

SCIENCE

16 December 1966

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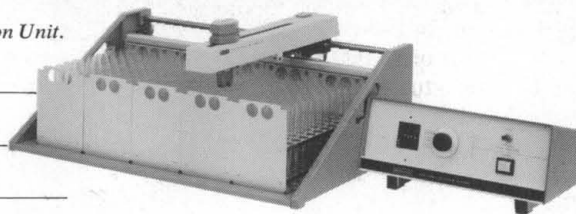
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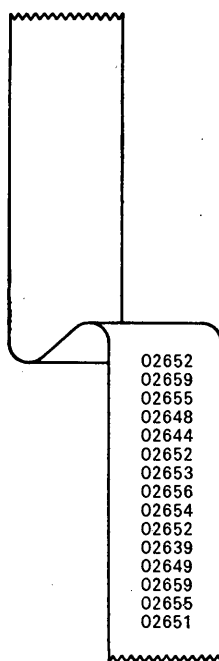
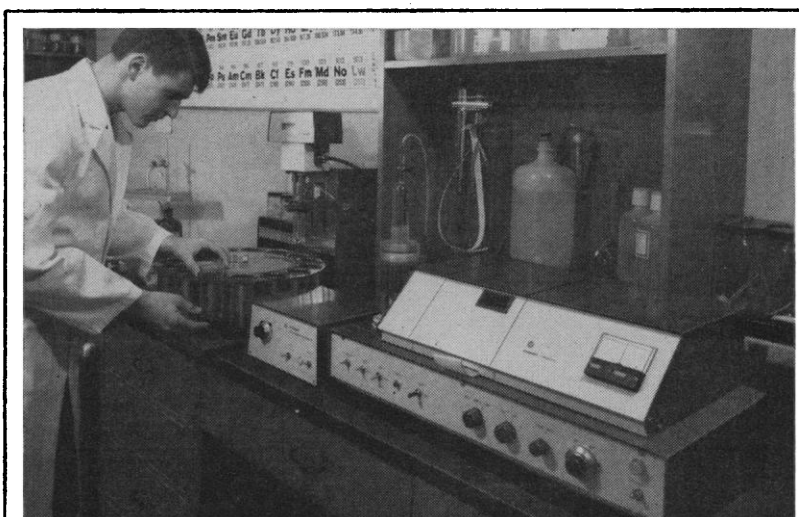
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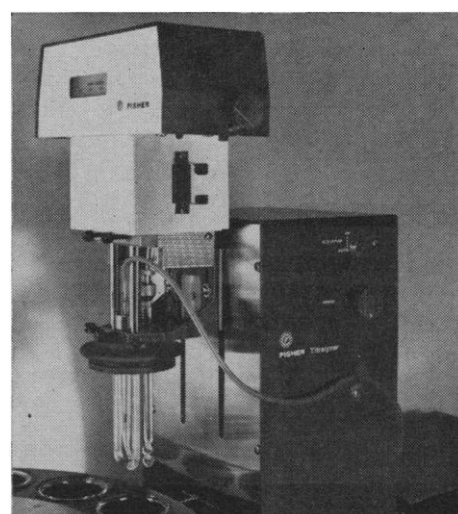
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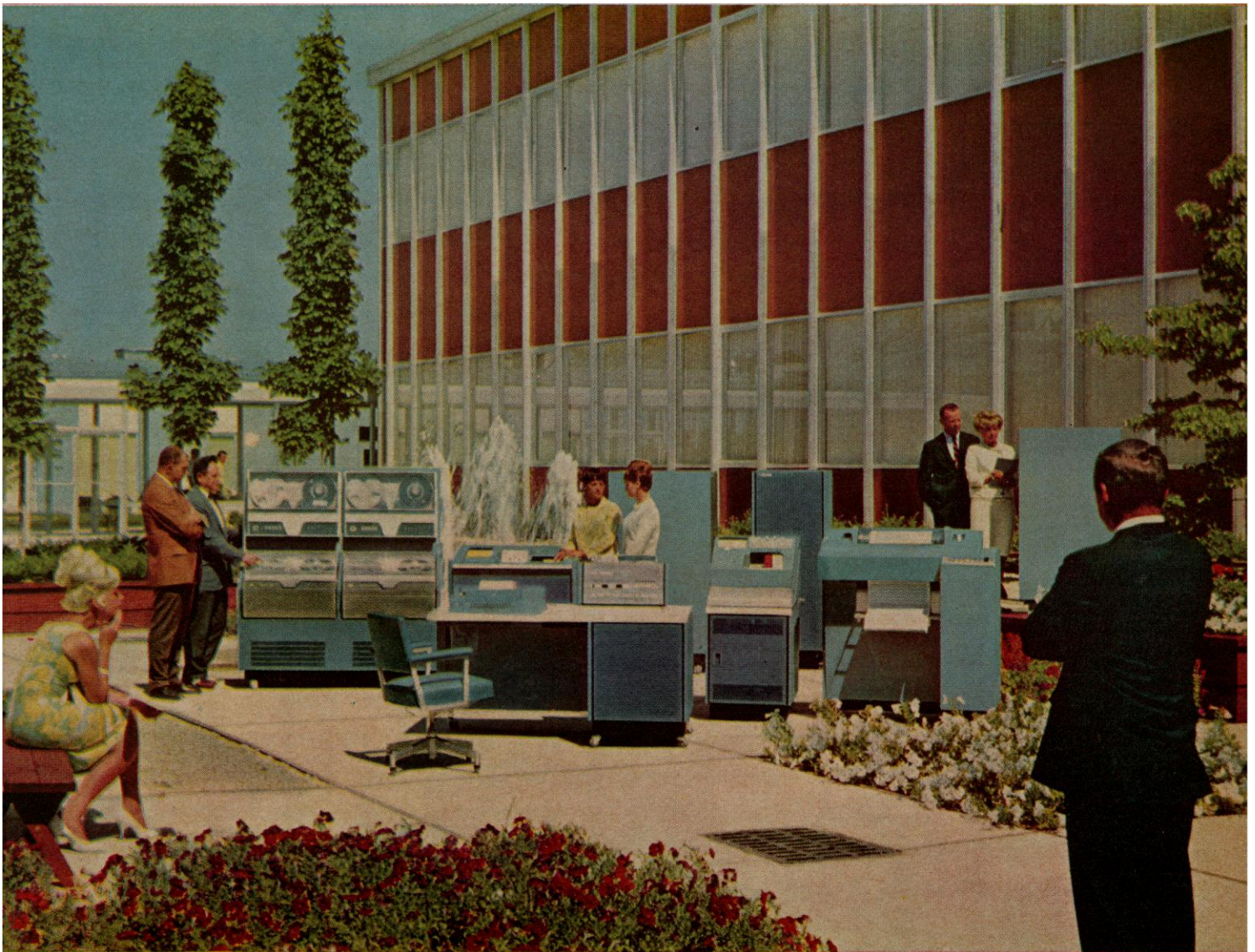
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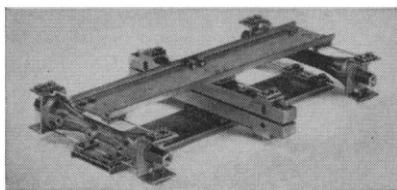
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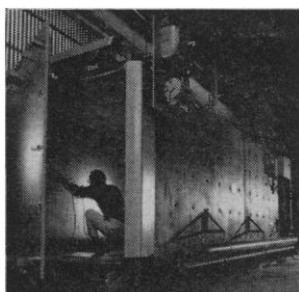
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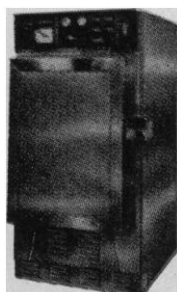
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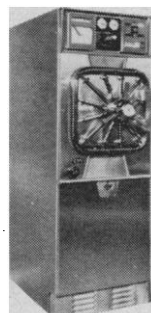
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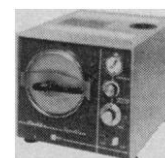
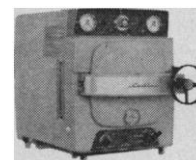


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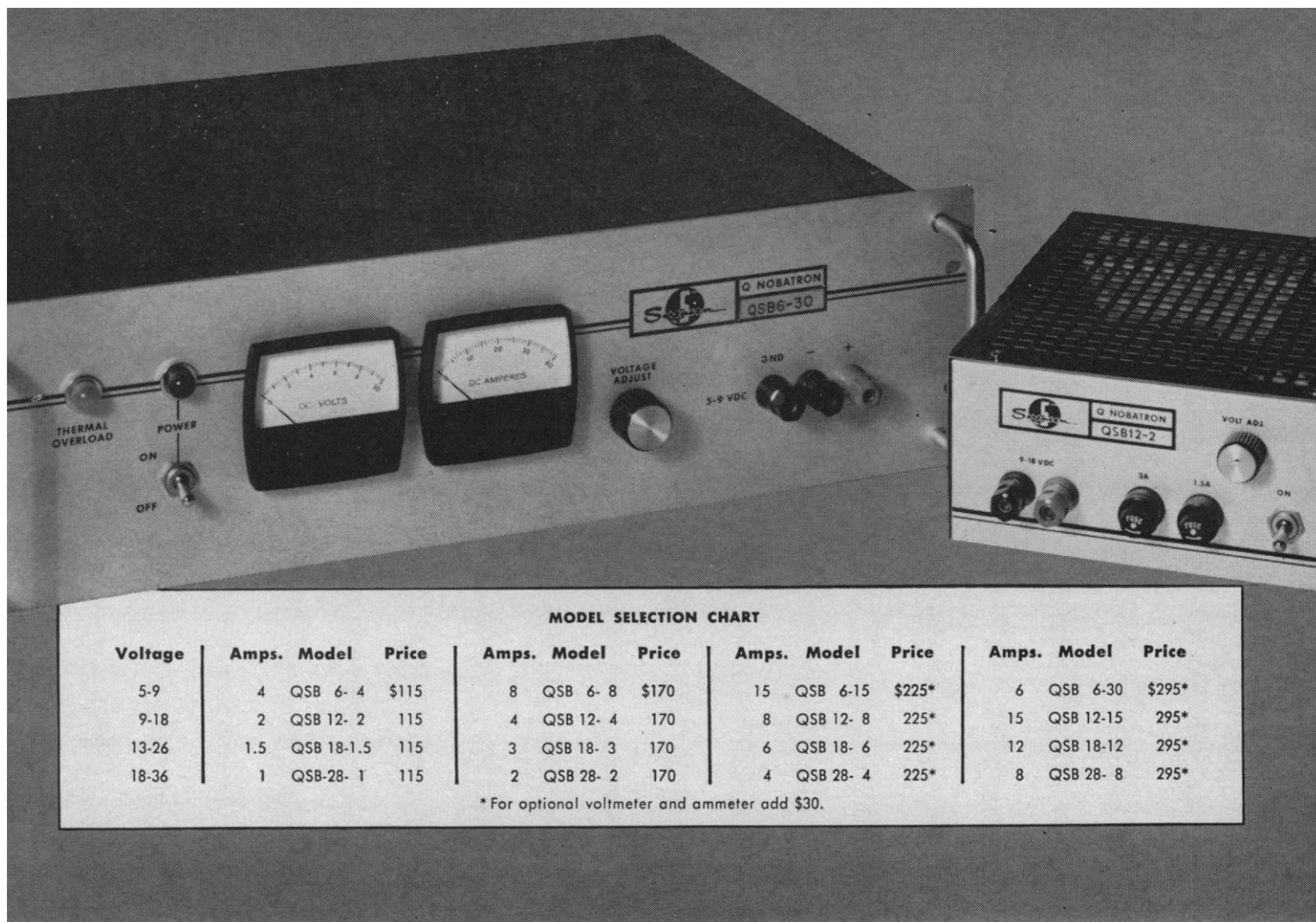
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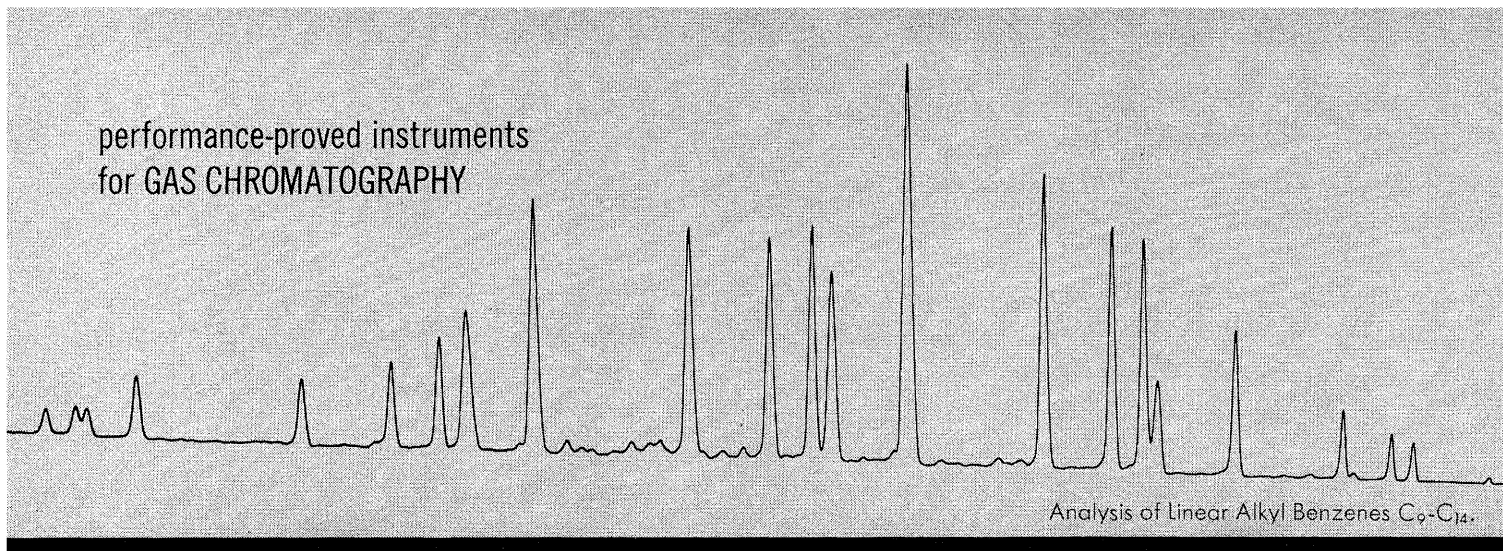
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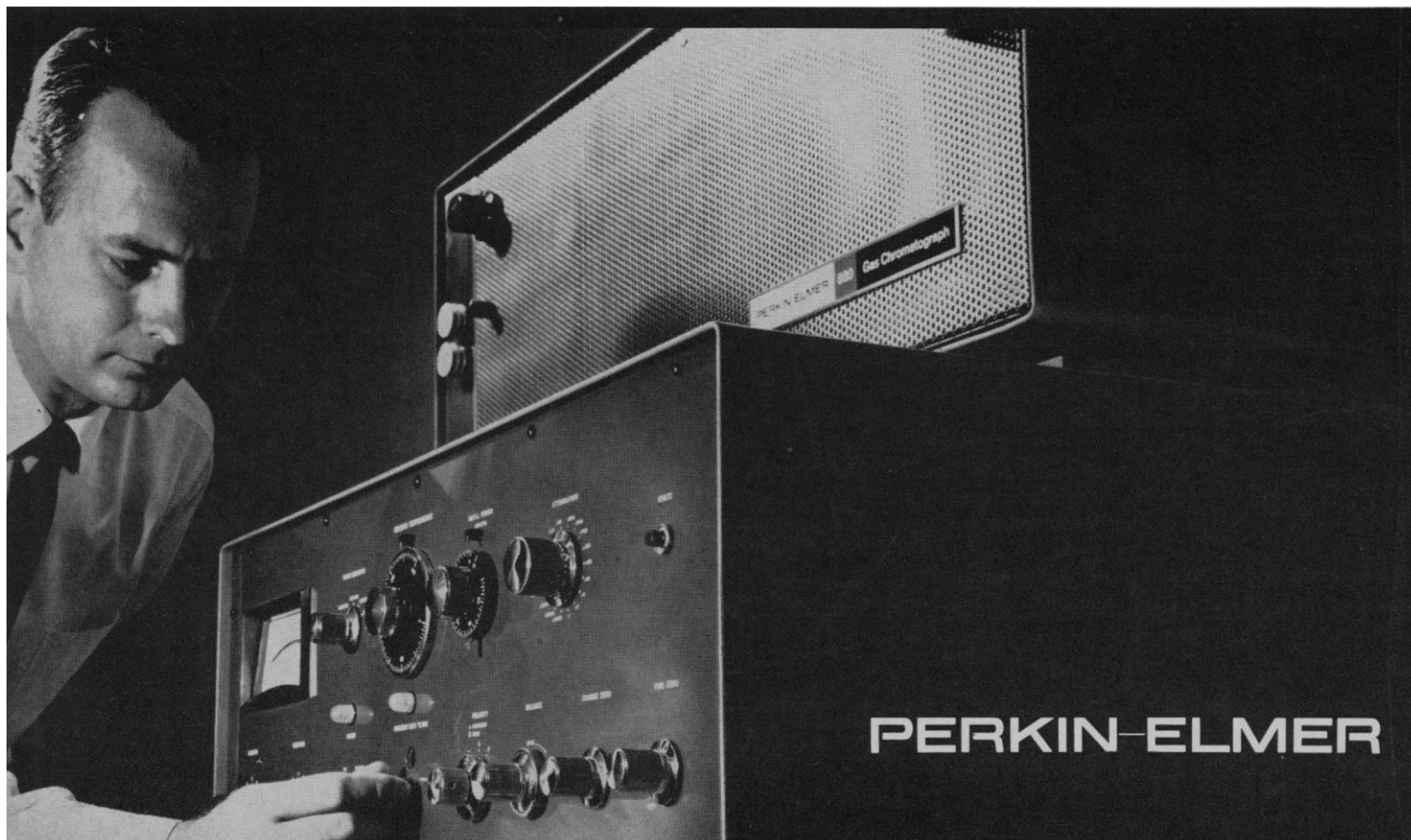
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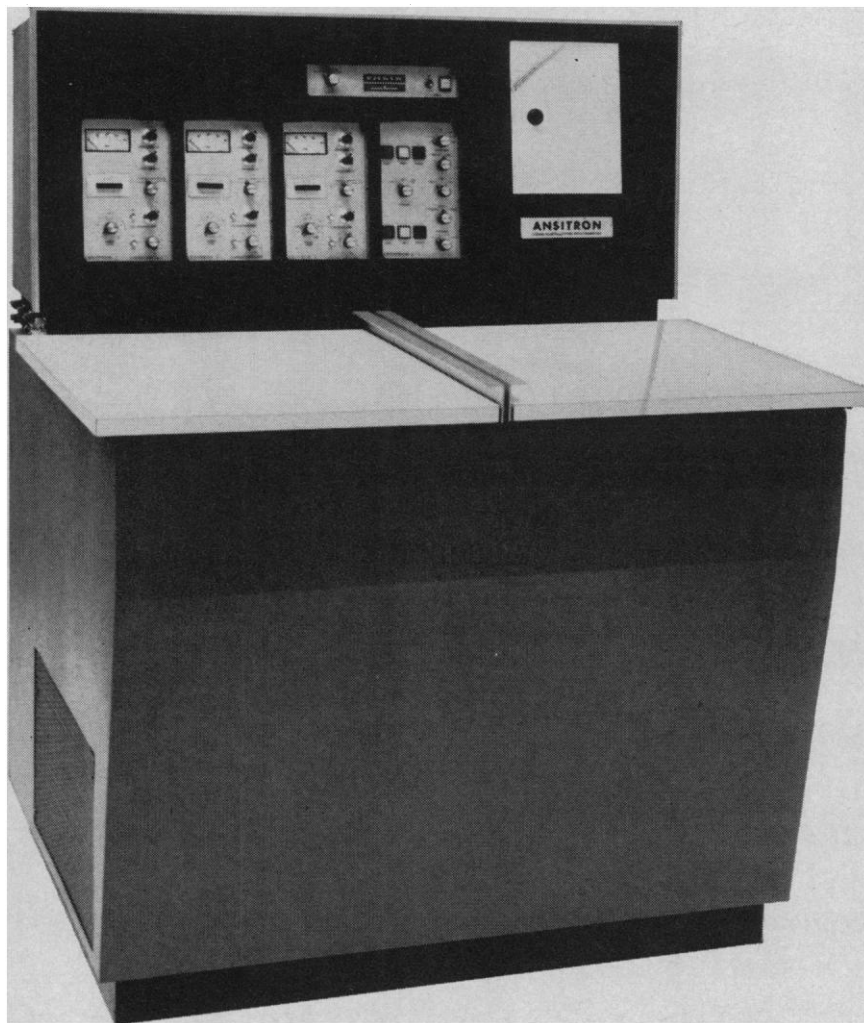
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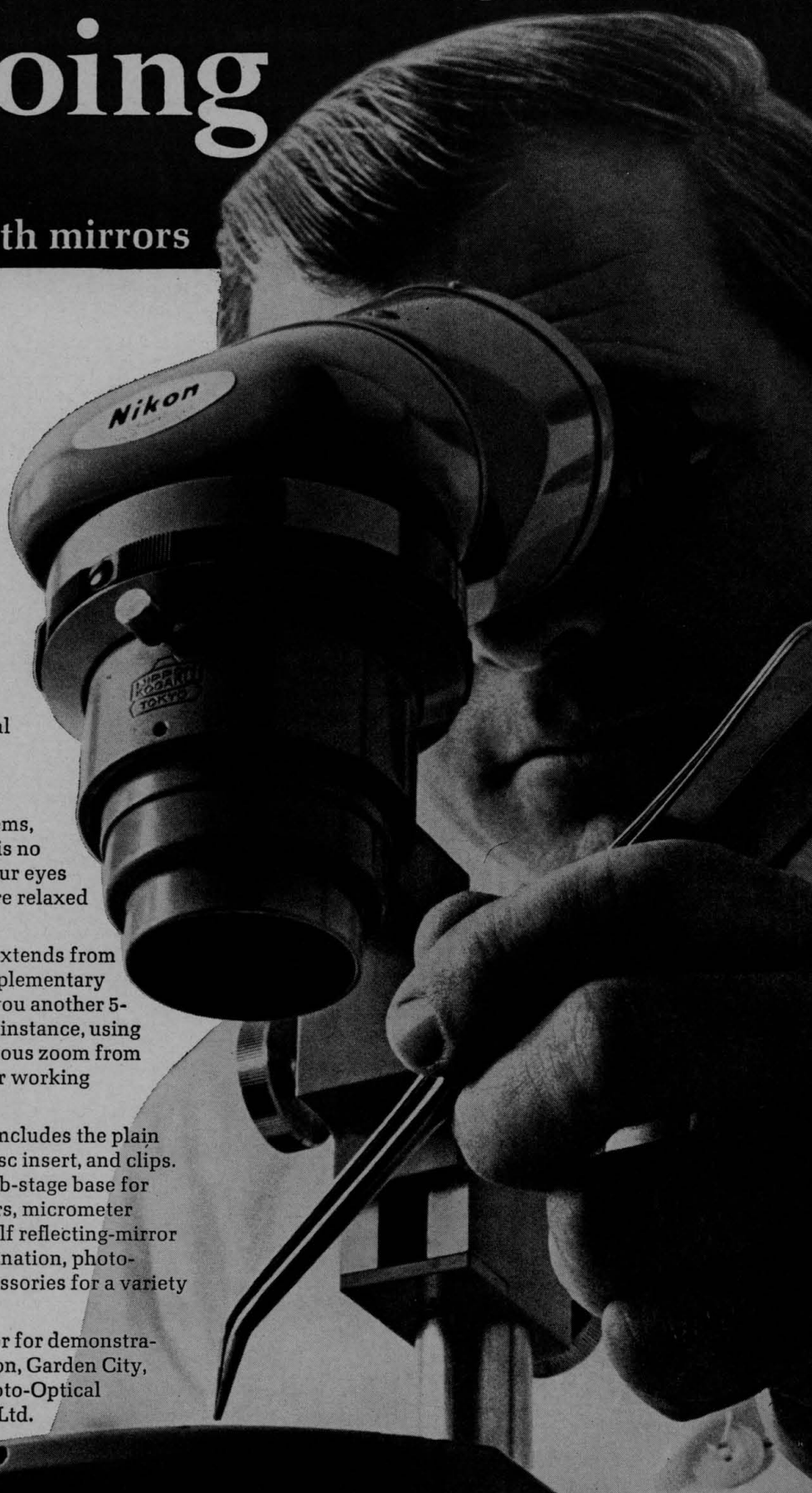
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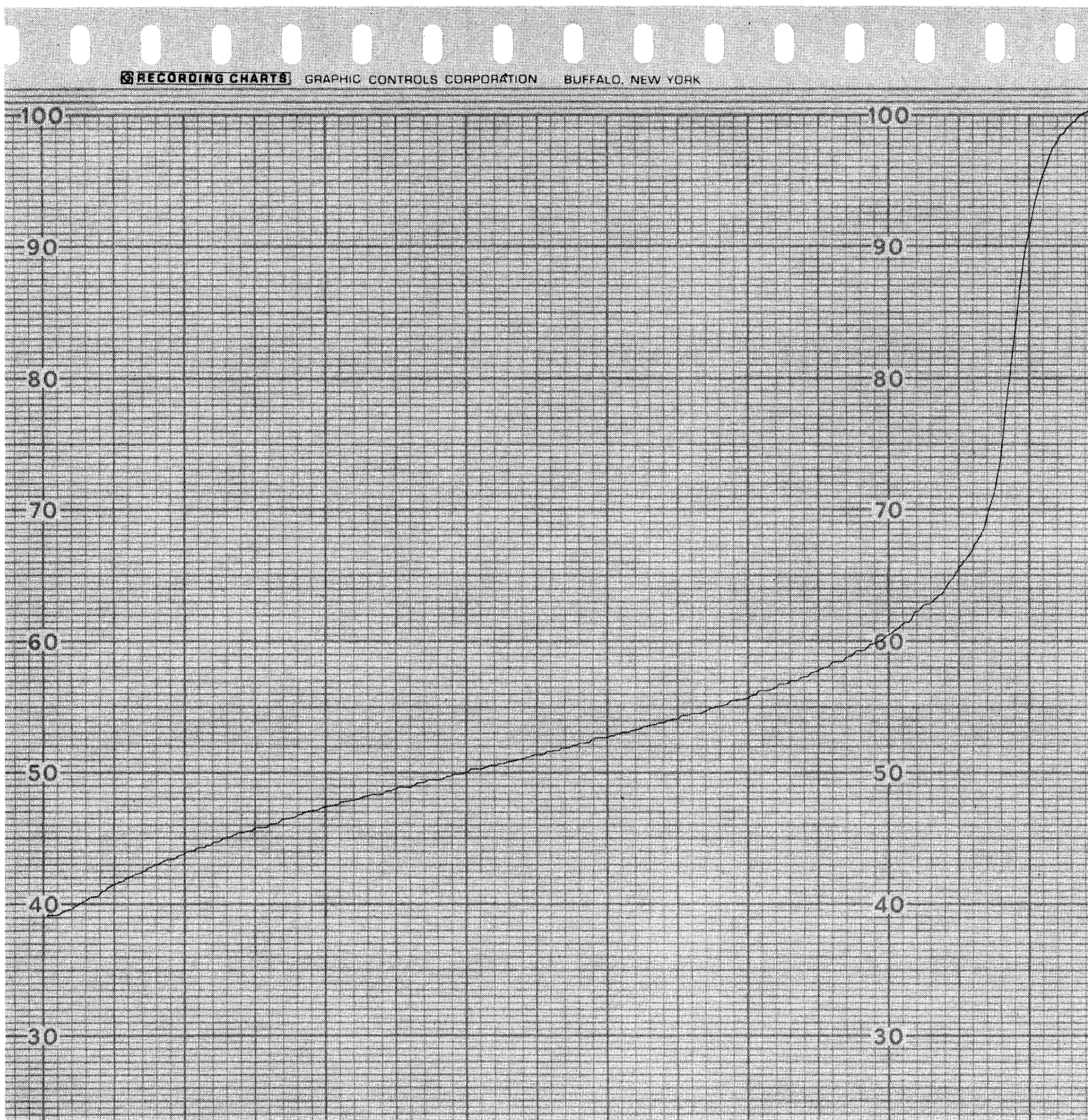
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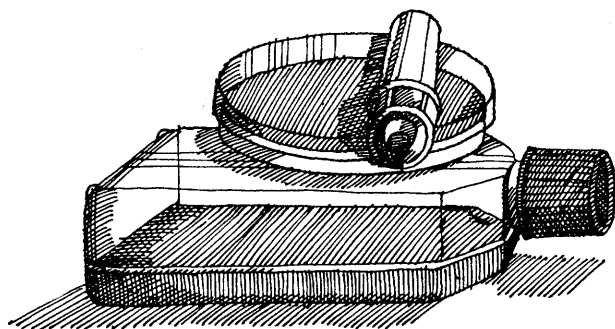
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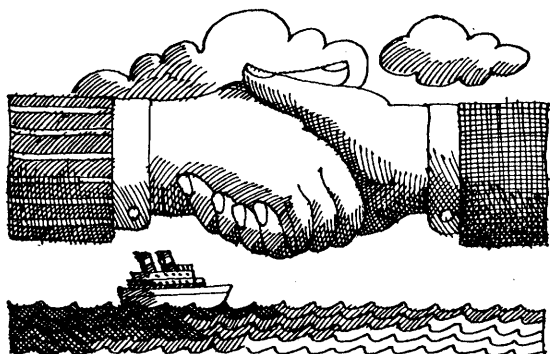
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16 DECEMBER 1966



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1393

Now: A Fast Signal Averager

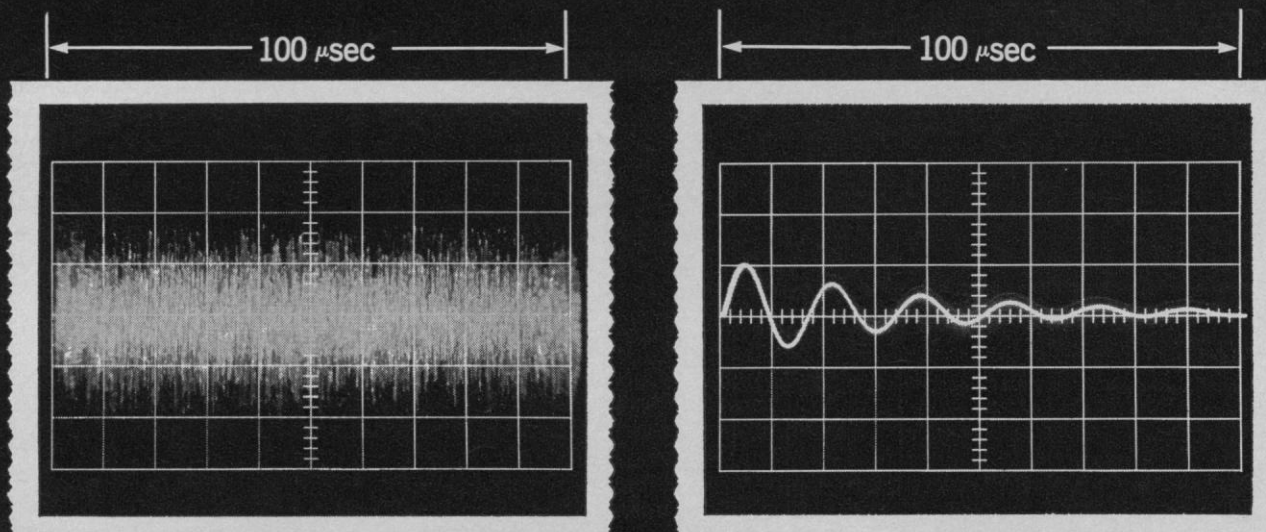
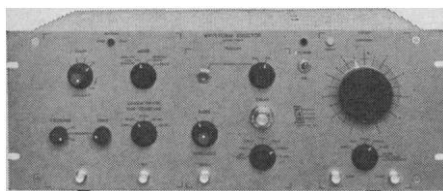


Photo #1—Input to Model TDH-9
SENSITIVITY: 5 V/cm
TIME: 10 μ sec/cm
NOISE-TO-SIGNAL RATIO: 10:1

Photo #2—Output of Model TDH-9
SENSITIVITY: 5 V/cm
TIME: 10 μ sec/cm



PAR Model TDH-9 Waveform Educator

Photo #1 is an actual oscillogram of a signal obscured by noise — a situation unfortunately prevalent in many research areas; such as, studies of biomedical evoked potentials, seismology, spectroscopy, fluorescent life-time studies, and vibration analysis. Photo #2 shows the dramatic improvement in signal-to-noise ratio when the noisy signal was processed

by the PAR Model TDH-9 Waveform Educator.

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ION OF INTEREST

(Hungary is not its favorite topic.) Surely congressional investigative vigor could be directed toward more obvious subjects, the contents of the pork barrel, for instance.

Greenberg has presented a largely balanced account of the Smale case, even though his treatment of the professor was a bit too indulgent.

ROBERT M. LUKES

223 Bramton Road,
Louisville, Kentucky 40207

While I abhor HUAC's restrictions on free speech and association, I believe that scientists should be fully alert to oppose repression from *any* source. In this context, I would like to question the choice of sites for international meetings. Rapprochement and lessened tension are wonderful things; but must we hold scientific congresses in countries where political doctrine dictates the scientific approach, where "unorthodox" scientists suffer loss not only of support but of liberty and even of life, and where scientific publications must begin with panegyrics to deified leaders or theories? It is true that the situation in the U.S.S.R. has improved within the past decade, and also that Moscow is an interesting place to visit. Still, we might consider to what extent free scientific inquiry and discussion are possible in a country which is under consideration as a location for a meeting.

PETER SUEDELD

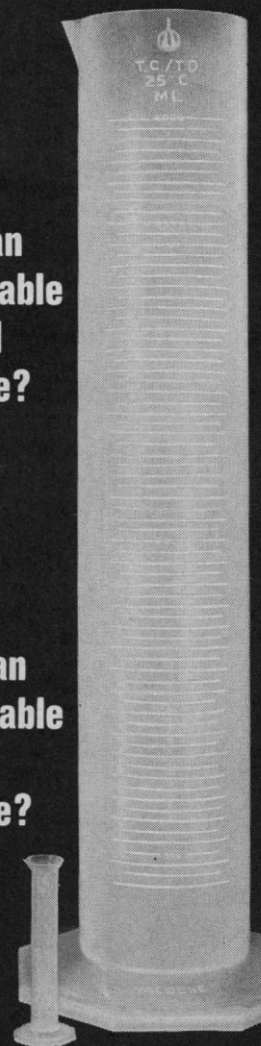
Department of Psychology,
Rutgers, The State University,
New Brunswick, New Jersey 08903

Visa Barriers

I, too, have had a similar experience to that reported in "Scientific exchange: case of a French visitor" (19 Aug., p. 848). When I applied recently for a visa to attend a congress in the U.S., my application was held up for some time while my political antecedents were intensively investigated on the grounds, according to American Embassy officials in London, that they found my passport contained visas indicating that I had traveled to eastern European countries and that it listed my job as "research biochemist." I was told it was now the policy of the U.S. Embassy, in dealing with visa applications, to regard all biochemists as likely to have left-wing tendencies, and therefore to investigate closely the polit-

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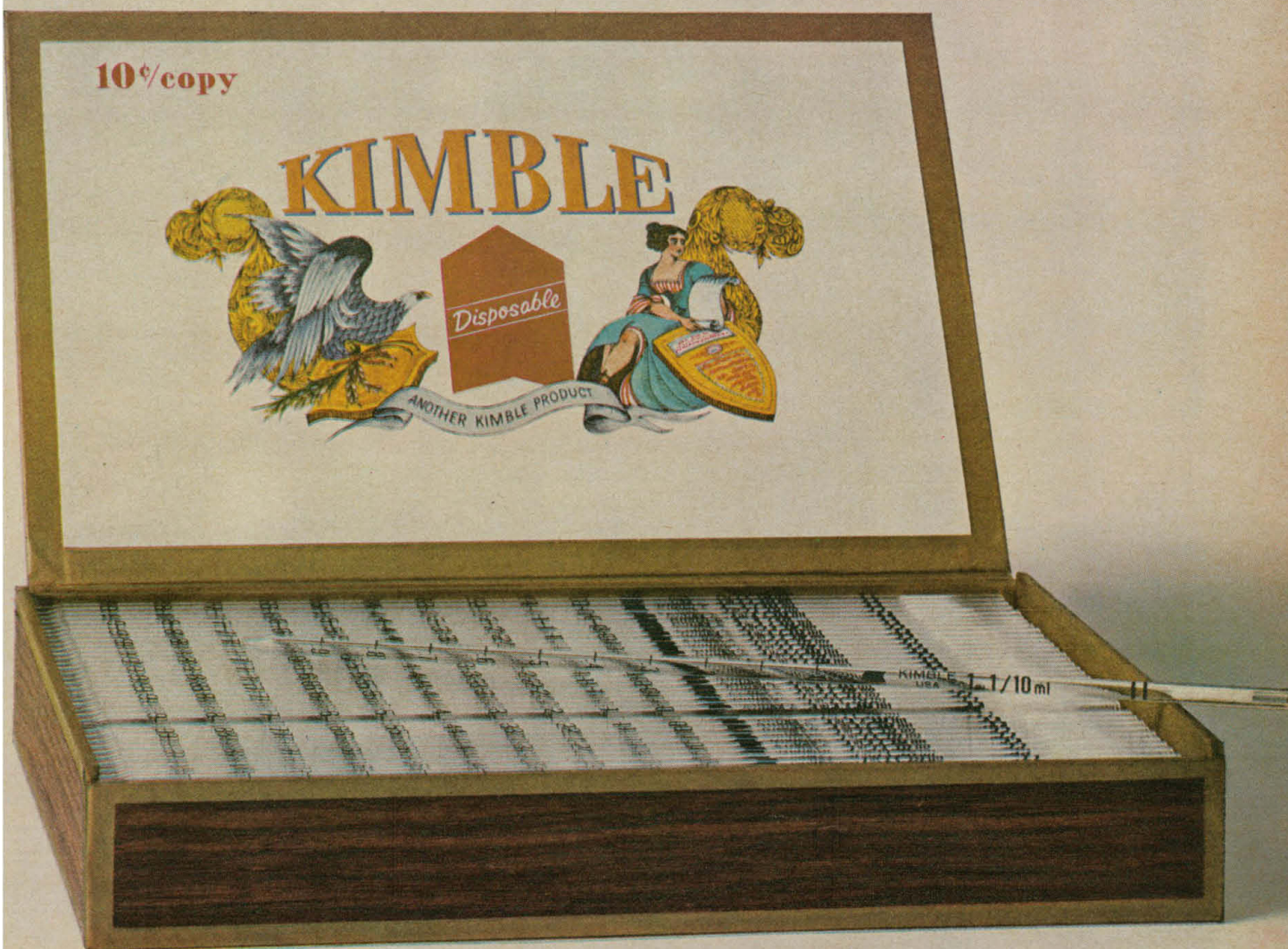
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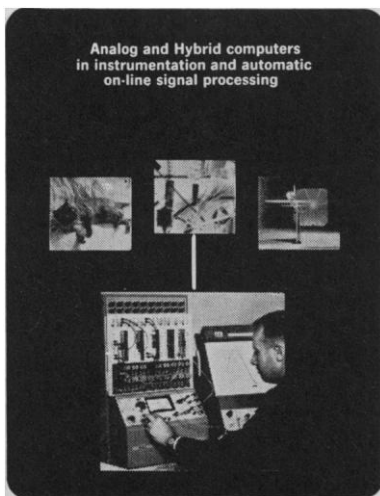


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ical background of any biochemist who applied for a temporary visa to visit the States. I did get my visa after some delay and a substantial exchange of correspondence, which included my supplying a list of all organizations, social and political (from the school chess club onwards), to which I had ever belonged. This list did not include the Communist Party, but did include the British Labour Party.

At Montreal I was held up for some time by a suspicious immigration official who objected to my entering; the grounds were that the conference I was planning to attend was being sponsored by M.I.T. but was being held in Boulder, Colorado, not in Massachusetts. It was only after a lengthy exchange that he conceded that it was possible for a conference to be run in this way and, therefore, legitimate for me to enter the U.S.

Such activities by both Embassy officials abroad and immigration officials at points of entry to the U.S. are extremely prejudicial to free scientific exchange, especially as it now appears that whole scientific disciplines are likely to become suspect in such a bizarre manner. It is encouraging that the U.S. scientific community has thought it worthwhile to protest.

S. P. R. ROSE

Department of Biochemistry,
Royal College of Science,
London S.W.7, England

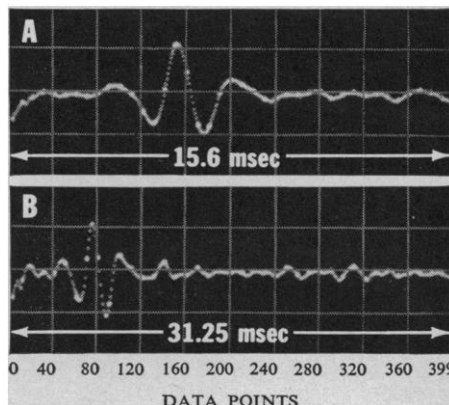
Praise for a Public Servant

Abelson's editorial (26 Aug., p. 939) is a concise summary of the accomplishments and requirements of the National Bureau of Standards. The scientific community supports, I am sure, his concluding hope that Congress will provide sufficient funds and will regard the quality of the Bureau's effort as highly as we scientists do. Glamorous and high priority issues have continuously detracted attention from the needs and achievements of the Bureau, while some programs of vital interest to large industries, such as our ceramic industry, have been curtailed and talented men sacrificed by budget squeezes. The Bureau represents an unparalleled asset to science, industry, and government that should be supported in its modest frame with the concern it deserves.

NORBERT J. KREIDL

Department of Ceramic Engineering,
University of Missouri, Rolla 65401

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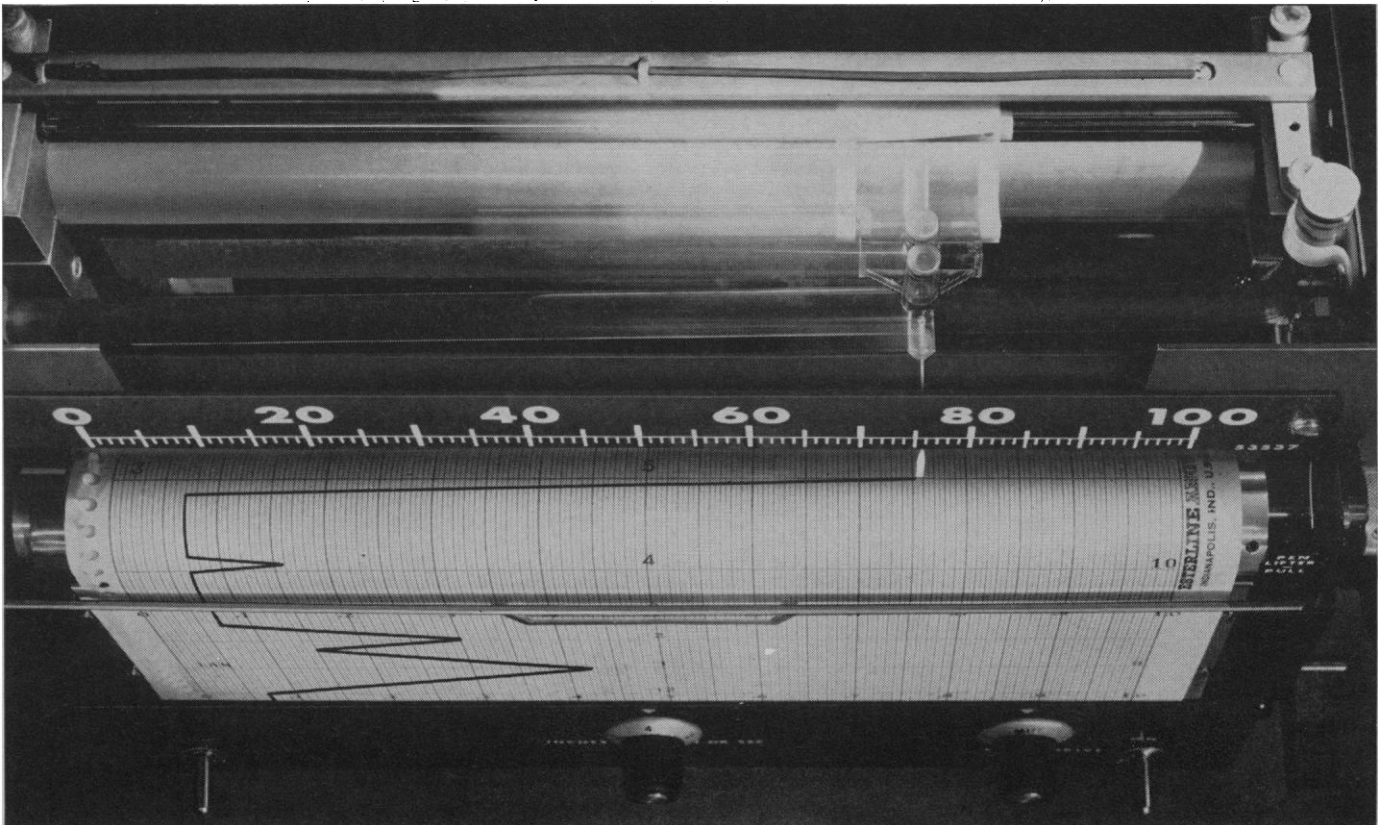
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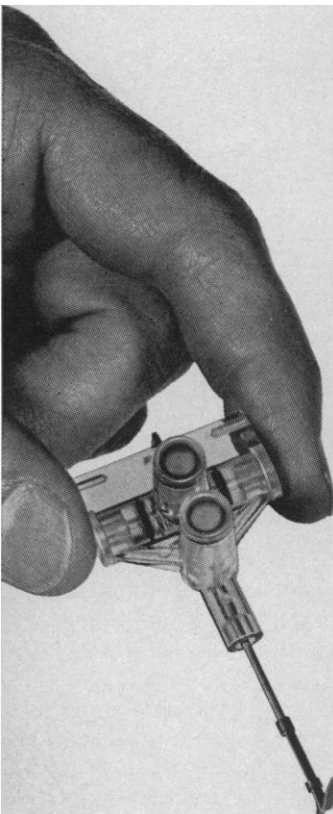
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Toward Cleaner Streams

Until recently, many of our rivers were deteriorating. Some had already become open sewers for municipal and industrial wastes. The long process of restoring the cleanliness of streams has now begun. In spite of the increasing urban population, the amount of organic matter discharged by municipalities into streams is actually diminishing. Moreover, new legislation skillfully sponsored by Senator Muskie of Maine unanimously passed both houses of Congress and has been signed into law. One of its terms is that matching funds be provided to help municipalities improve their sewage treatment. Thus, an accelerating program of waste management is in prospect.

Two types of sewage treatment are now used. The primary treatment removes sludge, skimmings, and the larger suspended solids. Secondary treatment involves such processes as the use of oxidation ponds, trickling filters, and activated sludge to destroy organic matter. Efficiently operated primary-secondary plants remove about 90 percent of the organic matter, giving rise to a biochemical oxygen demand. They simultaneously remove about 90 percent of the bacteria and 50 percent of the fixed nitrogen. Weinberger, Stephan, and Middleton* have discussed new methods of treating wastes and have provided data on the average composition of the better municipal secondary effluents. In parts per million, some values are as follows: gross organics, 55; biodegradable organics, 25; Na^+ , 135; NH_4^+ , 20; NO_3^- , 15; PO_4^{3-} , 25; Cl^- , 130; HCO_3^- , 300; SO_4^{2-} , 100; and total dissolved solids, 730. About half the amount of solids is present in the water supply; the other half is added during use.

The Federal Water Pollution Control Administration is seeking better means to renovate water. This agency has been sponsoring research and pilot-plant operation to explore methods and to determine feasibility and costs. Most suspended and colloidal solids and phosphates can be removed from a good-quality secondary effluent by use of a coagulant such as alum. This treatment reduces the biological oxygen demand about tenfold and reduces phosphate to 1 to 2 parts per million. The cost, for a large installation, is estimated at \$0.05 per 1000 gallons, exclusive of the cost of sludge disposal. After the colloidal and suspended solids have been removed, further purification can be effected with activated carbon. Such carbon, when used in counter-current-flow, fixed-bed contractors, will absorb 20 to 30 percent of its own weight in mixed organics. In a series of tests it was found that more than 98 percent of total organic matter was removed. Costs for treatment on the 100-million-gallons-per-day scale were estimated at \$0.06 per 1000 gallons. Except for dissolved salts, these two treatments would restore effluent water to a chemical quality comparable to its quality before use.

By means of electrodialysis it would be feasible to cut the salt concentration in half. However, NH_4^+ presents a special difficulty. Only a few parts of NH_4^+ per million can be tolerated in a municipal water supply. Weinberger, Stephan, and Middleton suggest that this problem can be circumvented by operating secondary biological treatment plants under nitrifying conditions, so that NH_4^+ is converted to NO_3^- .

Progress is being made by municipalities in cleaning up their effluents, and further progress is likely. However, industry discards as much organic material into U.S. streams as the cities do. A recent Harris survey reports that public opinion has become aroused against pollution and that the public believes industry is the principal offender. Thus, industry will experience increasing pressure to reduce its contribution to pollution. Many years will pass before some streams are clean, but at last trends are in the right direction.—PHILIP H. ABELSON

* Leon W. Weinberger, David G. Stephan, and Francis M. Middleton, "Solving our water problems—water renovation and re-use," *Ann. N.Y. Acad. Sci.* 136, 131 (1966).

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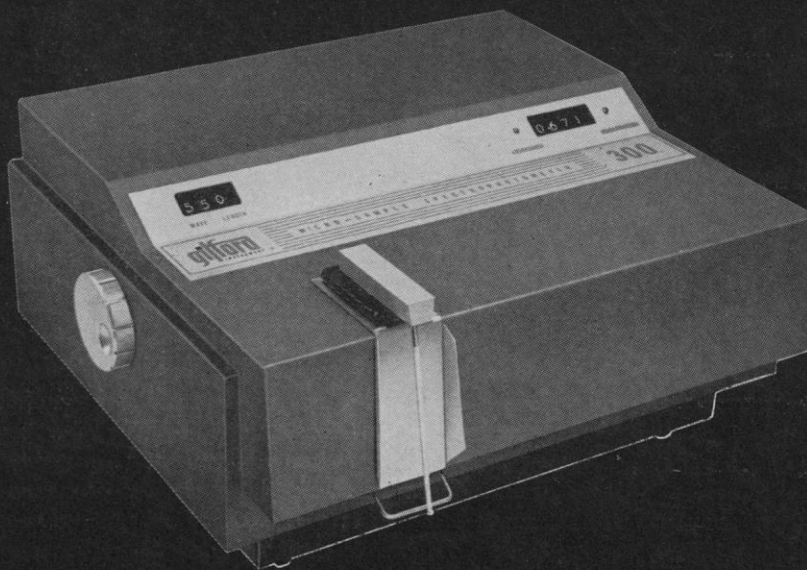
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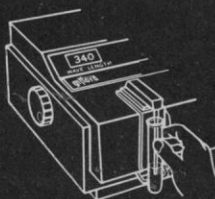
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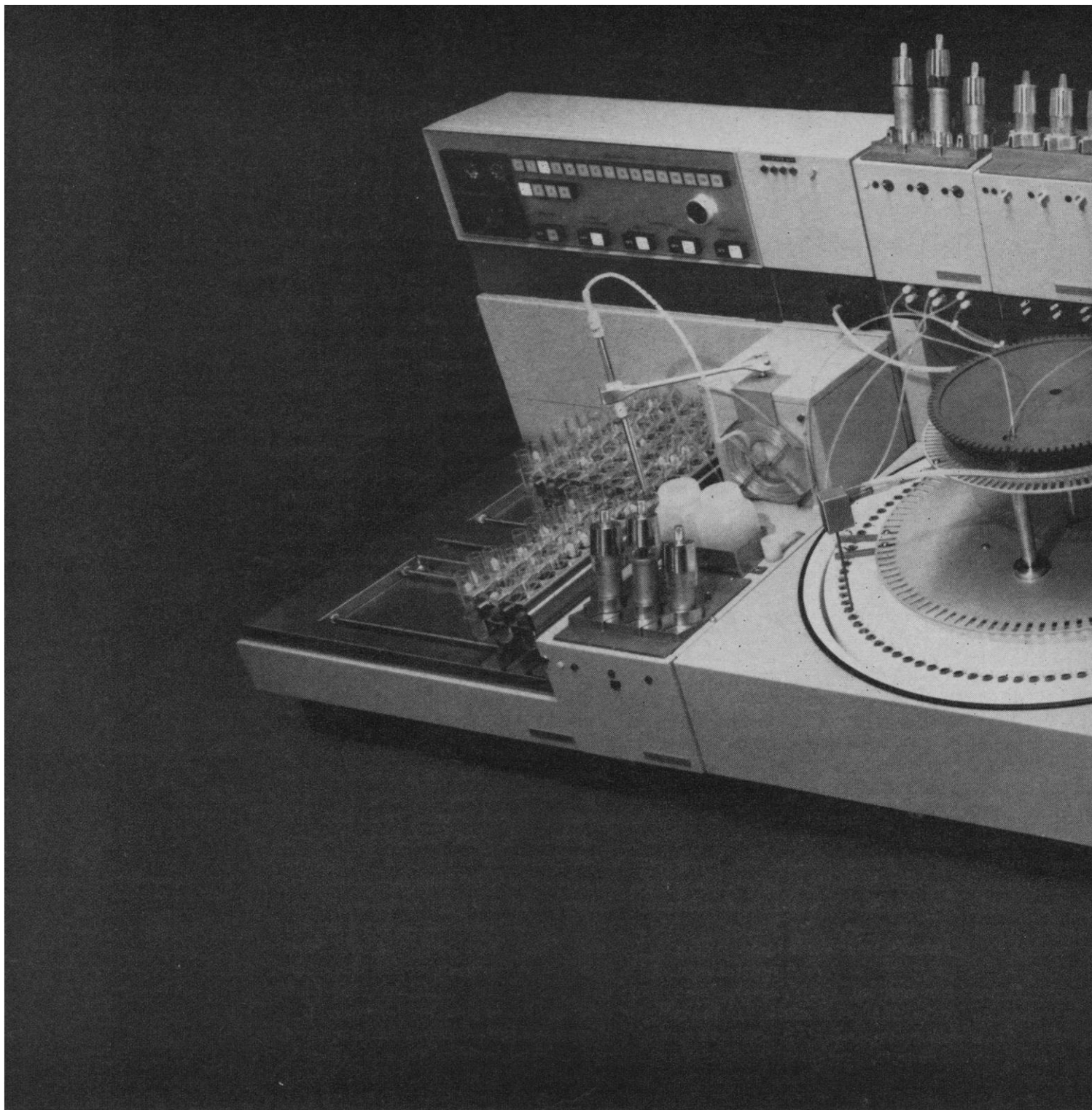
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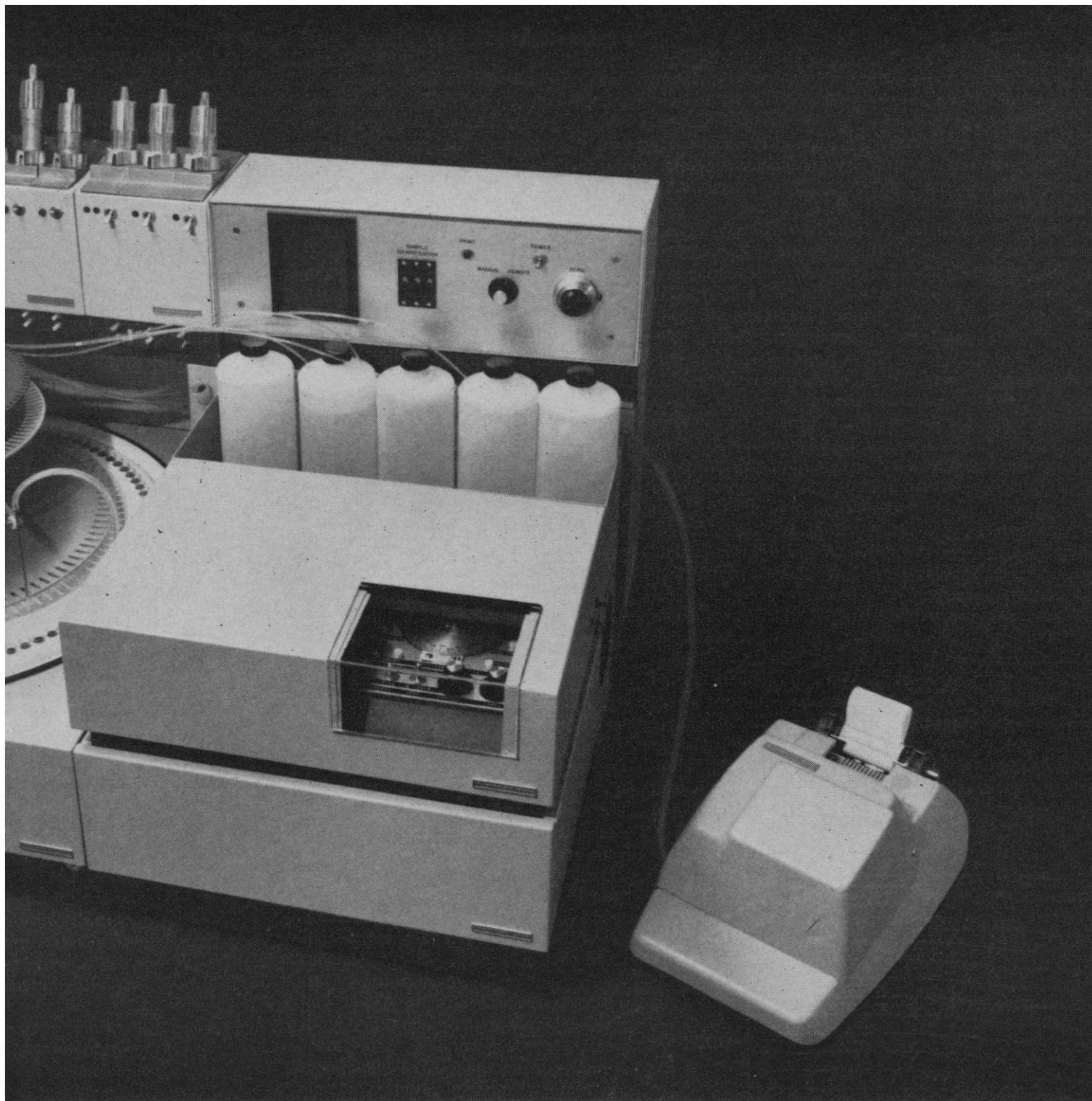


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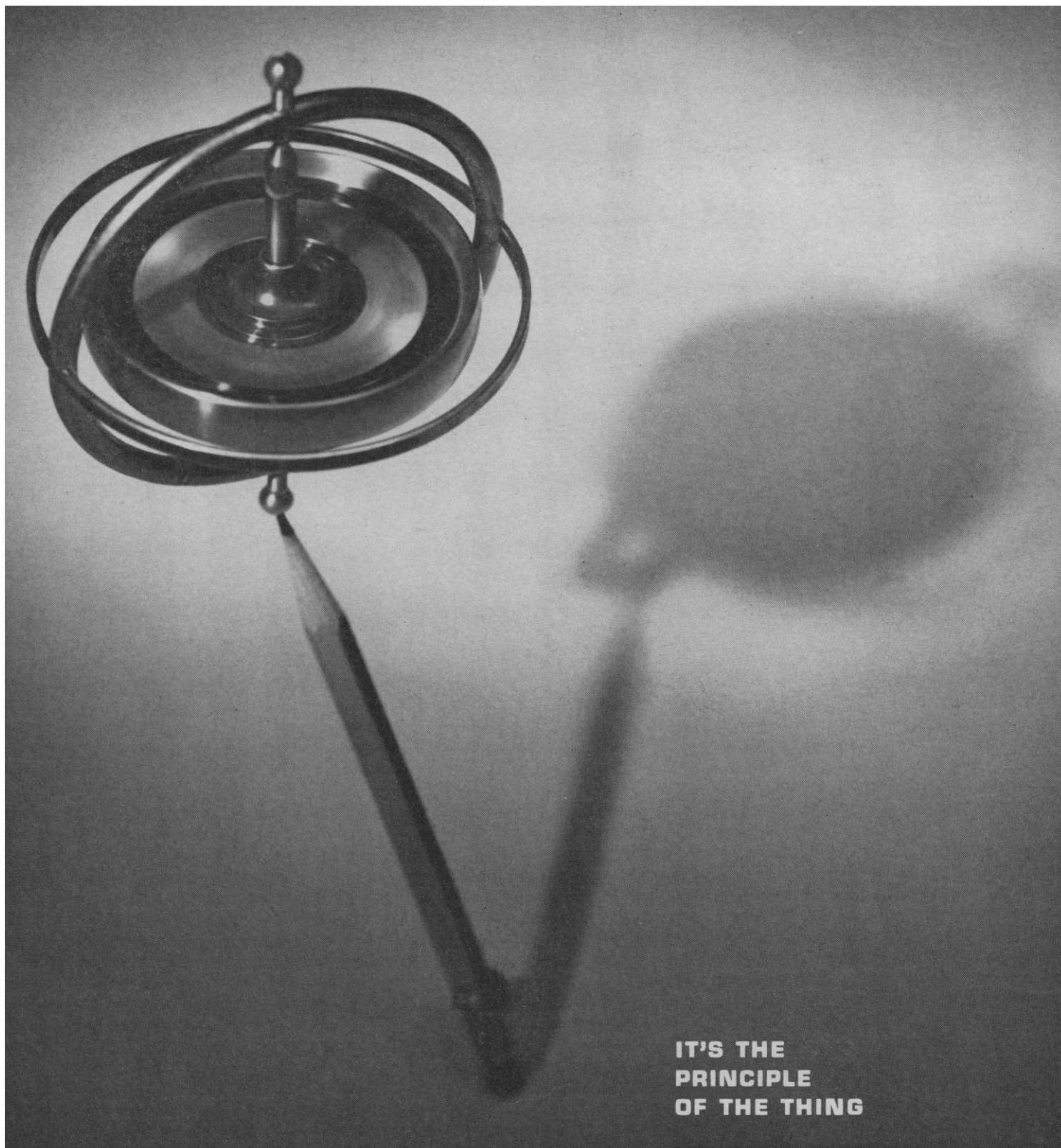
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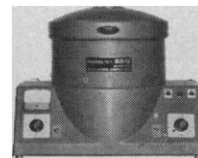
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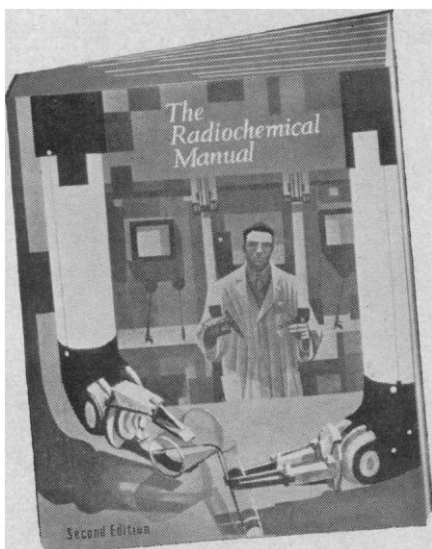


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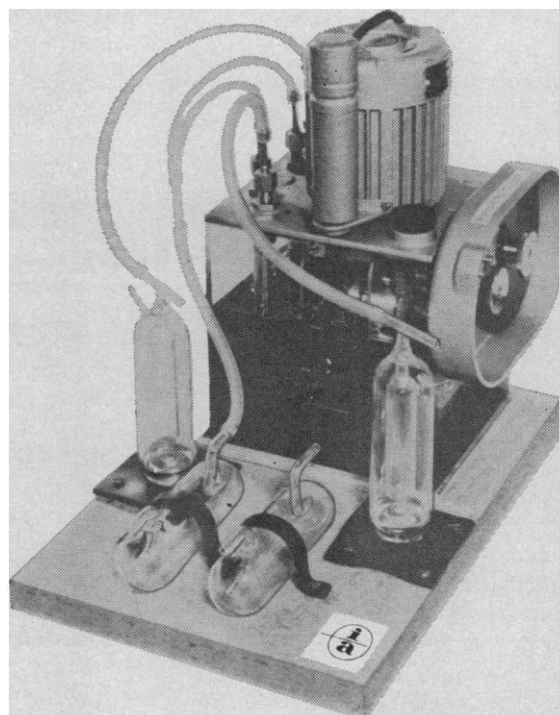
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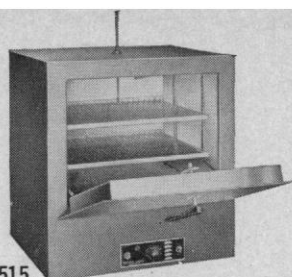
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This was not, however, the only reason for their action on the immune response. R. S. Schwartz (Boston) thought it was more likely that these drugs inhibit the antigen-induced differentiation of immunologically competent cells into antibody-forming cells. This fitted with the finding of J. Sterzl (Prague) that inhibitors of DNA synthesis fail to inhibit the immune response despite their inhibition of cell division.

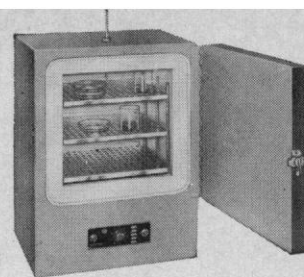
Sterzl reported on the action of the immunosuppressive drug 6-mercaptopurine (6-MP) in detail. The primary immune response is inhibited by 6-MP; so is the secondary response, but only if administration of 6-MP is continued. Schwartz showed that if the injection of 6-MP is carefully timed in relation to injection of the antigen, then specific deletion of reactivity to this (but not to unrelated) antigens is possible. One unexpected new finding was that administration of 6-MP is occasionally followed by marked hyperplasia of lymphoid cells and increased, rather than decreased, immunological reactivity.

Discussion of subjects bearing on the host immune reaction against cellular cancer antigens was begun by W. Boyle (Durham), who reported work on concentration of the antigenic activity of cell surface membranes by density gradient centrifugation. R. T. Prehn (Philadelphia) examined the evidence for a host reaction against chemically induced sarcomas, and posed thought-provoking questions as to the basic mechanism of the neoplastic change. He concluded that there was no direct relation between the nature of chemical or physical carcinogens and the antigenicity of the resulting tumor. He thought that all tumors may possess tumor-specific antigens, and had found that most carcinogens depress the immune response. He concluded that immunity does play a role in the natural history of tumors. M. Schlesinger (Jerusalem) reviewed experimental evidence that the physiological development and differentiation of an organ is paralleled by the development of isoantigens.

Following discussion of the action of complement by H. J. Müller-Eberhard (La Jolla), and of the antigenicity of synthetic polymers of amino acids in a paper read for P. H. Maurer (Philadelphia), the final paper, on organ transplantation, was given by T. Starzl (Denver). In common with Medawar and Russell, Starzl found het-



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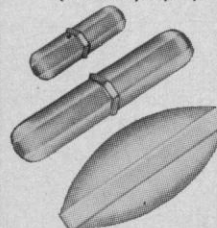
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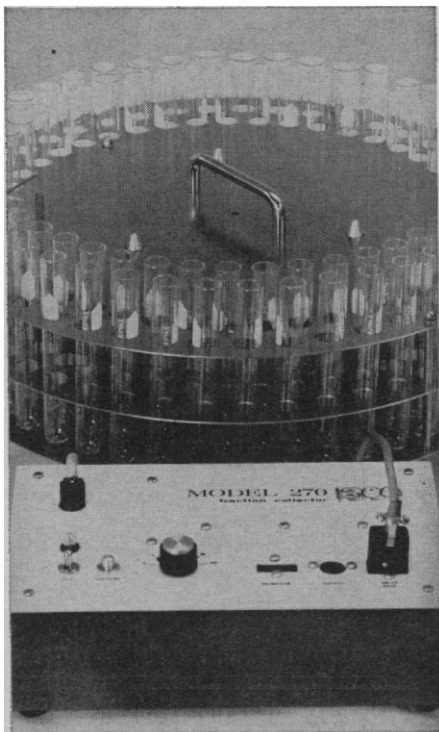
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ARNOLD E. REIF

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Argonne National Laboratory: Educational Workshops

During the academic year 1965-66 faculty members representing 120 colleges and universities from 16 midwestern states participated in 70 two-day workshops or brought students to perform experiments at the instructional facilities of Argonne National Laboratory (ANL). Summer institutes and audio aids for on-campus use supplement these programs.

In 1955 as part of President Eisenhower's "Atoms for Peace" program, the Atomic Energy Commission established the School for Nuclear Science and Engineering at Argonne, Illinois. By 1963 this program had served its purpose of training nuclear engineering students from abroad. Some of the colleges in the Chicago area then requested the use of its facilities for supplementing their science and mathematics programs. The Office of College and University Cooperation set up shortly afterwards at Argonne directs the use of the instructional laboratories. Nineteen liberal arts colleges within commuting distance formed the Associated Colleges of the Chicago Area (ACCA) and for the past 3 years have worked with this office in planning faculty workshops and student experiments to meet the needs of their various departments. Students from these colleges accompanied by their professors spend half-days weekly or bi-weekly performing experiments in the ANL instructional laboratories.

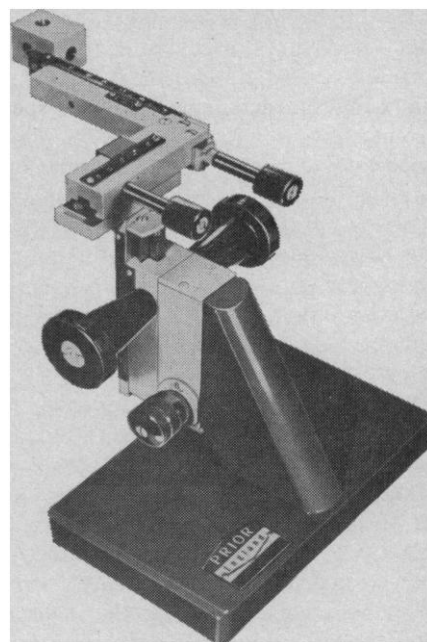
Since these programs are open to all colleges and universities in the Midwest, over 70 institutions participated in the faculty workshops. Forty-five colleges from greater distances brought students for two or more days of experimental work. Last spring a Nuclear



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Chemistry Users Committee (NCUC) representing schools outside the ACCA group was organized to evaluate their educational experiences at ANL and to explore further use of its facilities to implement their programs. User groups are also developing in biology, mathematics, and physics.

The workshops cover nuclear science and recent developments in related areas. They are designed to update the theoretical background of faculty members and acquaint them with the use of newer instruments and their applications to the various fields of instruction. The equipment, much of which is of research caliber, includes nuclear reactors, a 21-foot grating emission spectrograph, an A-60 NMR, an x-ray diffractometer, a mass spectrometer, both infrared and ultraviolet spectrophotometers, gas chromatographs, and a CDC 8090 computer. There is also a radiobiological laboratory for studying the effects of radiation on living matter. Workshops are presented each semester in the areas of radioisotopes, radiation biology, spectroscopy, modern and neutron physics, computers, and electronics. Topics are treated on introductory and advanced levels.

The number of participants in any given workshop is generally limited to eight with reservations made on a first-come, first-served basis. Small groups promote close contact with the Argonne staff member and ready access to the instruments. During the past year some 300 faculty members availed themselves of the opportunities afforded by these workshops. The program is supported by the Atomic Energy Commission's Division of Nuclear Education and Training; the National Science Foundation has provided some support to help defray travel and lodging expenses for those coming from a distance.

Faculty members are invited to bring their students of junior and senior standing to ANL to perform experiments as part of their regular course work or to supplement it. An Argonne staff member and a technician are on hand for consultation and help as desired by the college instructor. Again small groups are more practical.

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computers. If desired, a tour of the research divisions can be arranged during the students' visit to acquaint them with applications of the basic knowledge and skills they are acquiring.

This past summer there were two AEC-NSF institutes for college faculty in radiobiology and nuclear-physical chemistry. A similar institute in radiobiology has been submitted for next summer.

At the spring meeting of NCUC it was suggested that several 1-week short courses held early in June and in August to permit teaching of summer classes would be more practical for participants coming from considerable distances than several weekend trips during the year. Some of the topics suggested for consideration were nuclear magnetic resonance, symmetry and group theory, and computer applications to chemistry problems.

At the request of the Biology Committee of ACCA, radiobiological seminars have been prepared on tapes by members of Argonne's Division of Biological and Medical Research. Accompanying the tapes are student brochures with illustrations from the lecturers' slides, background information, and reference material. These tapes may be kept in the college library. To date 60 colleges and universities located throughout the country have used the radiobiological seminars.

Also available are eight tapes with brochures entitled, "Introduction to Fortran Programming of Digital Computers." Thirty colleges have used these tapes to assist them in computing courses. "Introduction to Analog Computing" is presented in 3 films each running 45 minutes. These are loaned gratis to colleges.

It is hoped that this summary of educational opportunities at Argonne National Laboratory has conveyed the scope and flexibility of the programs and will interest more educators to look into them as cocurricular training for their students as well as a means of keeping abreast with new developments in their particular fields. If the best advertisement is a satisfied customer, Argonne's instructional laboratories are in business.

For further information write to J. E. Baird, Office of College and University Cooperation, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, Illinois 60440.

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Forthcoming Events

January

9-10. **Industrial Research**, 2nd natl. conf., Purdue Univ., West Lafayette, Ind. (W. E. Spaulding, Krannert Graduate School of Industrial Administration, Purdue Univ., West Lafayette)

9-11. **Electrical and Electronic Measurement and Test Instruments**, conf., Ottawa, Ontario, Canada. ("EEMTIC '67," Box 6015, Postal Station J, Ottawa 13)

9-14. **American Library Assoc.**, mtg., New Orleans, La. (D. H. Clift, The Association, 50 E. Huron St., Chicago, Ill. 66011)

9-18. **Spectroscopy**, intern. conf., Bombay, India. (Organizing Committee, Spectroscopy Div., Atomic Energy Establishment, 414 A Cadell Rd., Bombay 28)

10-12. **Reliability**, annual symp., Inst. of Electrical and Electronics Engineers, Washington, D.C. (IEEE, 345 E. 47 St., New York 10017)

10-13. **Physics of Quiescent Plasmas**, conf., Rome, Italy. (Quiescent Plasmas, Laboratorio Gas Ionizzati, EURATOM-C.N.E.N., C. P. 65, Frascati, Rome, Italy)

11-13. **Surface Chemistry**, 3rd Scandinavian symp., Fredensborg, Denmark. (Nordforsk, Ørnevej 30, Copenhagen NV)

12-14. **Evaluation of Agents Used in Prevention of Oral Diseases**, conf., New York Acad. of Sciences, New York. (J. Hein, Forsythe Dental Center, 140 Fenway, Boston, Mass. 02215)

13-14. **Orthopaedic Research Soc.**, mtg., San Francisco, Calif. (R. A. Calandruccio, 869 Madison Ave., Memphis, Tenn.)

13-14. **American Soc. for Surgery of the Hand**, San Francisco, Calif. (R. M. Curtis, 2947 St. Paul St., Baltimore, Md.)

14-19. **American Acad. of Orthopedic Surgeons**, San Francisco, Calif. (J. K. Hart, 29 E. Madison St., Chicago, Ill.)

16-18. **Compressed Gas Assoc.**, annual mtg., New York, N.Y. (The Association, 500 Fifth Ave., New York 10036)

16-20. **Australian and New Zealand Assoc. for the Advancement of Science**, 39th congr., Melbourne, Australia. (W. W. Fee, The Association, Dept. of Chemistry, Univ. of Melbourne, Parkville, N.2, Australia)

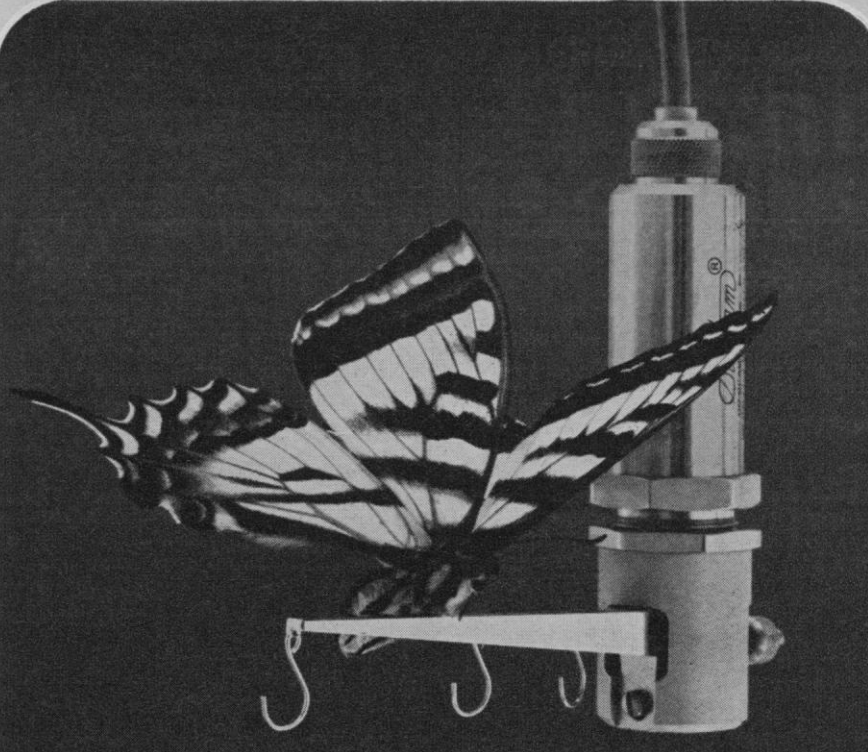
16-20. **Highway Research Board**, NAS-NRC, 46th annual mtg., Washington, D.C. (E. W. Harris, 2101 Constitution Ave., NW, Washington, D.C. 20418)

16-21. **Atomic, Molecular, and Solid State Physics**, symp., Gainesville, Fla. (P. O. Löwdin, Quantum Theory Project, Nuclear Sciences Bldg., Univ. of Florida, Gainesville 32601)

16-21. **Recent Advances in Tropical Ecology**, symp., Varanasi, India. (R. Misra, Intern. Soc. for Tropical Ecology, Dept. of Botany, Banaras Hindu Univ., Varanasi 5)

16-27. **Low Energy Nuclear Physics**, intern. seminar, Dacca, Pakistan. (A. M. Harunar Rashid, Atomic Energy Center, P.O.B. 164 RAMNA, Dacca)

16-31. **Ocean Science**, 5th Pan Indian congr., Bangkok, Thailand. (P. Cheosakul, Natl. Research Council, Bangkok, Bangkok)



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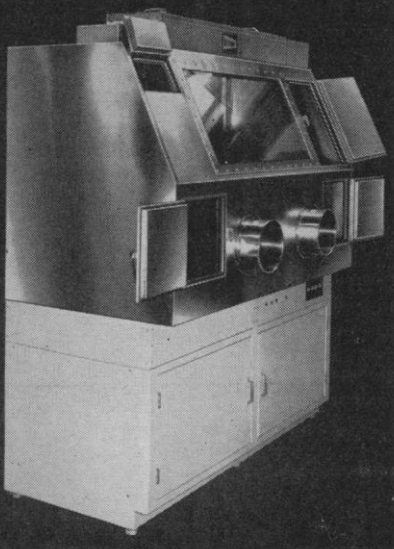
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17-18. **Engineering Socs. and Their Literature Programs**, symp., Engineers Joint Council, New York. (EJC, 345 E. 47 St., New York 10017)

17-18. **Simulation in Medicine and Biology**, symp., Central and Midwestern States Simulation Council, Mayo Clinic, Rochester, Minn. (J. B. Bassingthwaite, Dept. of Physiology, Mayo Clinic, Rochester 55902)

18-20. **Oil and Water**, symp., Brighton, England. (Inst. of Petroleum, 61 New Cavendish St., London W.1)

18-21. **Conformation of Biopolymers**, intern. symp., Madras, India. (C. Ramakrishnan, Centre of Advanced Study in Biophysics, Univ. of Madras, A.C. College Bldgs., Madras 25)

18-22. **Parasitology**, 1st Latin American congr., Santiago, Chile. (R. Doncaster, Dept. of Parasitology, Univ. of Chile, Santiago)

20-21. **Blood**, 15th symp., Wayne State Univ., Detroit, Mich. (W. H. Seegers, Dept. of Physiology, Wayne State Univ. School of Medicine, Detroit 48207)

20-2. **International College of Surgeons**, 3rd Caribbean surgical congr. and cruise. (S. E. Henwood, 1516 Lake Shore Dr., Chicago, Ill. 60610)

22-3. **Electron Microscopy**, workshop, Northeastern Univ., Boston, Mass. (M. D. Maser, Millard Fillmore Hospital, 3 Gates Circle, Buffalo, N.Y. 14209)

23-24. **Avionics**, symp., Montreal, Canada. (Secretary, Canadian Aeronautics and Space Inst., 77 Metcalfe St., Ottawa, Ont.)

23-24. **Coupled Reactor Kinetics**, natl. mtg., Texas A&M Univ., College Station. (C. G. Chezem, Dept. of Nuclear Engineering, Texas A&M Univ., College Station 77843)

23-25. **Aerospace Science**, 5th mtg., American Inst. of Aeronautics and Astronautics, New York, N.Y. (Manager of Public Information, AIAA, 1290 Sixth Ave., New York 10019)

23-25. **Society of Thoracic Surgeons**, mtg., Kansas City, Mo. (F. X. Byron, The Society, City of Hope Medical Center, 1500 E. Duarte Rd., Duarte, Calif. 91010)

23-27. **Relativistic Astrophysics**, symp., New York, N.Y. (A. G. W. Cameron, Belfer Graduate School of Science, Yeshiva Univ., New York 10033)

24-27. **Comparative Pharmacology**, intern. symp., Natl. Inst. of Health, Bethesda, Md. (G. J. Cosmides, Room 5B29, Bldg. 31, NIH, Bethesda 20014)

25-27. **American Crystallographic Assoc.**, mtg., Georgia Inst. of Technology, Atlanta. (W. L. Kehl, Gulf Research and Development Co., P.O. Drawer 2038, Pittsburgh, Pa. 15230)

25-27. **American Mathematical Soc.**, 73rd annual mtg., Houston, Tex. (The Society, P.O. Box 6248, Providence, R.I. 02904)

25-28. **American Group Psychotherapy Assoc.**, New York, N.Y. (Mrs. M. Schiff, 1790 Broadway, New York 10019)

26-28. **Mathematical Assoc. of America**, 50th annual mtg., Houston, Tex. (H. L. Alder, Univ. of California, Davis)

28-30. **Radiology**, southern conf., Point Clear, Ala. (M. Eskridge, P.O. Box 4097, Mobile, Ala.)

28-1. **American Acad. of Allergy**, Phoenix, Ariz. (J. O. Kelley, 756 North

Milwaukee St., Milwaukee, Wis. 53202)

29. **Mössbauer Effect Methodology**, 3rd annual symp., New York, N.Y. (P. A. McNulty, New England Nuclear Corp., 575 Albany St., Boston, Mass. 02118)

29-3. **Power**, mtg., Power Group, Inst. of Electrical and Electronics Engineers, New York, N.Y. (E. C. Day, IEEE, 345 E. 47 St., New York 10017)

30. **American Soc. of Heating, Refrigerating, and Air Conditioning Engineers**, semi-annual mtg., Detroit, Mich. (Miss J. I. Szabo, 345 E. 47 St., New York 10017)

30-1. **Personnel Radiation Dosimetry**, symp., Chicago, Ill. (J. H. Pingel, Argonne Natl. Laboratory, Bldg. 301, 9700 S. Cass Ave., Argonne, Ill. 60439)

30-2. **American Physical Soc.**, annual mtg., New York, N.Y. (The Society, Executive Secretary, Columbia Univ., New York 10027)

30-2. **American Assoc. of Physics Teachers**, New York, N.Y. (A. B. Arons, Physics Dept., Amherst College, Amherst, Mass.)

30-3. **Zodiacal Light and the Interplanetary Medium**, intern. symp., Honolulu, Hawaii. (F. E. Roach, Aeronomy Lab., Inst. for Telecommunication Sciences and Aeronomy, Environmental Science Services Administration, Boulder, Colo. 80302)

31-2. **Ciba Foundation symp. on Cell Differentiation**, London, England. (Ciba, 41 Portland Pl., London W.1)

31-3. **Reinforced Plastics**, 22nd conf., Soc. of the Plastics Industry, Washington, D.C. (The Society, 250 Park Ave., New York 10017)

31-4. **American College of Radiology**, mtg., Los Angeles, Calif. (American College of Radiology, 20 N. Wacker Dr., Chicago, Ill.)

February

1-3. **Southwestern Federation of Geological Soc.**, Hobbs, N.M. (American Assoc. of Petroleum Geologists, P.O. Box 979, Tulsa, Okla. 74101)

1-3. **Neural Regulation of Food and Water Intake**, conf., New York, N.Y. (P. J. Morgane, Communication Research Inst., 3430 Main Highway, Miami, Fla. 33133)

4-11. **Pan American Medical Women's Alliance**, 10th congr., Lima, Peru. (R. Quiroz B., Los Castanos 395, San Isidro, Lima)

5-6. **American Soc. for Testing and Materials**, natl. symp., Toronto, Ont., Canada. (ASTM, 1916 Race St., Philadelphia, Pa.)

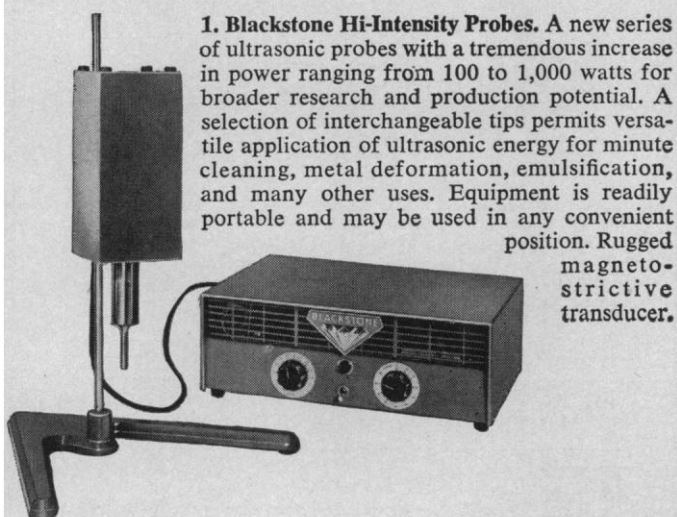
5-10. **American Soc. for Testing and Materials**, winter mtg., Detroit, Mich. (ASTM, 1916 Race St., Philadelphia, Pa.)

6-7. **American Chemical Soc.**, 2nd Mid-Atlantic mtg., New York, N.Y. (S. M. Gerber, Ciba Co., Fairlawn, N.J. 07410)

6-8. **Flight Test, Simulation, and Support**, conf., Cocoa Beach, Fla. (Meetings Manager, American Inst. of Aeronautics and Astronautics, 1290 Sixth Ave., New York 10019)

6-8. **Society of Rheology**, winter mtg., Santa Barbara, Calif. (M. C. Shen, North American Aviation Science Center, 1049

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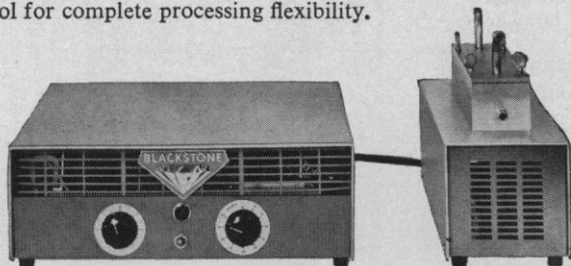


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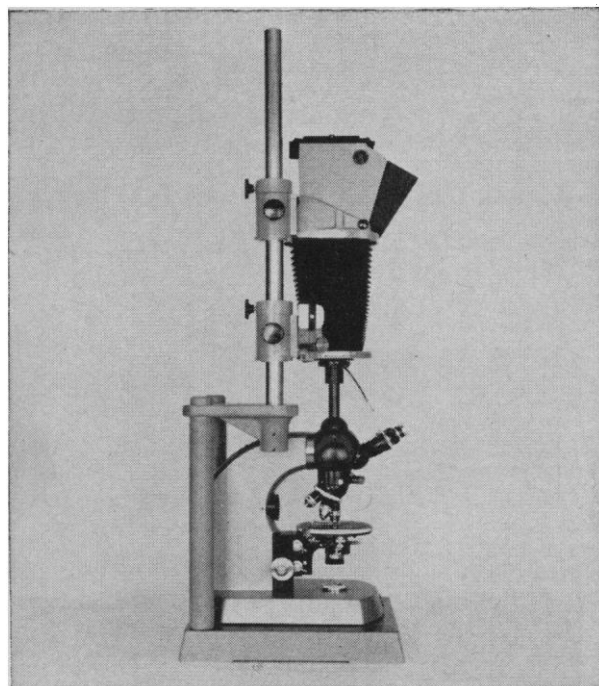
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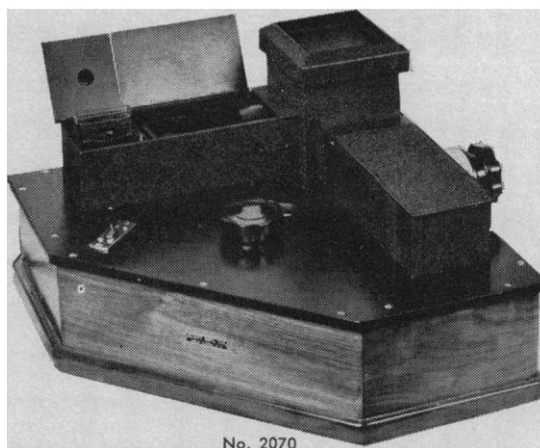
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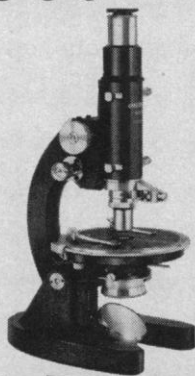
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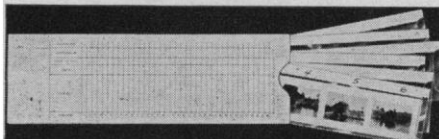
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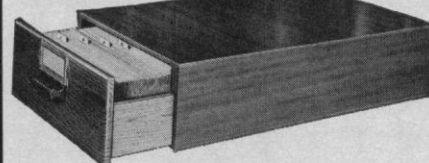
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7-8. **Sanitary Engineering**, 9th conf., Urbana, Ill. (J. H. Austin, 203 Engineering Hall, Univ. of Illinois, Urbana 61801)

7-9. **Institute of Electrical and Electronic Engineers**, winter conv., Los Angeles, Calif. (Office of Technical Activities Board, 345 E. 47 St., New York 10017)

8-10. **Canadian Inst. of Surveying**, annual mtg., Ottawa, Ont. (Secretary, 157 McLeod St., Ottawa)

13-17. **Australia-New Zealand Conf. Soil Mechanics and Engineering**, 5th mtg., Auckland, New Zealand. (P. W. Taylor, Conf. Secretary, P.O. Box 6422, Auckland)

14-19. **Triplet State**, symp., American Univ. of Beirut, Beirut, Lebanon. (A. B. Zahlan, American Univ. of Beirut)

15-16. **Electron Probe Microanalysis**, conf., London, England. (Institute of Physics and the Physical Soc., 47 Belgrave Sq., London, S.W.1)

15-17. **Solid-State Circuits**, intern. conf., Philadelphia, Pa. (V. I. Johannes, Room 3E-323, Bell Telephone Labs., Holmdel, N.J. 07733)

15-24. **Scientific and Technical Films**, 4th intern. festival, Brussels, Belgium. (Centre Universitaire du Film Scientifique, 50 Ave. F. D. Roosevelt, Brussels 5)

16-18. **American Educational Research Assoc.**, New York, N.Y. (L. Walters, 1201 16 St., NW, Washington, D.C. 20036)

17-18. **Thyroid**, 3rd Midwest conf., Columbia, Mo. (Executive Director, Continuing Medical Education, M-176 Medical Center, Univ. of Missouri, Columbia 65201)

18-22. **American Acad. of Allergy**, 23rd annual mtg., Palm Springs, Calif. (Executive Secretary, 756 N. Milwaukee St., Milwaukee, Wis. 53202)

19-23. **American Inst. of Mining, Metallurgical and Petroleum Engineers**, annual mtg., Los Angeles, Calif. (Executive Secretary, 345 E. 47 St., New York 10017)

19-25. **Biochemistry**, Chemical Inst. of Canada, conf., Ste. Marguerite, P. Q. (General Manager, 48 Rideau St., Ottawa 2, Ont.)

20-25. **American Acad. of Forensic Sciences**, mtg., Honolulu, Hawaii. (S. R. Gerber, 2153 Adelbert Rd., Cleveland, Ohio 44106)

21-24. **Offshore Exploration**, conf., Long Beach, Calif. (M. Richardson, Box 88, 2516 Via Tejon, Palos Verdes Estates, Calif. 90274)

22-24. **Biochemical Soc.**, 11th annual mtg., Houston, Tex. (A. Cole, M.D., Anderson Hospital, Univ. of Texas, Houston 77025)

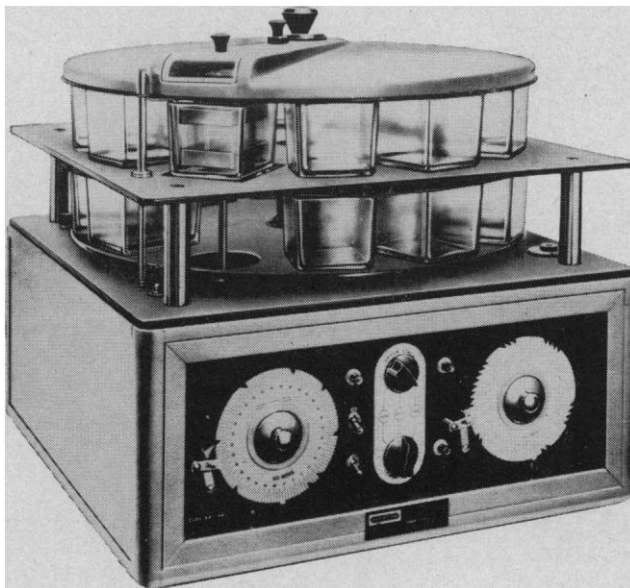
23-25. **American Physical Soc.**, mtg., Austin, Tex. (K. K. Darrow, American Physical Soc., Columbia Univ., New York 10027)

26. **Psychoanalysis**, 5th annual conf., New York, N.Y. (D. M. Kaplan, 175 W. 12 St., New York 10011)

26-2. **International Anesthesia Research Soc.**, 41st congr., Bal Harbour, Fla. (Executive Secretary, 227 Wade Park Manor, Cleveland, Ohio 44106)

27. **Thermoanalysis**, Chemical Inst. of Canada, symp., Toronto, Ont. (H. G. McAdie, Ontario Research Foundation, Toronto, Ont.)

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Calculus and Analytic Geometry. Jack R. Britton, R. Ben Krieger, and Leon W. Rutland. Freeman, San Francisco, 1966. 1083 pp. Illus. \$12.50.

The Cause of Behavior II: Readings in Child Development and Educational Psychology. Judy F. Rosenblith and Wesley Allinsmith, Eds. Allyn and Bacon, Boston, ed. 2, 1966. 624 pp. Illus. Paper, \$6.50.

Central Asians under Russian Rule: A Study in Culture Change. Elizabeth E. Bacon. Cornell Univ. Press, Ithaca, N.Y., 1966. 291 pp. Illus. \$6.50.

Challenge to Science: The UFO Enigma. Jacques Vallee and Janine Vallee. Regnery, Chicago, 1966. 286 pp. Illus. \$5.95.

Characteristics and Limitations of Transistors. Richard D. Thornton, David DeWitt, Paul E. Gray, and E. R. Chenette. Wiley, New York, 1966. 194 pp. Illus. Paper, \$2.65; cloth, \$4.50. Semiconductor Electronics Education Committee, vol. 4.

Chemical Engineering in Medicine. Edward F. Leonard, Ed. American Inst. of Chemical Engineers, New York, 1966. 157 pp. Illus. Paper. There are 13 papers given at symposia held in 1964 and 1965.

Chemistry of the Earth's Crust. vol. 1. Proceedings of the Geochemical Conference commemorating the centenary of V. I. Vernadskii's birth. Translated from the Russian edition (Moscow, 1963) by N. Kaner. R. Amols, Translation Ed. Israel Program for Scientific Translations, Jerusalem; Davey, New York, 1966. 464 pp. Illus. \$17.75. Twenty-nine papers.

The Chromosome: Structural and Functional Aspects. A symposium (Miami), June 1965. Clyde J. Dawe, Ed. Tissue Culture Assoc., Durham, N.C., 1966. 123 pp. Illus. \$6. Eight papers.

The College Dropout and the Utilization of Talent. Lawrence A. Pervin, Louis E. Reik, and Willard Dalrymple, Eds. Princeton Univ. Press, Princeton, N.J., 1966. 268 pp. Illus. \$6.50. Eleven papers.

The Condensed Chemical Dictionary. Arthur Rose and Elizabeth Rose. Reinhold, New York, ed. 7, 1966. 1066 pp. \$17.50.

Culture and Ethnology. Robert H. Lowie. Basic Books, New York, 1966. 203 pp. Paper, \$2.45; cloth, \$5.95. Classics in Anthropology.

Decision and Control: The Meaning of Operational Research and Management Cybernetics. Stafford Beer. Wiley, New York, 1966. 568 pp. Illus. \$13.50.

Deep Challenge. Harris B. Stewart, Jr. Van Nostrand, Princeton, N.J., 1966. 218 pp. Illus. \$5.95.

Determining Forces in Collective Wage Bargaining. Harold M. Levinson. Wiley, New York, 1966. 295 pp. \$8.95.

Development in Flowering Plants. John G. Torrey. Macmillan, New York, 1966. 192 pp. Illus. Paper, \$1.95. Current Concepts in Biology Series.

The Development of High-Energy Accelerators. M. Stanley Livingston, Ed. Dover, New York, 1966. 331 pp. Illus.

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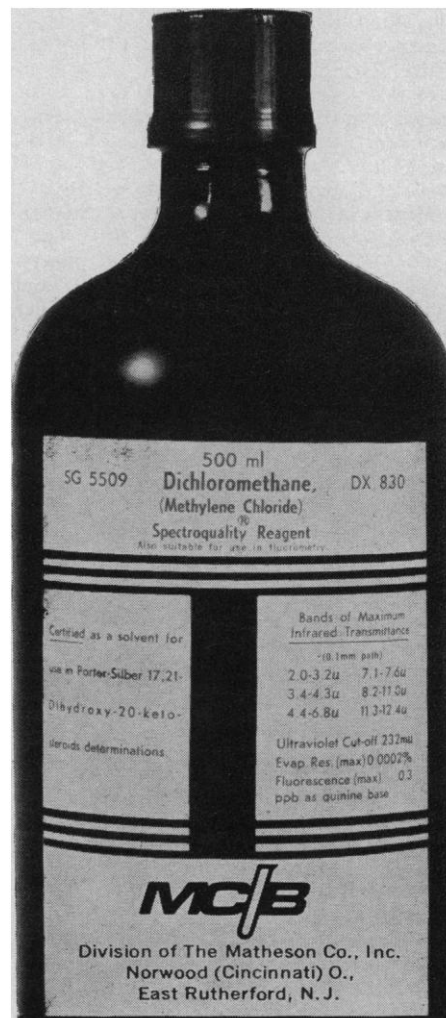
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Directory of the International Association for Plant Physiology. International Assoc. for Plant Physiology, New Haven, Conn., 1966 (available from A. W. Galston, Yale Univ., New Haven, Conn.). 151 pp. Paper, \$1. Contains a list of all members in the Association's 15 constituent national organizations.

Divisiveness and Social Conflict: An Anthropological Approach. Alan R. Beals and Bernard J. Siegel. Stanford Univ. Press, Stanford, Calif., 1966. 199 pp. \$6.

Drug Adulteration: Detection and Control in Nineteenth-Century Britain. Ernst W. Stieb. Univ. of Wisconsin Press, Madison, 1966. 351 pp. Illus. \$7.50.

Economic Behavior of the Affluent. Robin Barlow, Harvey E. Brazier, and James N. Morgan. Brookings Institution, Washington, D.C., 1966. 299 pp. Illus. \$6.75.

Educated American Women: Self-Portraits. Eli Ginzberg and Alice M. Yohalem. Columbia Univ. Press, New York, 1966. 212 pp. \$5.95.

Electrical Machine Theory. Morris Jevons. Elsevier, New York, 1966. 383 pp. Illus. \$15.75.

Electron Microscopy. A handbook for biologists. E. H. Mercer and M. S. C. Birbeck. Davis, Philadelphia, ed. 2, 1966. 112 pp. Illus. \$2.50.

Elementary Practical Organic Chemistry. pt. 2, *Qualitative Organic Analysis*. Arthur I. Vogel. Wiley, New York, ed. 2, 1966. 447 pp. Illus. \$5.75.

Experimental Primary Myopathies and Their Relationship to Human Muscle Diseases (*Ann. N.Y. Acad. Sci.* 138). Edward M. Weyer, Ed. New York Acad. of Sciences, New York, 1966. 366 pp. Illus. Paper, \$10. Twenty-three papers given at a conference in November 1965.

Explorations in Typing Psychotics. Maurice Lorr, Ed. Pergamon, New York, 1966. 249 pp. Illus. \$9.25. Nine papers.

Fluidics. Eugene F. Humphrey and Dave H. Tarumoto, Eds. Fluid Amplifier Associates, Boston, Mass., 1965. 284 pp. Illus. \$28.

Foundations of Immunochemistry. Eugene D. Day. Williams and Wilkins, Baltimore, 1966. 223 pp. Illus. \$8.50.

Foundations of Physical Science. William Ramsey, Clifford R. Phillips, Jr., and Frank M. Watenpaugh. Holt, Rinehart, and Winston, New York, 1966. 410 pp. Illus. \$6.08.

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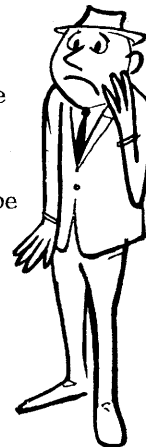
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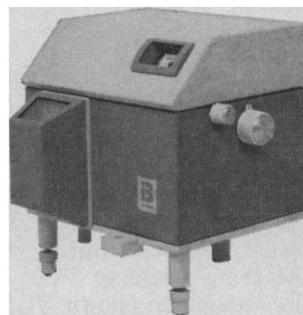
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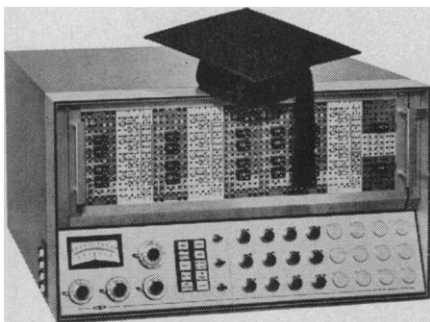
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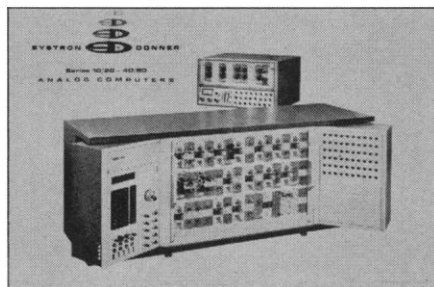


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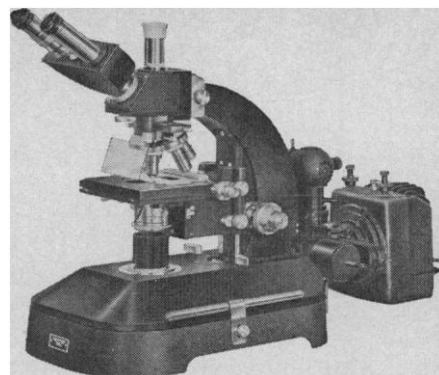
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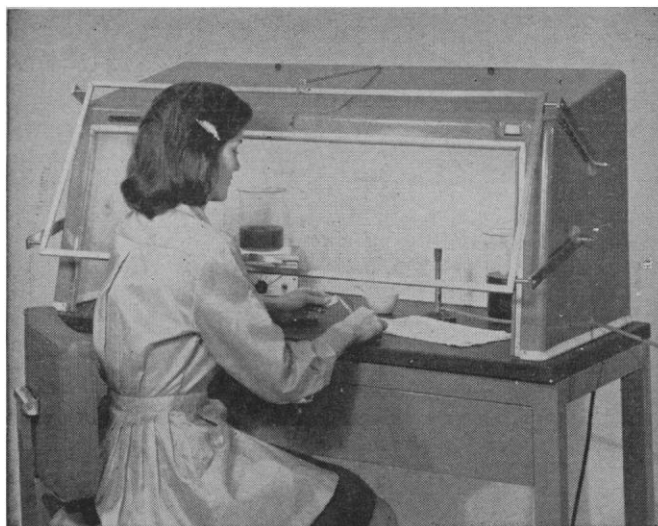
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