantic City, N.J. (R. G. Daggs, APS, 9650 Rockville Pike, Bethesda, Md. 20014)

16-18. Liquid State—Van der Waals Centenary, Kent, England. (Meetings Officer, Inst. of Physics, 47 Belgrave Sq., London SW1X 8QX England)

16-18. Nonlinear Elasticity, Madison, Wis. (G. G. Moran, Mathematics Research Center, Univ. of Wisconsin, 610 Walnut St., Madison 53706)

16-20. American Soc. for Experimental Pathology, Atlantic City, N.J. (G. B. Mider, ASEP, 9650 Rockville Pike, Bethesda, Md. 20014)

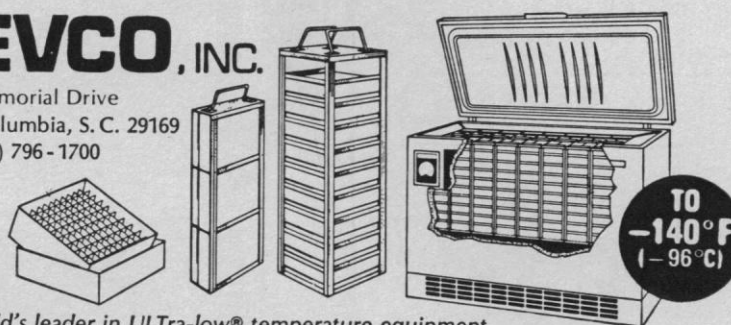
16-20. American Geophysical Union, 54th annual, Washington, D.C. (A. F. Spilhaus, Jr., AGU, 1707 L St., NW, Washington, D.C. 20036)

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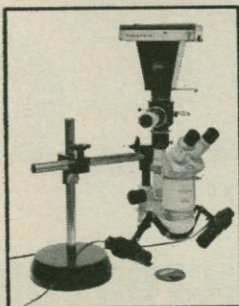
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16-20. American Inst. of **Nutrition**, Atlantic City, N.J. (AIN, 9650 Rockville Pike, Bethesda, Md. 20014)

16-20. American Soc. for **Pharmacology and Experimental Therapeutics**, Atlantic City, N.J. (E. B. Cook, ASPET, 9650 Rockville Pike, Bethesda, Md. 20014)

18-20. **Great Lakes Research**, 16th conf., Intern. Assoc. for Great Lakes Research, Columbus, Ohio 43210. (C. E. Herdendorf, Center for Lake Erie Area Research, College of Biological Sciences, Ohio State Univ., 484 W. 12 Ave., Columbus 43210)

19-20. Symposium on **Controlled Release of Biologically Active Agents**, Birmingham, Ala. (A. C. Tanquary, Southern Research Inst., 2000 Ninth Ave. S., Birmingham 35205)

19-21. Louisiana Acad. of **Sciences**, Monroe. (B. F. Dowden, Dept. of Biological Sciences, Louisiana State Univ., Shreveport 71105)

19-21. Southern Soc. for **Philosophy and Psychology**, Knoxville, Tenn. (M. Loeb, Dept. of Psychology, Univ. of Louisville, Louisville, Ky.)

20-21. Illinois State Acad. of **Science**, Urbana. (N. R. Brewer, ISAS, 5757 S. Drexel Ave., Chicago)

22-26. American Radium Soc., Colorado Springs, Colo. (F. N. Rutledge, 4828 Caroline St., Houston, Tex. 77004)

22-27. Council for **Exceptional Children**, 51st annual intern. conv., Dallas, Tex. (P. W. Stavros, CEC, 1411 S. Jefferson Davis Hwy., Arlington, Va. 22202)

23-25. **Instrument Soc. of America**, 19th analysis instrumentation symp., 14th chemical and petroleum instrumentation symp., Process Measurement and Control Div. symp., St. Louis, Mo. (J. L. Kern, Monsanto Co., 800 N. Lindbergh St., St. Louis 63166)

23-28. American Acad. of **Neurology**, Boston, Mass. (S. A. Nelson, AAN, 4005 W. 65 St., Minneapolis, Minn. 55435)

23-30. American Soc. for **Clinical Investigation**, Atlantic City, N.J. (P. Calabresi, Roger Williams General Hospital, Providence, R.I. 02908)

24-27. International **Magnetics Conf.**, Magnetic Soc. of the Inst. of Electrical and Electronics Engineers, Washington, D.C. (D. H. Looney, Bell Labs., Whippany Rd., Whippany, N.J. 07981)

25-26. American **Geriatrics Soc.**, Beverly Hills, Calif. (E. Henderson, 10 Columbus Circle, New York 10019)

25-27. The **Ocean, Nuclear Energy, and Man**, American Nuclear Soc. and Marine Technology Soc., Palm Beach Shores (Singer Island), Fla. (M. J. Ohanian, Dept. of Nuclear Engineering, Univ. of Florida, Gainesville 32601)

25-28. International **Communication Assoc.**, Montreal, P.Q., Canada. (M. Z. Sincoff, Center for Communication Studies, Ohio Univ., Athens 45201)

25-28. National Council of **Teachers of Mathematics**, Houston, Tex. (J. D. Gates, NCTM, 1201 16th St., NW, Washington, D.C. 20005)

26. **Sigma Pi Sigma**, Washington, D.C.

(D. W. J. Shea, State Univ. of New York, Stony Brook 11790)

26-27. **Scanning Electron Microscope Symp.**, 6th annual, Chicago, Ill. (O. Johari, IIT Research Inst., 10 W. 35 St., Chicago 60616)

26-28. **Louisiana Acad. of Sciences**, Monroe. (B. F. Dowden, Dept. of Biological Sciences, Louisiana State Univ., Shreveport 71105)

26-28. **Ohio Acad. of Science**, Cleveland. (J. H. Melvin, OAS, 445 King Ave., Columbus 43201)

26-28. **American Philosophical Assoc.**, Western Div., Chicago, Ill. (N. E. Bowie, Hamilton College, Clinton, N.Y. 13323)

26-28. **Population Assoc. of America**, New Orleans, La. (J. W. Brackett, PAA, P.O. Box 14182, Benjamin Franklin Sta., Washington, D.C. 20044)

27-28. **Georgia Acad. of Science**, Atlanta. (E. A. Stanley, Dept. of Geology, Univ. of Georgia, Athens 30601)

27-28. **Iowa Acad. of Science**, Grinnell. (R. W. Hanson, Dept. of Chemistry, Univ. of Northern Iowa, Cedar Falls 50613)

27-28. **Missouri Acad. of Science**, Columbia. (R. G. Combs, 206 Electrical Engineering Bldg., Univ. of Missouri, Columbia 65201)

27-28. **North Carolina Acad. of Science**, Charlotte. (J. A. Yarbrough, Dept. of Biology, Meredith College, Raleigh 27602)

27-28. **American Assoc. of University Professors**, St. Louis, Mo. (B. H. Davis, AAUP, Suite 500, 1 Dupont Circle, NW, Washington, D.C. 20036)

27-29. **Wisconsin Acad. of Sciences, Arts and Letters**, Prairie du Chien. (J. R. Batt, WASAL, 5001 University Ave., Madison 53705)

28. **Society for Investigative Dermatology**, Atlantic City, N.J. (J. S. Strauss, Boston Univ. Medical Center, 80 E. Concord St., Boston, Mass. 02118)

28. **Societal Problems of Water Resources**, 2nd annual symp., Illinois Earth Science Assoc., Chicago. (M. Qutub, Northeastern Illinois Univ., Bryn Mawr at St. Louis Ave., Chicago 60625)

28-29. **Montana Acad. of Sciences**, Dillon. (R. E. Juday, Dept. of Chemistry, Univ. of Montana, Missoula 59801)

29-1. **Classification Soc.**, North American Branch, 4th annual, Atlanta, Ga. (F. J. Rohlf, Dept. of Biology, State Univ. of New York, Stony Brook 11790)

29-2. **Off-Shore Technology**, Inst. of Electrical and Electronics Engineers, Houston, Tex. (Technical Activities Bd., 345 E. 47 St., New York 10017)

29-3. **American Ceramic Soc., Inc.**, Cincinnati, Ohio. (F. P. Reid, ACSI, 65 Ceramic Dr., Columbus 43214)

29-3. **American Oil Chemists Soc.**, New Orleans, La. (J. Lyon, AOCS, 508 S. 6 St., Champaign, Ill. 61820)

30-12. **Lindau Psychotherapy Weeks**, Assoc. for Psychotherapeutic Training, Lindau, Germany. (H. Stolze, D-8 München 81, Adalbert-Stifter-Strasse 31)

May

1-2. **Electron Device Techniques Conf.**, Inst. of Electrical and Electronics Engineers, New York, N.Y. (D. Slater, Advisory Group on Electron Devices, 9th Floor, 201 Varick St., New York 10014)

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