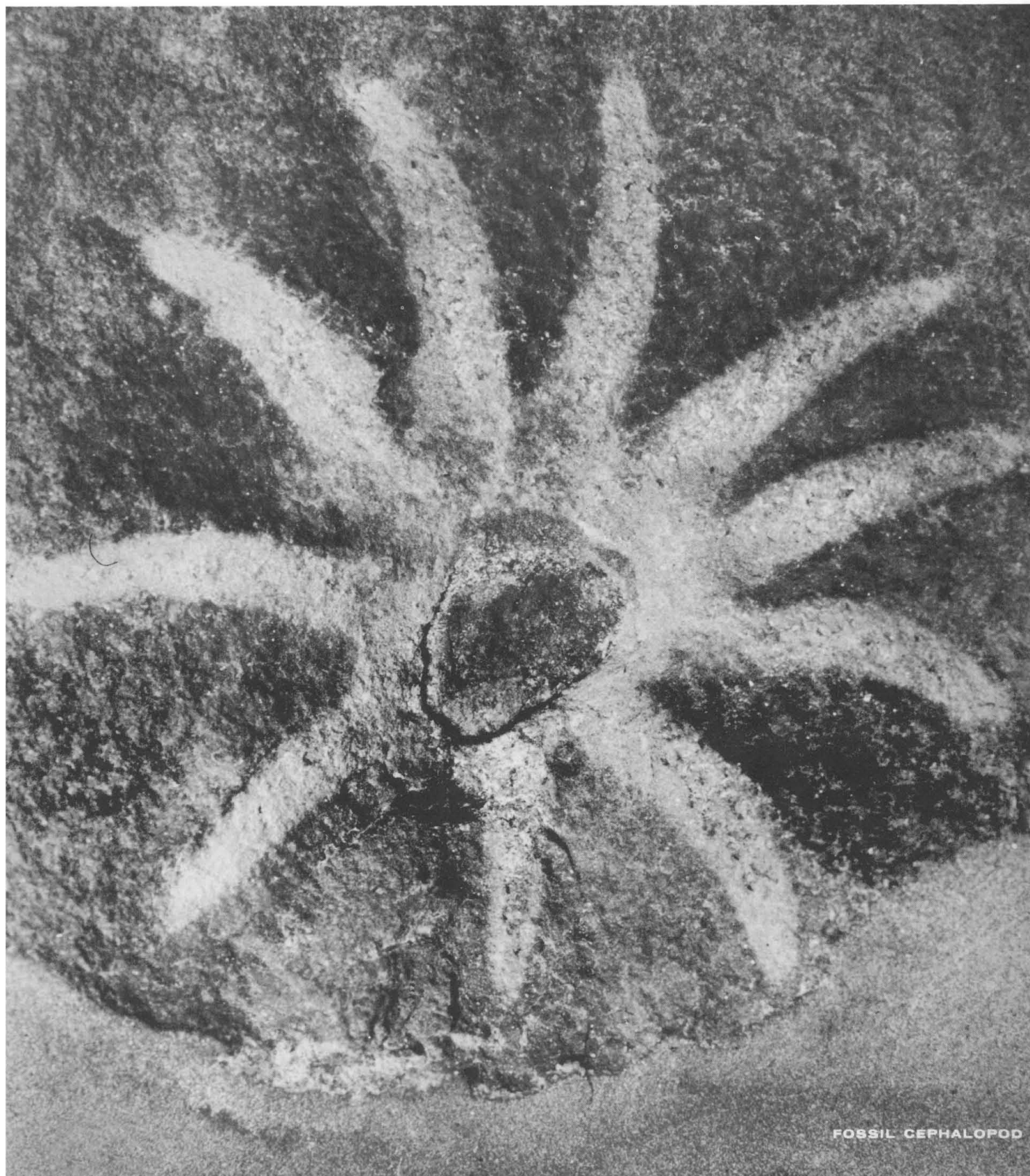


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2 February 1968

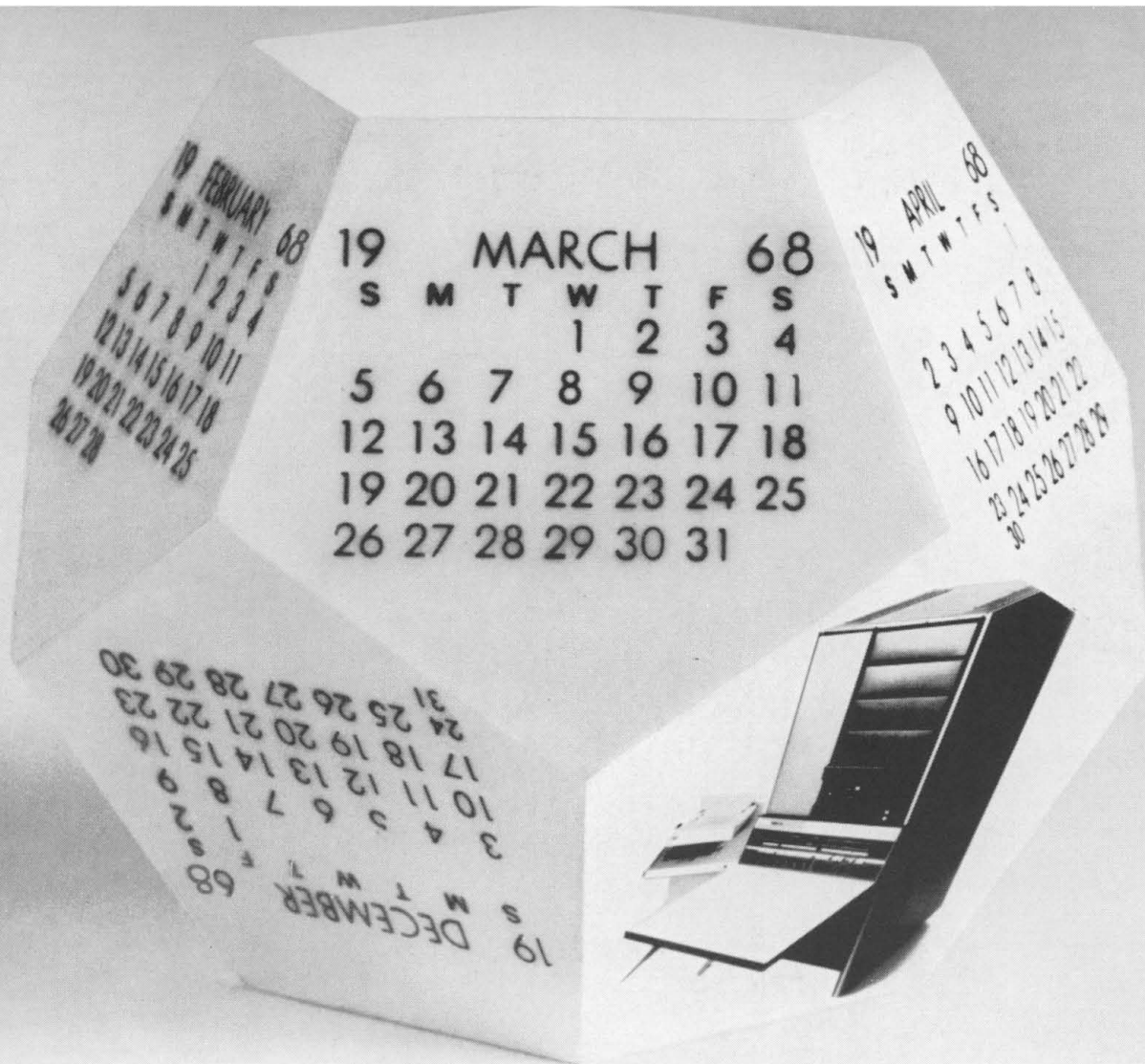
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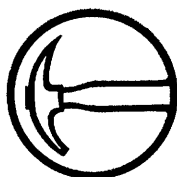
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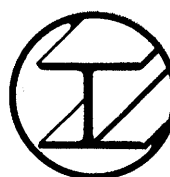
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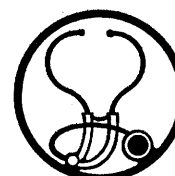
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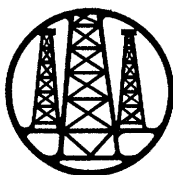
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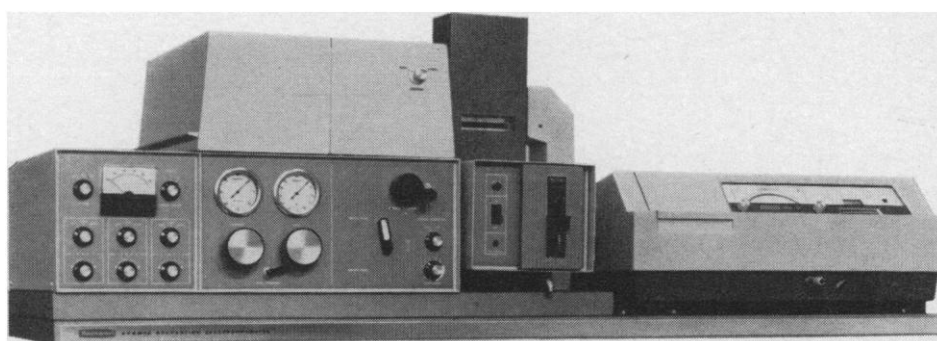
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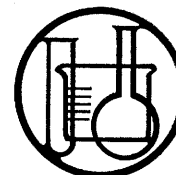
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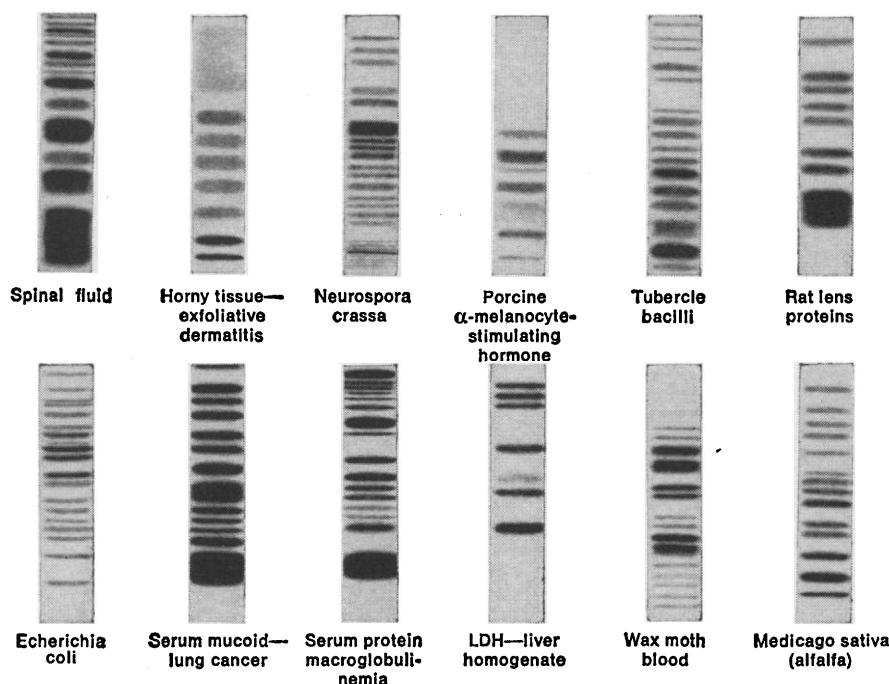
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Ten-armed fossil (*Jeletzkyia douglasae* Johnson & Richardson) described as the oldest known representative of an extant squid group. This fossil consists of the complete tentacular crown and a fragile shell. The arms bear hooks in double rows. Actual size: diameter of crown, 30 millimeters; length of arm, 9.5 to 10.5 millimeters. See page 526. [R. G. Johnson and Eugene S. Richardson, Jr., University of Chicago and Museum of Natural History, Chicago, Illinois]

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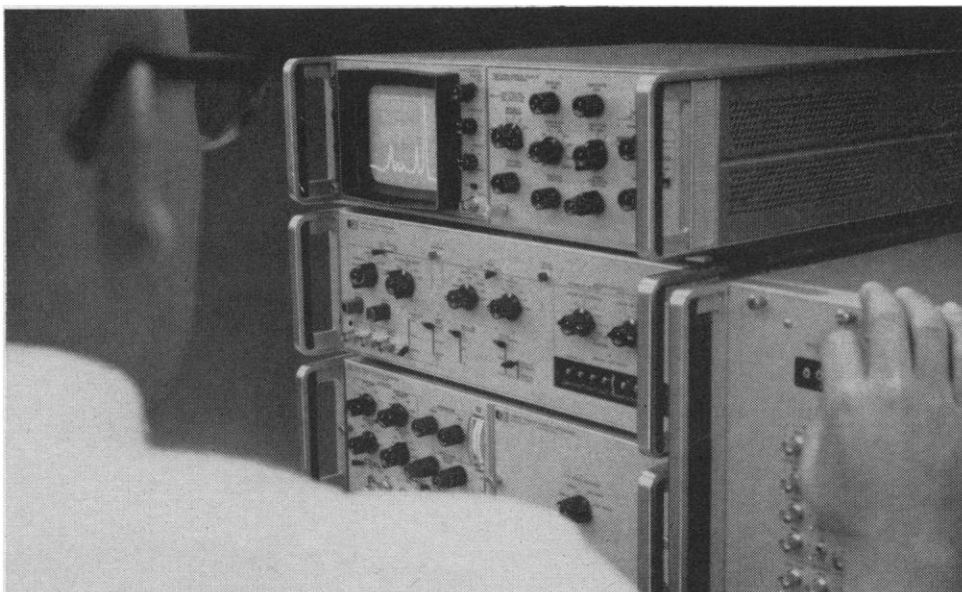
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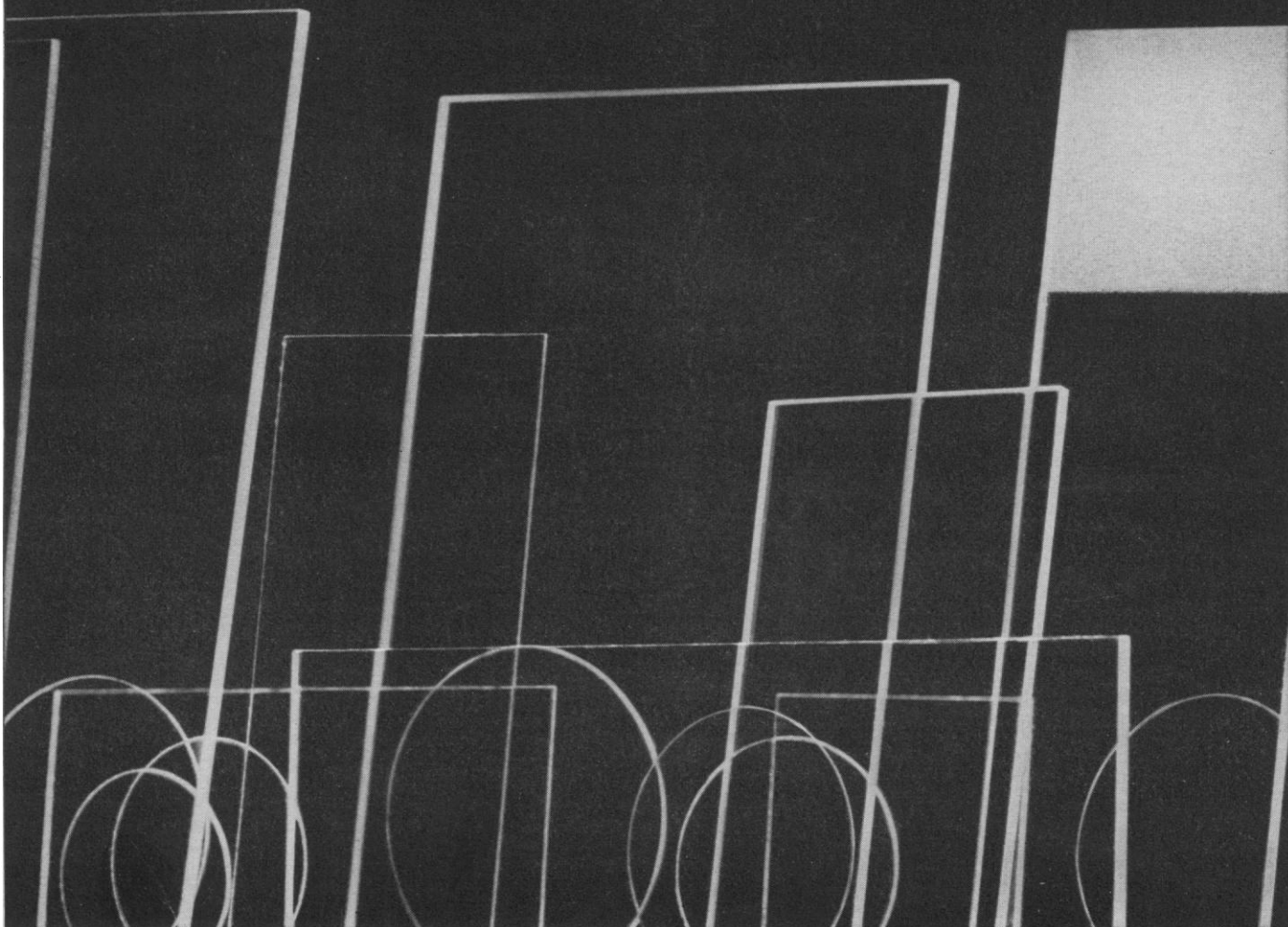
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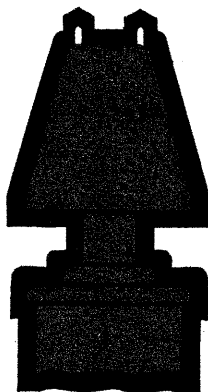
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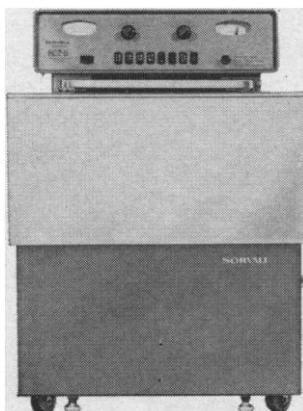
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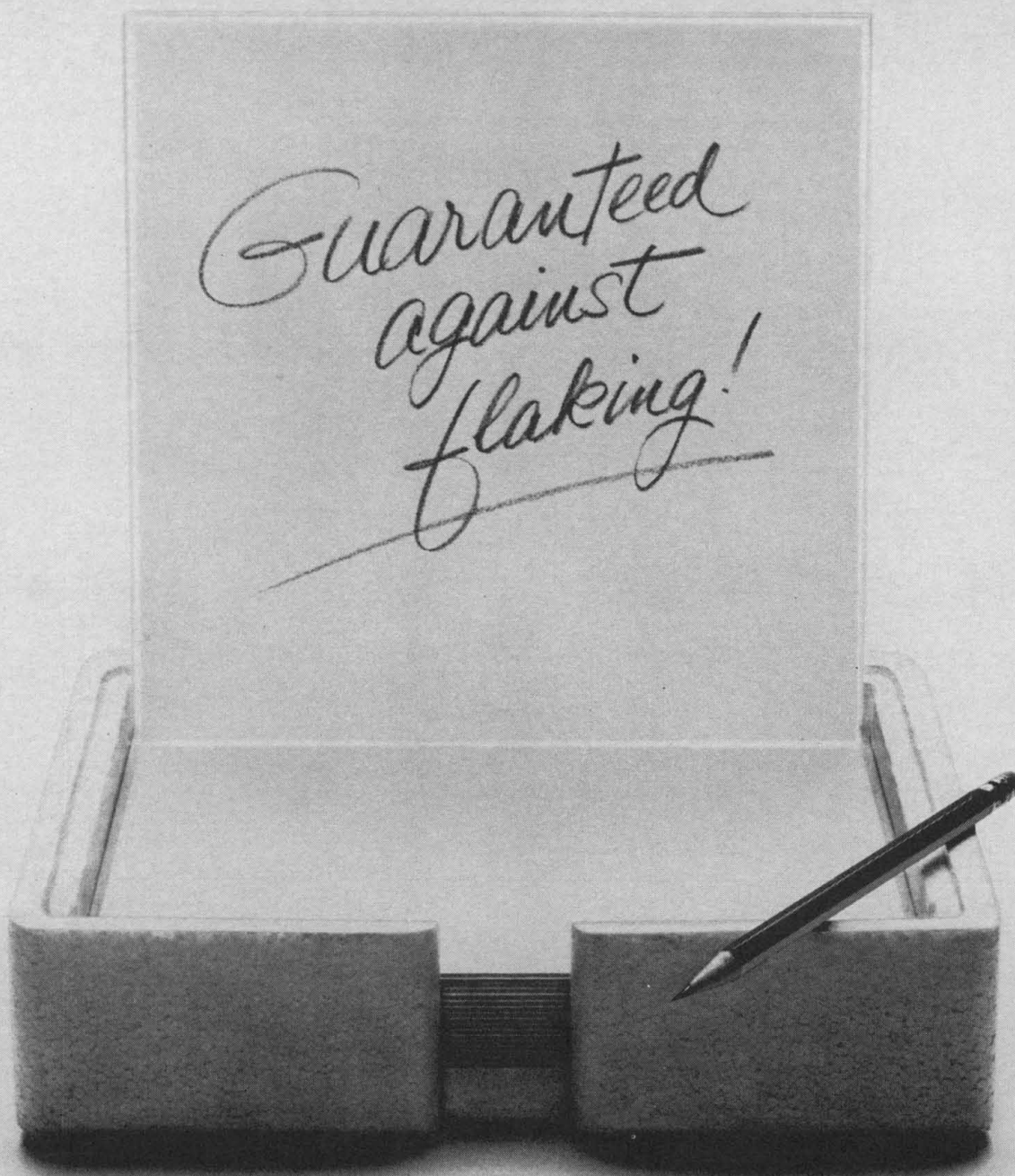


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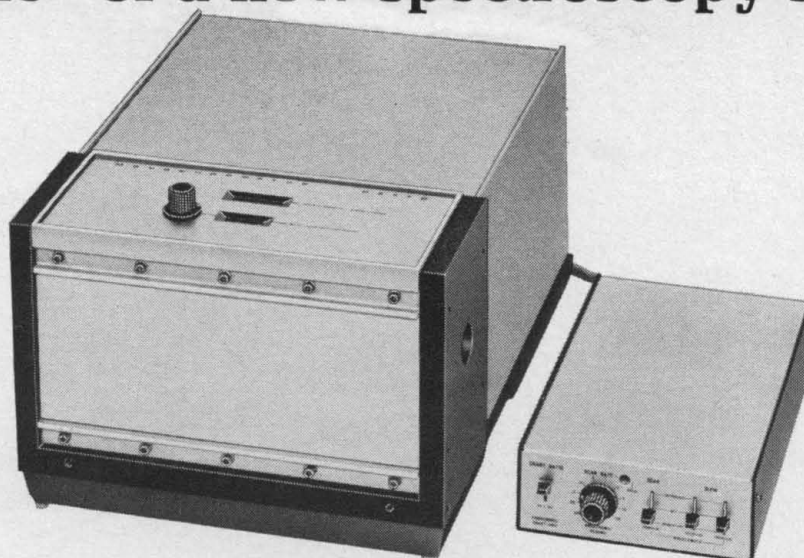
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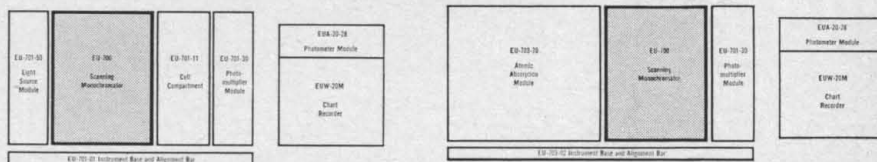
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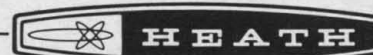
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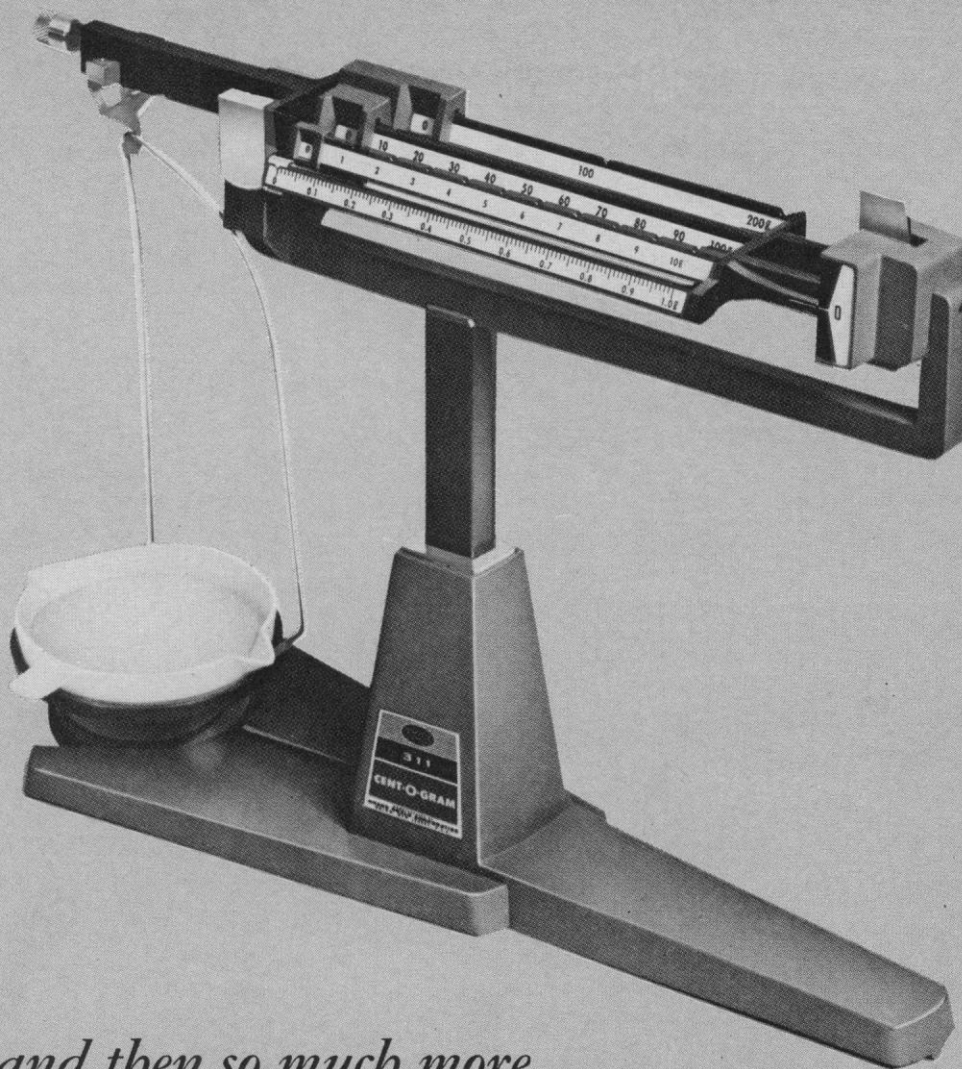
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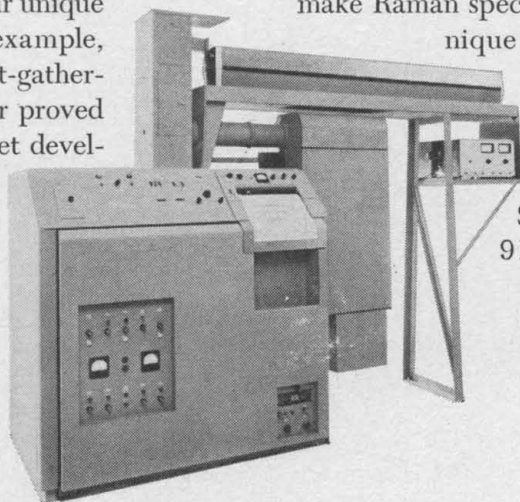
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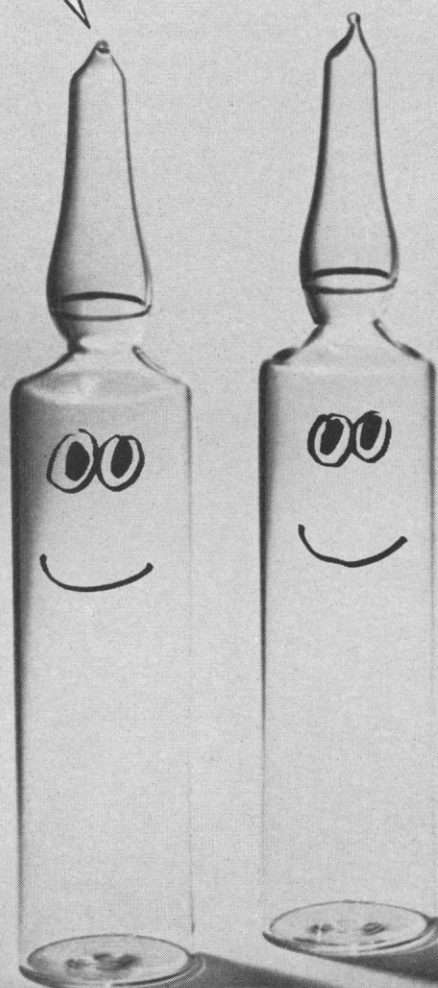
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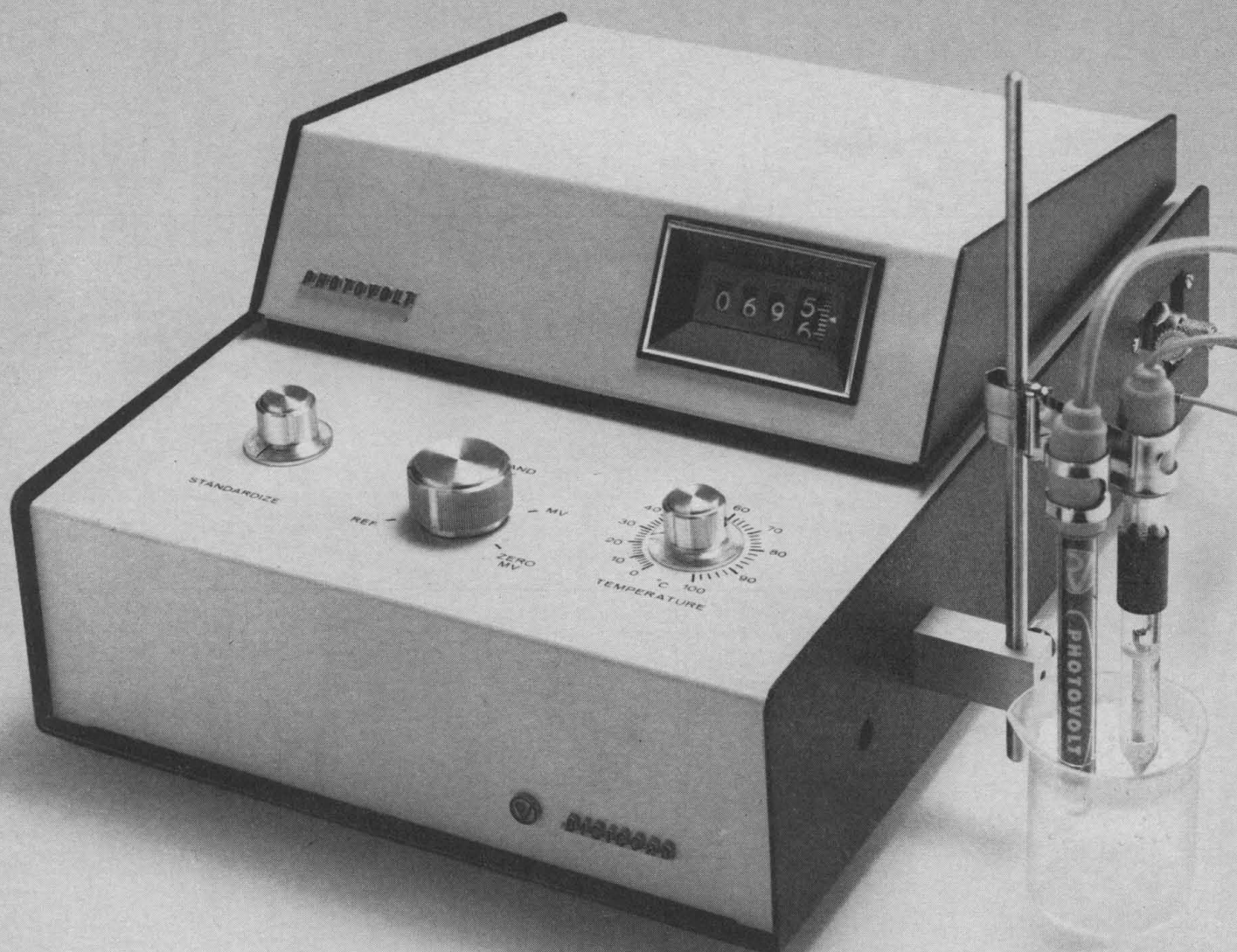
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**4 Specifications:** Most applications will call for well regulated power supplies, these fluctuate less than 0.01% for a maximum change in input AC line voltage or output load resistance. With no change in load or line conditions, a well regulated supply will drift less than 0.03% in eight hours and experience an output change of less than 0.01%/°C change in room temperature. Ripple and noise are functions of internal filtering and isolation; 200  $\mu$ V RMS is typical of well regulated hp supplies (for a 24V output, this is less than 10 parts per million). Performance specifications a factor of 10 or more better are available from more precise units — while moderate regulation (a factor of 10 or more below the numbers given above) is typical of units with output ratings above 2 kW.

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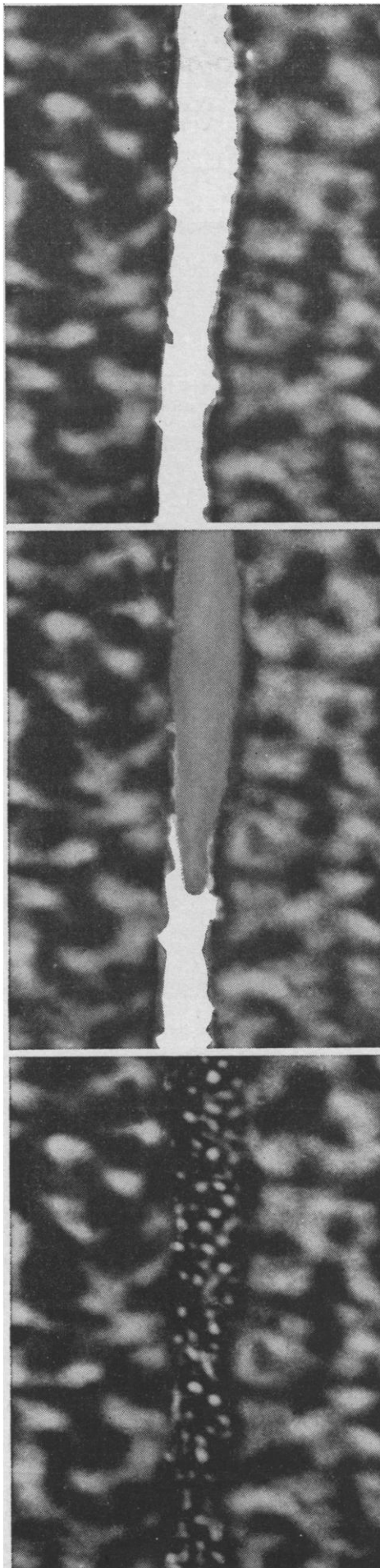




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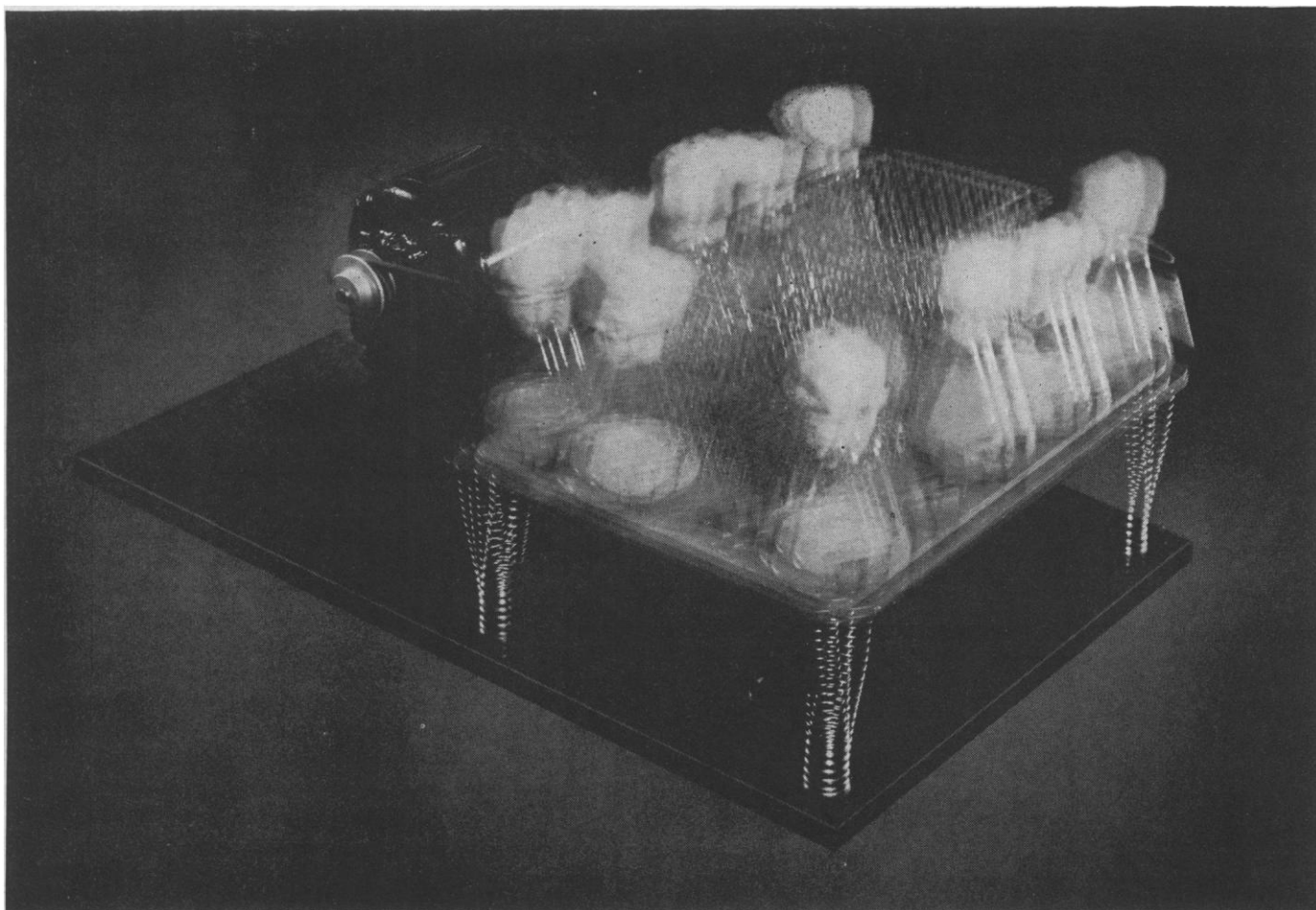
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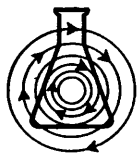
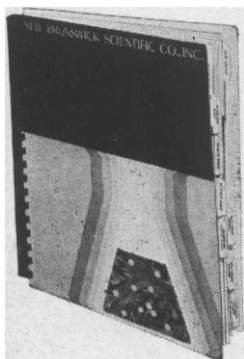
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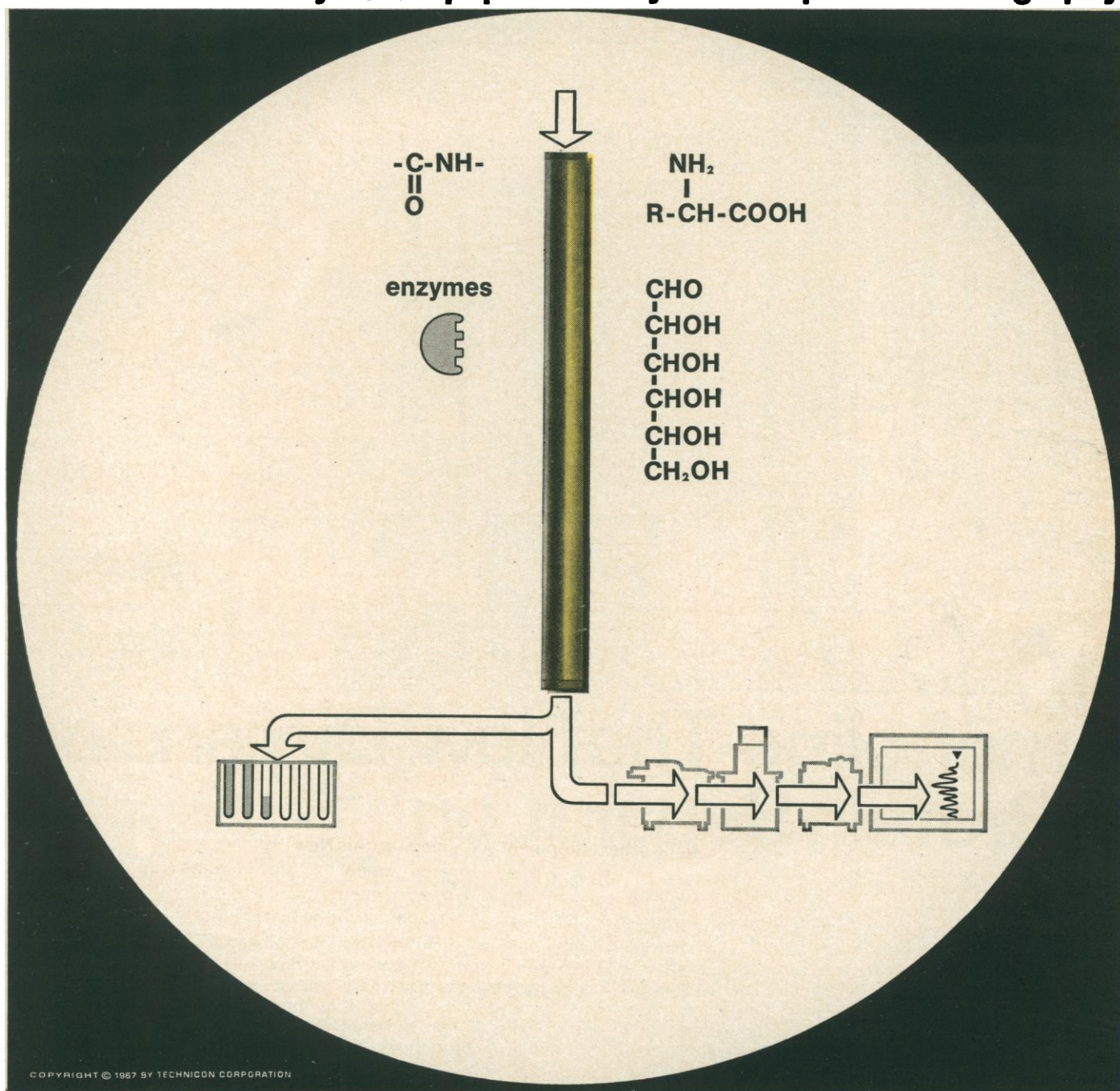


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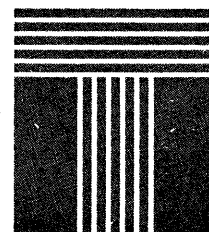
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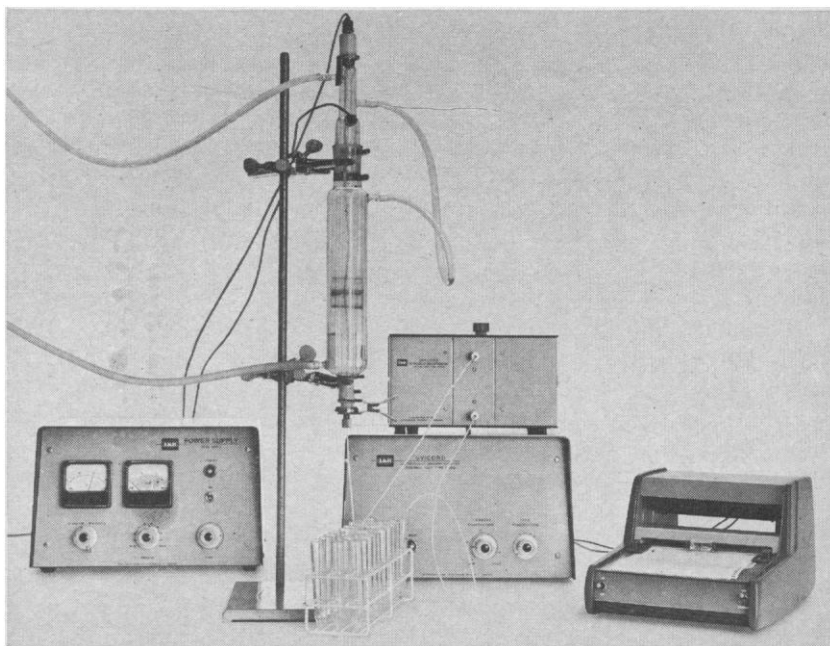
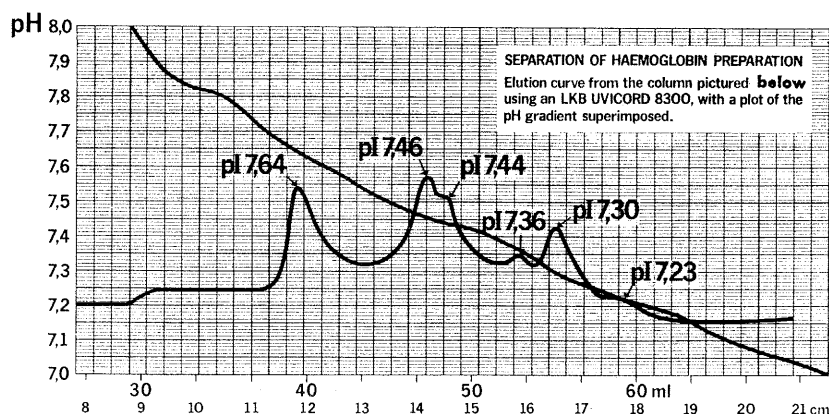
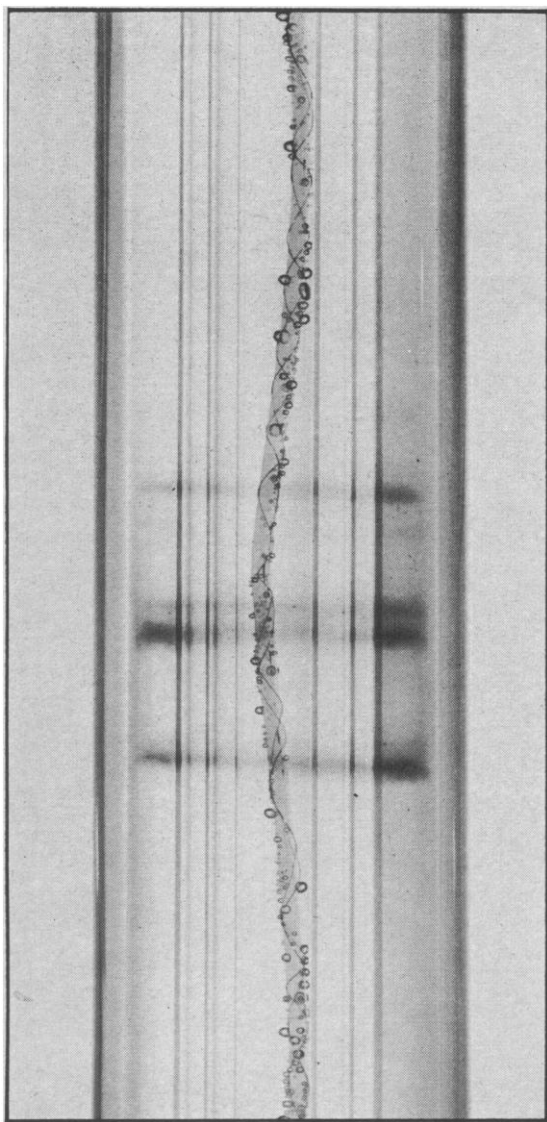
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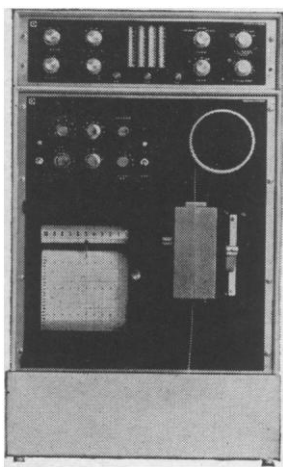
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to shorten the period during which people are finding means to achieve their new family-size desires. Creating new goals in the first place, or influencing them to the point of canceling population growth, is a function of the conditions, not of the contraceptive services. It follows that an effective population policy requires command over the social and economic conditions governing individual reproductive decisions.

Sweezy holds that family planning "prepares the way" for other measures. If so, why has it not prepared the way in countries that have long practiced contraception? The only case Sweezy cites—India's current desire to intensify its sterilization effort—is ironic, because the usual interpretation of this move is that it signifies the failure, not success, of India's family-planning program. In making this point, he holds that other approaches to population control have little chance anyway, in which case it is of no value to have family planning "prepare the way." Of course, the argument that other measures will not be accepted hardly proves that family planning alone will succeed. It may be that human societies are not ready to control their populations and that family planning is a convenient way of escaping from the problem while seeming to cope with it.

I do not say that family planning per se "stands in the way." I have consistently supported efforts to make contraceptives available. The family-planning emphasis in population control, however, has been self-defeating in two ways. First, it has not fully provided private birth control, by neglecting single women, denying all women the right of abortion, being cool to sterilization, and giving priority to religious taboos rather than biological effectiveness in recommending contraceptives. Second, having thus temporized in regard to private birth control, it has side-tracked population policy by confusing population control with private birth control, which it claims to provide. On both counts political expediency has been bought at the price of ineffectiveness. If, by "full" support of family planning, Sweezy means a blind belief that it alone is the answer to the population problem, he exemplifies the kind of commitment which, in my view, is blocking the development of efficient measures.

KINGSLEY DAVIS

Department of Demography,  
University of California, Berkeley

## Malononitrile Is Toxic

Abelson's editorial, "Meeting needs for heavy elements" (5 Jan., p. 37) contains the statement that malononitrile is an effective nontoxic substitute for HCN. This does not agree with other references on the toxicity of this compound. Williams states (1): "The toxicity of malononitrile is about the same as that of HCN, molecule for molecule, but if malononitrile were completely converted to HCN it should be twice as toxic." Cyanide is one of the metabolic products from malononitrile in mammalian tissue. Fasset, in a chapter on cyanides and nitriles, states in relation to malononitrile (2): "Based on the above facts, the precautions and medical therapy should be the same as for cyanide. Skin contact and inhalation of dust or vapor should be prevented."

RICHARD HENDERSON

Olin Mathieson Chemical Corporation,  
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## References

1. R. T. Williams, *Detoxication Mechanisms* (Wiley, New York, 1959), p. 399.
2. *Industrial Hygiene and Toxicology*, F. A. Patty, Ed., (Interscience, New York, 1963), vol. 2, rev. ed. 2, p. 2028.

## Curator Coates

Although Ruggieri provided an interesting description of the facilities, research in progress, and past and present staff members of the New York Aquarium and Osborn Laboratories of Marine Sciences (3 Nov., p. 675), I found missing the name of Christopher W. Coates, who was curator, aquarist, and, for many years until his recent retirement, director of the aquarium. He is inclined himself to undervalue his contributions to research and to disclaim any scientific training, but he is a very inquisitive and thoughtful observer and experimenter, with remarkable initiative, skill and practical knowledge, which he has always been ready to share with colleagues in research. It was during his association with the aquarium, and in large part on his initiative, that its field of research was extended beyond ichthyology into general physiology. His work deserves much more praise than I can give it in this brief comment. . . .

RICHARD T. COX

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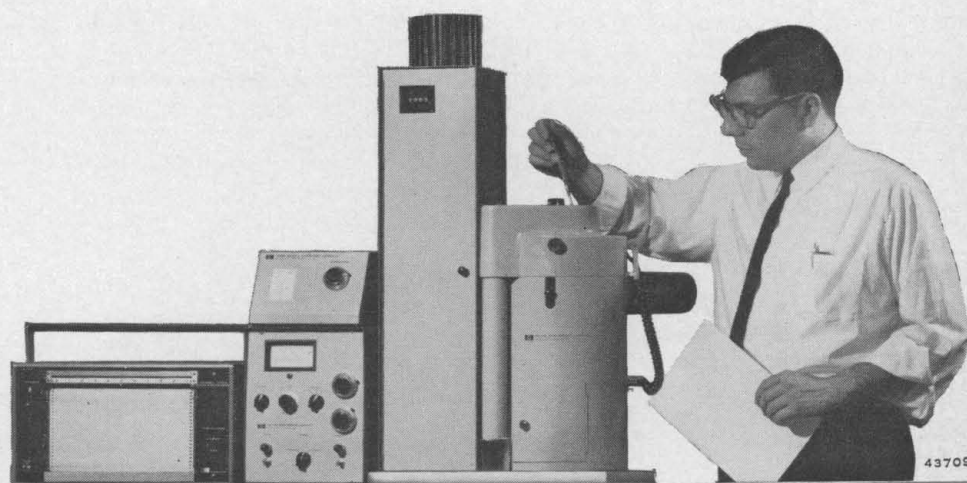
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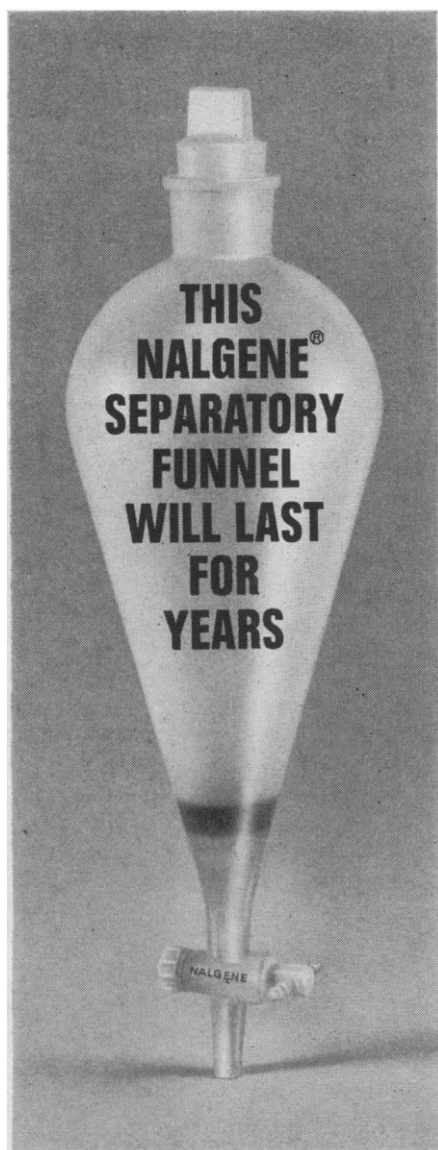
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## Early Days at Woods Hole

A fairly common misconception concerns the genesis of the Marine Biological Laboratory ("Woods Hole: now and then," Letters, 17 Nov.). Although the unique seaside instruction begun by Louis Agassiz at the Anderson School of Natural History on Penikese Island in 1873 was in essence the forerunner of all of the marine and freshwater biology laboratories in this country, it was not the direct ancestor of the Marine Biological Laboratory in Woods Hole. Conklin, Lillie, Dexter, and perhaps others, have testified clearly on this point. MBL was the immediate outgrowth of a seaside laboratory at Annisquam, Massachusetts, directed by Alpheus Hyatt, a student of Agassiz and curator of the Boston Society of Natural History. The Annisquam Laboratory, organized by the Women's Educational Association of Boston to serve the same purposes as the Agassiz School on Penikese, existed from 1880 to 1886. It became too small for its Annisquam quarters (Hyatt's home) and eventually moved to Woods Hole. This village was selected as the site for the first marine U.S. Fish Commission Station, thanks to the wisdom of Spencer F. Baird, secretary of the Smithsonian Institution.

It is not out of order and wholly in the Agassizian tradition to reemphasize Zullo's point in the communication following Nunnemacher's letter—that the current year around Systematics Ecology Program is "a necessity to the continued success of the MBL" in creating "another quiet but significant revolution in modern biology."

DONALD J. ZINN

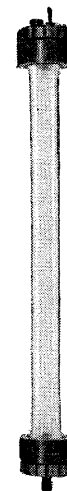
Department of Zoology, University of Rhode Island, Kingston 02881

Carter ("Woods Hole: Summer mecca for marine biology," 15 Sept., p. 1288) and Nunnemacher (Letters, 17 Nov.) referred to Hermon C. Bumpus in connection with the founding of the Marine Biological Laboratory at Woods Hole and his pioneering work on the American lobster. Recently, I uncovered letters (Archives, Library of Harvard University) written by C. O. Whitman, first director of the MBL, to Frederic W. Putnam which set the stage for the Bumpus monograph. They read as follows:

"Wood's Holl (sic—the original spelling), Massachusetts. June 12, 1889—Do you suppose the U.S. Fish Commission would be able to offer any

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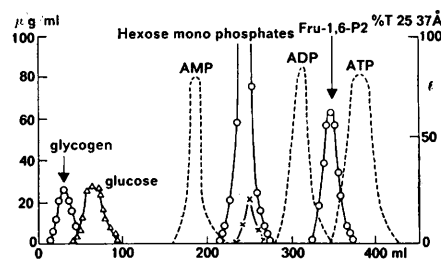
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Model experiment with glycogen, glucose, sugar phosphates and adenosine phosphates on a column of DEAE-Sephadex A-25.

(From Biochim. Biophys. Acta 74 (1963) 588, by permission of the author)

### Anion Exchangers (Bead Form)

Type	Grade	Ionic Form	Capacity (meq/g)	Bed Volume <sup>1</sup> (ml/g)
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### Cation Exchangers (Bead Form)

Type	Grade	Ionic Form	Capacity (meq/g)	Bed Volume <sup>2</sup> (ml/g)
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pecuniary assistance to anyone who would undertake to work out thoroughly the development of the lobster? It is a good subject, but it would require some time—two years at least. I do not know that I can find a suitable person to do it, but I think I can."

Apparently Putnam promised a "small sum," not from the U.S. Fish Commission, however, but from the funds of the Massachusetts State Board of Fisheries and Game for which Putnam was a commissioner.

Whitman wrote to Putnam again on 26 June 1889, that "I have found a man who will undertake the lobster work. He will begin it and carry it along as far as possible. Now what will the 'small sum' be which you could give him? He is Prof. Bumpus of Olivet, Michigan, a fine young naturalist who takes hold of work most energetically and will undoubtedly do well. Give him all the encouragement you can."

In 1891 Bumpus published his classic study on "The Embryology of the American Lobster" (*J. Morphol.* 5, 215) based upon his Ph.D. dissertation developed under the direction of Whitman at Clark University.

RALPH W. DEXTER

Department of Biological Sciences,  
Kent State University, Kent, Ohio

### Parkinsonia Rampant

As a student of Parkinsonia (*I*), I would like to point out the potential for a new outbreak of this dread disease—in the universities. Over the past 15 years there has been a vast growth in federal funds for university science. This in turn led to a growth in the number of administrators, comptrollers, clerks, and others to handle this money and obey the regulations of "those people" in Washington. Of course the overhead rate went up too; what else did you expect?

Now the tide of federal funds appears to be receding; can we expect that universities will do with fewer administrators and comptrollers? Will there be a drop in the overhead? I predict an epidemic of Parkinsonia that will "curl your hair."

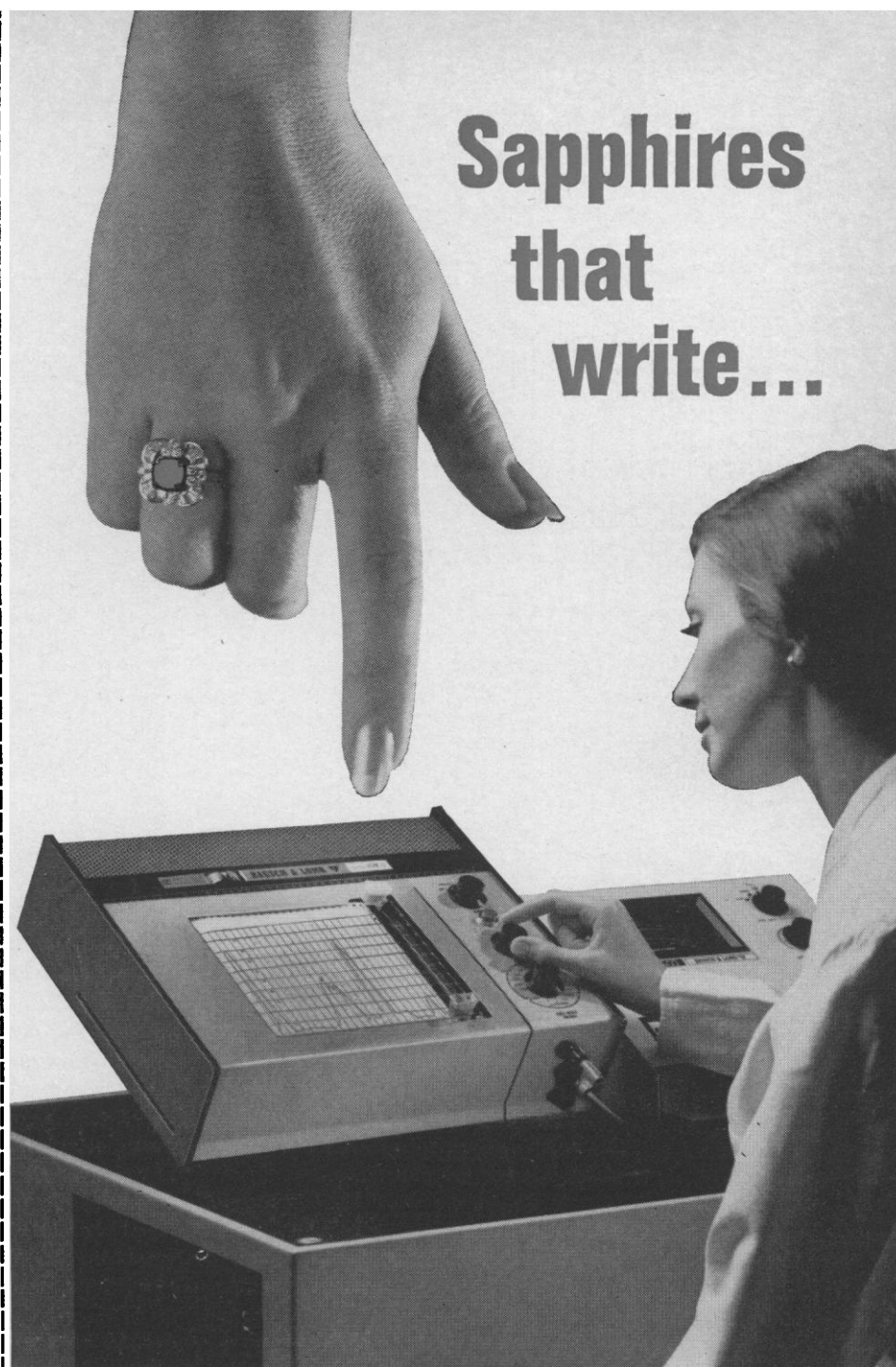
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#### Reference

1. C. N. Parkinson, *Parkinson's Law* (Houghton Mifflin, Boston, 1957).

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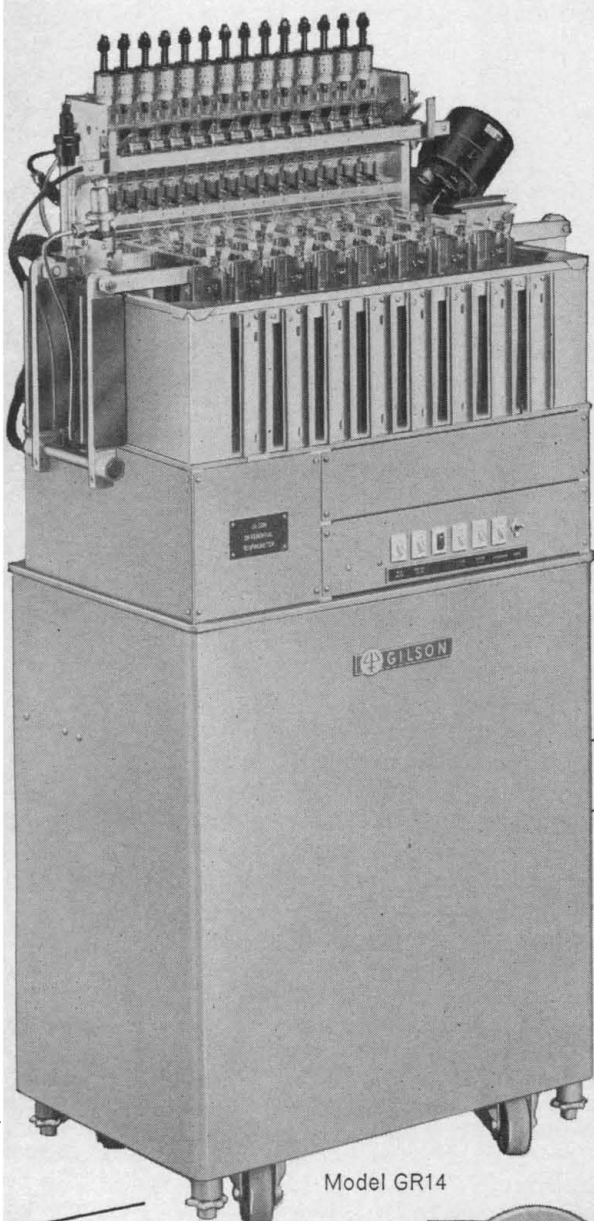
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## Science Policy Confrontation

On 11 and 12 January, at the Paris headquarters of the Organization for Economic Cooperation and Development, the science policies of the United States were critically examined by the 20 other OECD countries. OECD science policy reviews have two purposes: to help the country being reviewed assess its own policies and to build up a useful body of knowledge concerning science policy for its member countries.

In preparation for the January confrontation, U.S. officials had to examine our own science policies and help the OECD secretariat prepare a descriptive account. Four external examiners then visited this country and prepared reports of their findings (*Science*, 12 January).

At the culminating confrontation, a team of American experts (Donald Hornig, Ivan Bennett, William Carey, Philip Handler, Congressman George Miller, Herman Pollack, and James A. Shannon) explained and defended American policies and discussed 20 issues on which they were quizzed by the four external examiners (H. G. B. Casimir, director of the Philips Research Laboratories; Théo Lefèvre, former Prime Minister of Belgium; Pierre Masse, chairman of the board of Electricité de France; and C. H. Waddington, professor in the Institute of Animal Genetics, Edinburgh) and other representatives of the OECD countries.

From the review the U.S. has gained the benefit of an objective and candid analysis of how its science policies look to a group of knowledgeable foreign critics. Much of what they had to say was complimentary. Some of it was envious. And some was fairly sharply critical. Disagreements, among the reviewers or between the reviewers and the U.S. representatives, provided points for fruitful discussion at the confrontation.

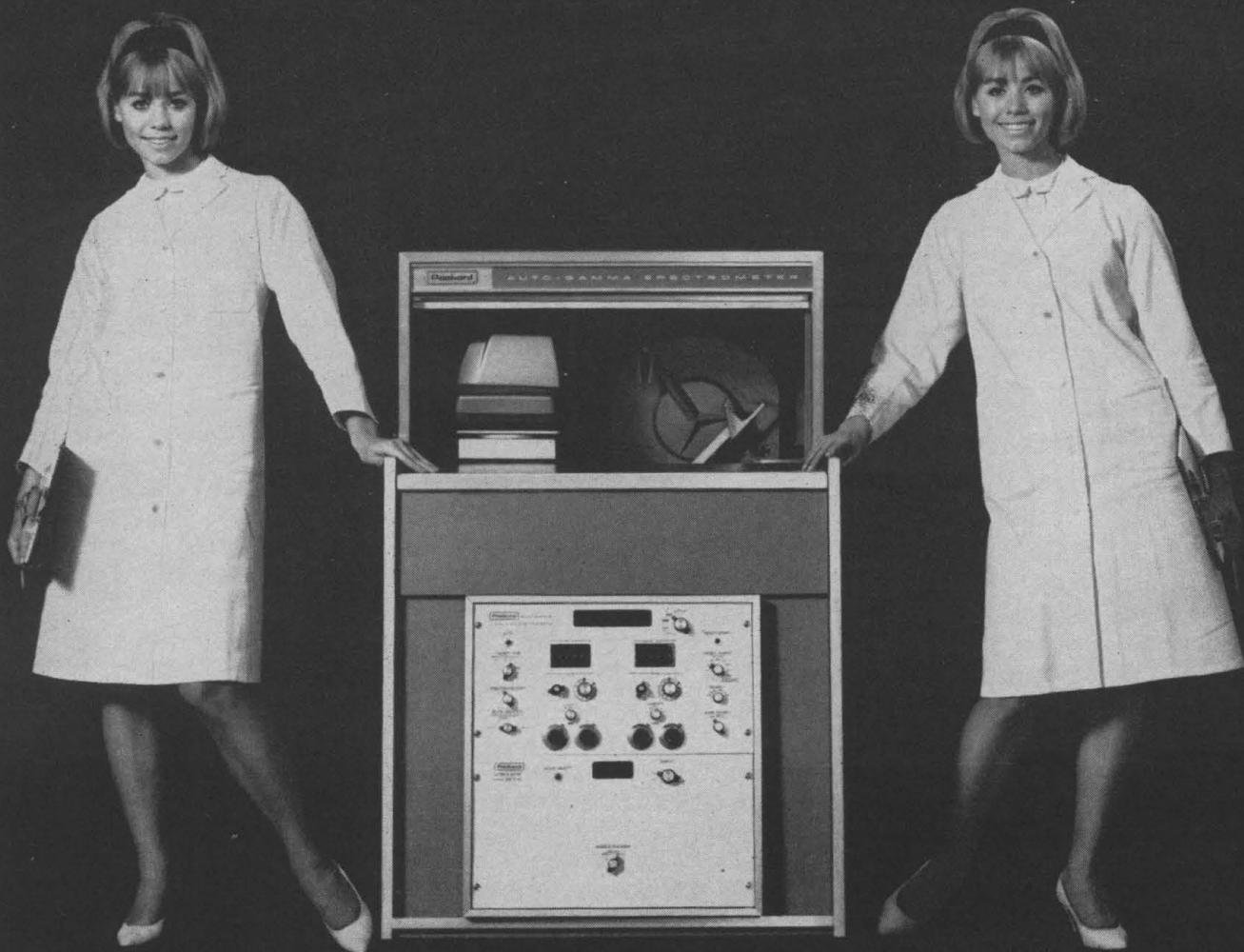
The role of science in governmental and economic affairs is basically much the same in all developed countries, but the forms of government of these countries differ and so do the details and the manner of development of their science policies. Much of the January discussion took shape from the fact that Europeans often do not appreciate the diversification of responsibility that exists in the U.S. and do not fully understand how Congress differs from the parliaments with which they are more familiar. Fellow delegates especially praised Congressman Miller's explanations of the way Congress works, and comments following the confrontation indicated that the American delegation had explained U.S. policies effectively and had cleared away some of the confusion and misinterpretation concerning these policies. *Le Figaro*, for example, quoted M. Lefèvre as saying that the American policies were an example to Europe and not a threat (as was implied in the written report) unless Europe chose not to understand their meaning.

When OECD was still the Organization for European Economic Cooperation it used the confrontation technique as a powerful instrument for securing cooperation in the use of Marshall Plan funds in the postwar restoration of the European economy. The technique has since been used to exchange information and criticisms concerning policies and practices in scientific and technical education. The January confrontation was the eighth in a series of science policy reviews. It provided an influential group of policy makers with an intensive seminar on U.S. policies and on their interpretation by different examiners. The published records will be available to a wider audience. The policy reviews are one of the means OECD is using to help member countries understand each other and their interrelationships more clearly.

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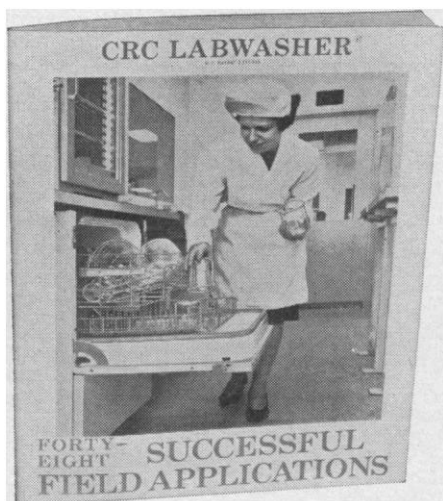


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plication occasionally encountered with *C. burnetii* vaccines. It was shown by Ormsbee that in guinea pigs immunized with either *C. burnetii* or *R. prowazekii*, agglutinins and complement fixing antibodies are localized in 7S<sub>2</sub> serum fraction, while antibodies causing passive cutaneous anaphylaxis were found in the 7S<sub>1</sub> fraction.

Live vaccines against Q fever and epidemic typhus fever have been tested on a large scale in human volunteers in the Soviet Union. Currently, a typhus vaccine which is a combination of attenuated living and killed organisms is favored although a recent vaccine prepared from a fraction of typhus soluble antigen shows considerable promise (Zdrodowsky, Golinevich). A new Q fever vaccine which is given orally evoked serologic conversions in a majority of human volunteers in recent field tests (Genig). Typhus vaccine booster responses in individuals previously sensitized 5 years earlier by either natural infection or primary vaccination are indistinguishable. The importance of determining the complement fixation titer of the Cox-type killed vaccine in order to recognize potent vaccines was emphasized (Murray).

Newly described or improved serologic procedures include a passive hemagglutination test in which cysteine is used to differentiate 19S and 7S typhus antibodies (Voronova), and a rapid hemolysis-inhibition test for neutralizing antibodies in human serums (Mikolajczyk). Studies with *R. quintana* grown in blood agar indicate that suspensions of the whole organism serve as complement-fixing antigens and give no cross-reactions with convalescent serums from other rickettsial diseases (Vinson).

Successful vaccines for *R. tsutsugamushi* have not yet been achieved, mainly because several distinctive serologic types occur in nature and sufficient antigenic mass is difficult to obtain. Group- and type-specific antigens have been prepared from various strains of *R. tsutsugamushi* grown in tissue culture (Shishido). Prophylactic immunization of mice against homologous and heterologous strains was accomplished with chemo-vaccines composed of a mixture of live rickettsiae and a rickettsiostatic amount of tetracycline (Kekcheeva).

The involvement of domestic animals and ticks in an extrahuman cycle of *R. prowazekii*, originally described by Reiss-Gutfreund, stimulated several

investigators to try, not yet successfully, to confirm this finding and to evaluate what might be a potentially serious public health problem. Gaon reported that family outbreaks of epidemic typhus in Bosnia were associated with a prior occurrence of Brill-Zinsser disease, and that cattle, sheep, and *Dermacentor marginatus* and *Ixodes ricinus* ticks infesting them were not infected. Lambs, kids, camels, and donkeys, experimentally infected with *R. prowazekii* in Egypt by Ormsbee developed typhus agglutinins, but rickettsemia could not be demonstrated and ticks fed upon the animals were not infected. Burgdorfer showed that the ZRS strain of *R. prowazekii*, originally recovered from *Hyalomma truncatum* in Ethiopia, when inoculated intracoeleomically, would not propagate in female *H. excavatum* and killed the majority of *D. andersoni*. *H. dromedarii* sustained the rickettsiae but transovarial transmission did not occur. Thus, the accumulating evidence suggests that involvement of livestock and ticks, if it does occur, is secondary to active dissemination of the louse-borne disease in the human population and the extrahuman cycle does not play an important role in perpetuating endemic foci of the disease.

The importance of maintaining constant surveillance for rickettsial diseases was exemplified by reports of previously unrecognized epidemiologic and ecologic features. Strains of *R. tsutsugamushi* recovered from small rodents and insectivores, as well as from three species of *Leptotrombidium* and two species of *Neotrombicula* chiggers, collected in foci of scrub typhus recently recognized in the Khasan district of the Primorie (north of Vladivostok) and in the Pjandje and Sorbo river valleys in Tadzikistan in the U.S.S.R., were described by Tarasevitch. In regions of Thailand where at least five, and possibly eight, antigenically distinctive strains of *R. tsutsugamushi* were enzootic, Elisberg found the majority of scrub typhus patients were infected coincidentally with mixtures of antigenic types.

New enzootic foci of Q fever in Croatia, Yugoslavia, were attributed by Hrabar to the introduction of flocks of infected sheep and goats traveling from neighboring Bosnia and Herzegovina. Reptiles were implicated as possible reservoirs of Q fever. *Coxiella burnetii* persisted in the internal organs of lizards and water snakes following experimental infection and *I. ricinus* were



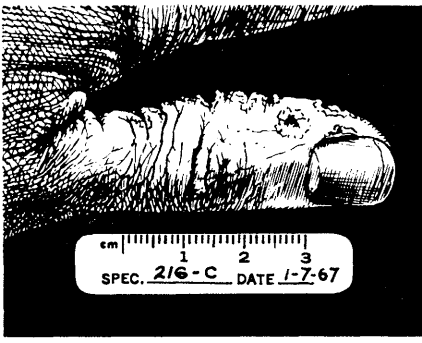
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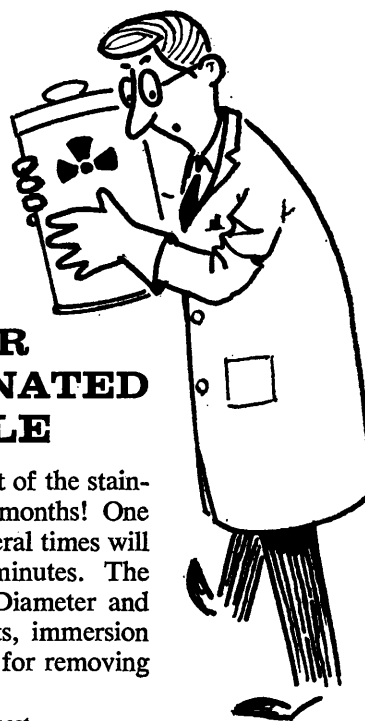


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infected after feeding on the lizards (Ač). Zhmayeva reported that three species of Ixodidae ticks could be simultaneously infected with *C. burnetii* and tick-borne encephalitis virus after feeding. Both agents were transferred transstadially and transovarially.

Marked antigenic heterogeneity was found among various strains of the etiologic agent of bovine tick-borne fever, recovered in the same and in different geographic regions of Finland (Tuomi). A new group of rickettsia-like agents recovered from laboratory guinea pigs was described by Bozeman.

The review papers presented at this meeting will be published in *Zentralblatt für Bakteriologie* (Referate); those dealing with ecological and epidemiological problems in *Journal of Hygiene, Epidemiology and Microbiology* (Prague); and the others in *Acta Virologica*. The success of a symposium of this nature can be judged by the breadth of the interests which it spanned and stimulated, from problems directly related to human welfare to basic aspects of rickettsiae as distinctive biological entities.

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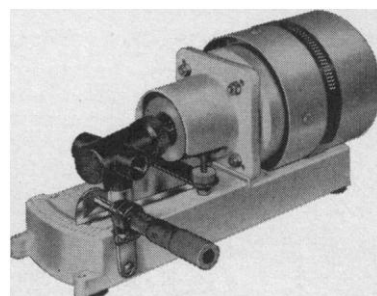
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11-12. Congress on Medical Education,  
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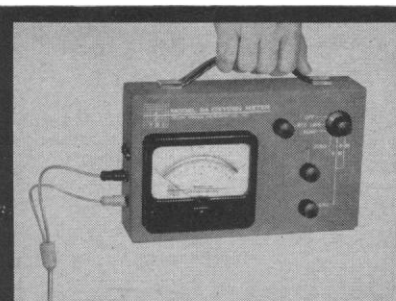
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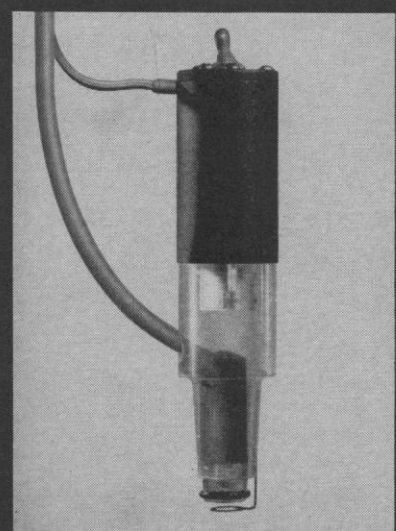
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13-16. American Public Power Assoc., Sacramento, Calif. (A. Radin, General Manager, Suite 830, 919 18th St., NW, Washington, D.C. 20006)

14-16. Offshore Exploration Conf., New Orleans, La. (M. F. Oberacker, Manager, Administration, OECON, P.O. Box 88, Palos Verdes Estates, Calif.)

15. Commercial Application of Ultrasonics, New York, N.Y. (J. N. Antonevich, Blackstone Corp., 1111 Allen St., Jamestown, N.Y. 14701)

16-17. American Psychopathological Assoc., Neurobiological Aspects of Psychopathology, New York, N.Y. (J. Zubin, 722 W. 168 St., New York 10032)

16. Reliability Symp., 9th annual West Coast, Beverly Hills, Calif. (R. J. Green, TRW Systems, Building E2/6043, One Space Park, Redondo Beach, Calif. 90278)

16-18. Repair and Regeneration, symp., San Francisco, Calif. (Continuing Education in Health Sciences, Univ. of California, San Francisco Medical Center, Parnassus and Third Ave., San Francisco)

18-21. American Inst. of Chemical Engineers, 63rd natl. mtg., St. Louis, Mo. (L. L. Fellingner, Monsanto Co., 800 N. Lindbergh, St. Louis)

18-22. Society of Economic Geologists, New York, N.Y. (R. A. Laurence, P.O. Box 1549, Knoxville, Tenn. 37901)

18-22. Technical Assoc. of the Pulp and Paper Industry, 53rd annual mtg., New York, N.Y. (K. G. Chesley, TAPPI, 360 Lexington Ave., New York 10017)

19-20. Engineering Project Investment Analysis, Austin, Tex. (D. E. Griffith, Program Director, Taylor Hall 153, College of Engineering, Univ. of Texas, Austin 78712)

19-21. American College of Surgeons, sectional mtg., Dallas, Tex. (Communications Dept., 55 E. Erie St., Chicago, Ill. 60611)

19-21. Biophysical Soc., 12th annual mtg., Pittsburgh, Pa. (I. Bendet, Local Arrangements Chairman, Biophysics Dept., Univ. of Pittsburgh, Pittsburgh 15213)

19-21. National Space Mtg., Cocoa Beach, Fla. (R. E. Freeman, Inst. of Navigation, Suite 912, 711 14th St., NW, Washington, D.C. 20005)

19-23. Transportation Engineering Conf., San Diego, Calif. (W. H. Wisely, 345 E. 47 St., New York, N.Y. 10017)

19-25. American Soc. of Civil Engineers, San Diego, Calif. (W. H. Wisely, ASCE, 345 E. 47 St., New York 10017)

21-22. Industrial Pharmacy, Austin, Tex. (W. L. Guess, Dept. of Pharmacy, College of Pharmacy, Univ. of Texas, Austin 78712)

21-25. Institute on Diabetics, 5th annual, Aspen, Colo. (C. L. Ginn, Executive Director, 1375 Delaware St., Denver, Colo. 80204)

22. Renal Insufficiency, centennial symp., Chicago, Ill. (University of Illinois Alumni Office, 715 S. Wood St., Chicago 60612)

22-24. American Acad. of Forensic Sciences, Chicago, Ill. (S. R. Gerber, Secretary-Treasurer, 2153 Adelbert Rd., Cleveland, Ohio 44106)

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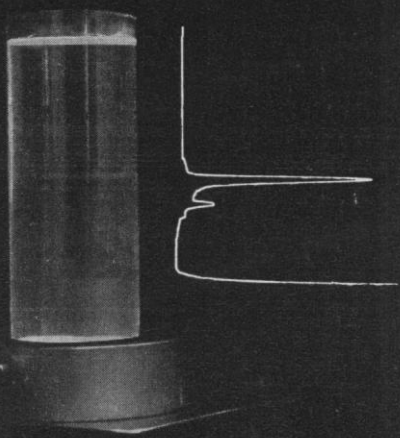
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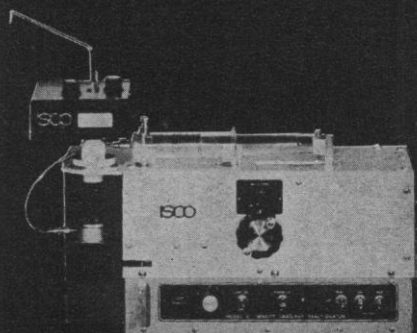


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22-24. Central Surgical Assoc., Cleveland, Ohio. (B. L. Willman, 1402 S. Grand Blvd., St. Louis, Mo. 63104)

24-3. Canadian American Medical-Dental Assoc., 8th, Park City, Utah. (T. H. Trapasso, Secretary-Treasurer, 816 Ashmun St., Sault Ste. Marie, Mich. 49783)

25. Psychoanalysis, 6th annual scientific conf., New York, N.Y. (A. Blatt, Chairman Program Committee, 7 W. 96 St., New York 10025)

25-29. American Inst. of Mining, Metallurgical, and Petroleum Engineers, 97th annual mtg., New York, N.Y. (C. Hopkins, 345 E. 47 St., New York 10017)

26-28. American Physical Soc., Boston, Mass. (W. W. Havens, Jr., Columbia Univ., New York 10027)

26-28. Association of Asphalt Paving Technologists, Atlanta, Ga. (L. L. Kole, Box 619, Ann Arbor, Mich. 48107)

26-28. Association of Iron and Steel Engineers, Western mtg., San Francisco, Calif. (T. J. Ess, 1010 Empire Bldg., Pittsburgh, Pa. 15222)

26-1. American Assoc. of Junior Colleges, 48th annual conv., Boston, Mass. (The Association, 1315 16th St., NW, Washington, D.C. 20036)

27. National Multiple Sclerosis Soc., New York, N.Y. (S. Lawry, Executive Director, 257 Park Ave., South, New York 10010)

27-28. National Dairy Engineering Conf., 16th annual, East Lansing, Mich. (D. R. Heldman, Dept. of Agricultural Engineering, Michigan State Univ., East Lansing 28823)

27-3. Scintillation and Semiconductor Counter, 11th symp., Washington, D.C. (R. M. Emberson, 345 E. 47 St., New York, N.Y. 10017)

28. Commission on Engineering Education, 5th annual mtg., Washington, D.C. (Commission on Engineering Education, 1501 New Hampshire Ave., NW, Washington, D.C. 20036)

28-3. American College of Cardiology, annual mtg., San Francisco, Calif. (W. D. Nelligan, 9650 Rockville Pike, Bethesda, Md. 20014)

28-3. Biology Teachers, Anaheim, Calif. (J. P. Lightner, Secretary, 1420 N St., NW, Washington, D.C.)

29-2. Cystic Fibrosis and Related Human and Animal Diseases, symp., New York, N.Y. (National Cystic Fibrosis Research Foundation, 202 E. 44 St., New York 10017)

#### March

1-3. American Assoc. of Pathologists and Bacteriologists, 65th annual, Chicago, Ill. (J. L. Orbison, Univ. of Rochester Medical Center, 260 Crittenden Boulevard, Rochester, N.Y. 14620)

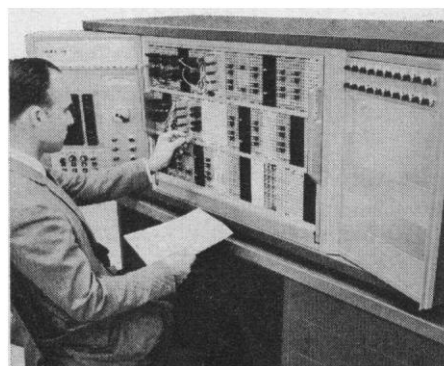
2-8. American Concrete Inst., Los Angeles, Calif. (W. A. Maples, Box 4754, Redford Station, Detroit, Mich. 48219)

4. Industry's Future in the Ocean, Miami, Fla. (J. LaCerde, 95 Merrick Way, Suite 715, Coral Gables, Fla. 33134)

4-5. Goddard Memorial Symp., 6th annual, Washington, D.C. (G. D. Anderson, Honeywell ADG, 1611 N. Kent St., Arlington, Va. 22209)

4-6. American Inst. of Aeronautics and Astronautics, New Orleans, La. (J. Har-

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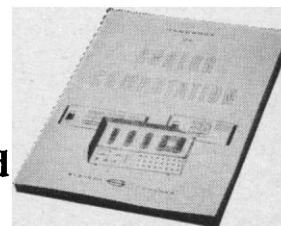
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4-6. Society of **Research Administrators**, 2nd annual, Houston, Tex. (W. L. Cullison, Div. of Science and Technology, American Petroleum Inst., 1271 Avenue of the Americas, New York 10020)

4-6. Society of **Toxicology**, Washington, D.C. (C. S. Weil, Mellon Inst., 4400 Fifth Ave., Pittsburgh, Pa. 15213)

4-6. **Technology for Manned Planetary Missions**, New Orleans, La. (Meetings Manager, 1290 Sixth Ave., New York 10019)

4-7. **Neutron Cross Section and Technology Conf.**, Washington, D.C. (D. T. Goldman, Natl. Bureau of Standards, Washington, D.C. 20234)

4-8. **Analytical Chemistry and Applied Spectroscopy**, Cleveland, Pa. (R. T. Oliver, Alcoa Research Labs., New Kensington, Pa.)

5-7. **Aviation-Electronics and Its Supporting Sciences**, Fort Monmouth, N.J. (Commanding General, U.S. Army Electronics Command, Attention AMSEL-RD-LN, Fort Monmouth 07703)

6-8. **Fundamental Cancer Research**, 22nd annual symp., Houston, Tex. (F. Goff, Special Projects, M. D. Anderson Hospital and Tumor Inst., Univ. of Texas, Houston 77025)

7-8. **The Doctor and His Hospital**, Inst. of Medicine of Chicago workshop, Chicago, Ill. (R. M. Potter, Secretary, Inst. of Medicine of Chicago, 332 S. Michigan Avenue, Chicago 60604)

7-8. Society of **Vacuum Coaters**, 11th annual, Miami Beach, Fla. (The Society, P.O. Box 3095, Cleveland, Ohio)

7-9. **Cerebellum in Health and Disease**, Dallas, Tex. (S. P. Cole, Coordinator, Univ. of Texas Southwestern Medical School at Dallas, 5323 Harry Hines Blvd., Dallas 75235)

7-9. Southern Soc. of **Anesthesiologists**, Dallas, Tex. (R. G. Zepernick, Mercy Hospital, New Orleans, La. 70119)

8-10. **Colorado Medical Soc.**, Denver. (D. G. Derry, Colorado Medical Soc., 1809 E. 18 Ave., Denver 80218)

8-10. National **Wildlife Federation**, 32nd annual, Houston, Tex. (The Federation, 1412 16th St., NW, Washington, D.C. 20036)

9-10. American Psychiatric Assoc. Colloquium on Postgraduate **Teaching of Psychiatry**, New Orleans, La. (M. L. Enelow, 3439 Prytania St., New Orleans 70115)

10-12. American Soc. for **Abrasive Methods**, Philadelphia, Pa. (R. J. Mayer, ASAM, 330 S. Wells St., Chicago, Ill. 60606)

10-14. **Gas Turbine Conf.**, Washington, D.C. (A. B. Conlin, Jr., Meetings Manager, 345 E. 47 St., New York 10017)

10-15. American Soc. of **Photogrammetry**/American Congr. on Surveying and Mapping, annual mtg., Washington, D.C. (W. B. Overstreet, 1819 Franwall Avenue, Silver Spring, Md. 20902)

11-13. American College of **Surgeons**, sectional mtg. for **Doctors and Nurses**, Williamsburg, Va. (Communications Department, 55 E. Erie St., Chicago, Ill. 60611)

11-13. New Tools for **Planning and Research Programming**, Commercial Chemical Development Assoc., Inc. annual mtg., New York, N.Y. (R. L. Chilenskas, Man-

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11-14. **Canaveral Council of Technical Societies**, 5th space congr., Cocoa Beach, Fla. (E. P. Wynne, General Electric Co., Apollo Support Dept., P.O. Box 7011, Cape Canaveral, Fla. 32920)

11-14. **Western Metal and Tool Conf. and Exposition**, Los Angeles, Calif. (J. A. Fellows, Director of Technical Programming, Metals Park, Ohio)

12-14. **Fire Weather Conf.**, Salt Lake City, Utah. (K. C. Spengler, 45 Beacon St., Boston, Mass. 02108)

13-15. **Instrumentation for the Iron and Steel Industry**, 18th natl. conf., Pittsburgh, Pa. (T. Schuerger, U.S. Steel Corp., Research Lab., Monroeville, Pa. 15146)

13-16. **Optical Soc. of America**, spring mtg., Washington, D.C. (M. W. Warga, Executive Secretary, 1155 16th St., NW, Washington, D.C. 20036)

14-15. **Forum on Geology of Industrial Minerals**, 4th annual, Austin, Tex. (W. L. Fisher, Bureau of Economic Geology, Univ. of Texas, Austin 78712)

14-16. **Arizona Acad. of General Practice**, Tucson. (P. R. Boykin, Executive Secretary, P.O. Box 441, Scottsdale, Ariz. 85252)

14-16. **Biomathematics and Computer Science in the Life Sciences**, 6th annual, Houston, Tex. (Office of the Dean, Univ. of Texas Graduate School of Biomedical Sciences at Houston, Division of Continuing Education, P.O. Box 20367, Houston 77025)

14-20. **Marquette Univ. Medical Alumni Assoc.**, clinical conf., Palm Springs, Calif.

(R. H. Herzog, Executive Secretary, The Association, 561 N. 15 St., Milwaukee, Wis. 53233)

15-16. **State Mental Health Representatives**, 14th annual, Chicago, Ill. (W. Wolman, Dept. of Mental Health, 535 N. Dearborn St., Chicago 60610)

18-20. **Lubrication and Lubricant Rheology**, symp., Ann Arbor, Mich. (W. O. Winer, Dept. of Mechanical Engineering, 225 West Engineering Bldg., Univ. of Michigan, Ann Arbor 48104)

18-20. **American Acad. of Pediatrics**, spring session, Atlanta, Ga. (G. E. Hughes, Secretary for Meetings, 1801 Hinman Ave., Evanston, Ill. 60204)

18-21. **American Physical Soc.**, Berkeley, Calif. (W. Whaling, California Institute of Technology, Pasadena 91109)

18-21. **American Radium Soc.**, annual mtg., Miami Beach, Fla. (J. L. Pool, Executive Secretary, Memorial Hospital, 444 E. 68 St., New York, N.Y.)

18-22. **National Assoc. of Corrosion Engineers**, 24th annual conf. and show, Cleveland, Ohio. (T. J. Hull, 980 M & M Building, Houston, Tex. 77002)

19-20. **Equipment Manuals Symp.**, Washington, D.C. (National Security Industrial Assoc., 1030 15th St., NW, Washington, D.C. 20005)

19-20. **Ocean Sciences and Engineering of the Atlantic Shelf**, natl. symp., Philadelphia, Pa. (T. Evans, Conference Management Organization, Inc., Sheraton Park Hotel, 2660 Connecticut Ave., NW, Washington, D.C. 20008)

19-21. **American Railway Engineering Assoc.**, Chicago, Ill. (E. W. Hodgins, Ex-

ecutive Secretary, 59 E. Van Buren St., Chicago 60605)

20. **Suicidology**, 1st natl. conf., Chicago, Ill. (E. S. Shneidman, Center for Studies of Suicide Prevention, National Inst. of Mental Health, 5454 Wisconsin Ave., Chevy Chase, Md. 20203)

20-23. **American Orthopsychiatric Assoc.**, 45th annual, Chicago, Ill. (The Association, 1790 Broadway, New York 10019)

21-22. **Modulation Transfer Function**, Boston, Mass. (Society of Photo-Optical Instrumentation Engineers, P.O. Box 288, Redondo Beach, Calif. 90277)

21-23. **Symp. on Microwave Power**, 3rd symp., Boston, Mass. (C. Olsen, % Eimac, Division of Varian Assoc., 301 Industrial Way, San Carlos, Calif. 94070)

22-23. **Montana Medical Assoc.**, Helena. (L. R. Hegland, The Association, P.O. Box 1692, Billings, Mont. 59103)

22-23. **Socio-Economics of Health Care**, 2nd natl. congr., Chicago, Ill. (H. W. Doan, Dept. of Health Care Services, American Medical Assoc., 535 N. Dearborn St., Chicago 60610)

22-27. **California Medical Assoc.**, San Francisco. (R. L. Thomas, 693 Sutter St., San Francisco 94102)

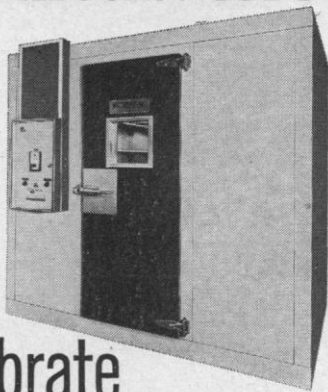
23. **New Jersey Post Graduate Anesthesia Seminar**, 9th annual, Cherry Hill. (P. A. Tucci, 22 The Fairway, Upper Montclair, N.J. 07043)

23-24. **Missouri Soc. of Anesthesiologists**, Kansas City. (G. W. N. Eggers, Jr., Univ. of Missouri Medical Center, Columbia 65201)

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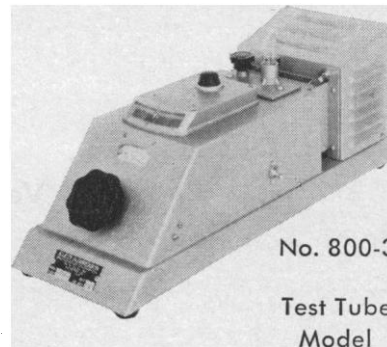
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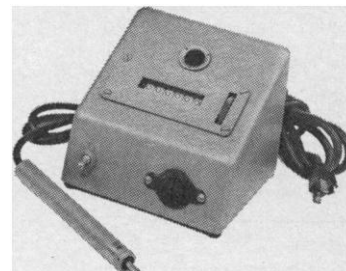
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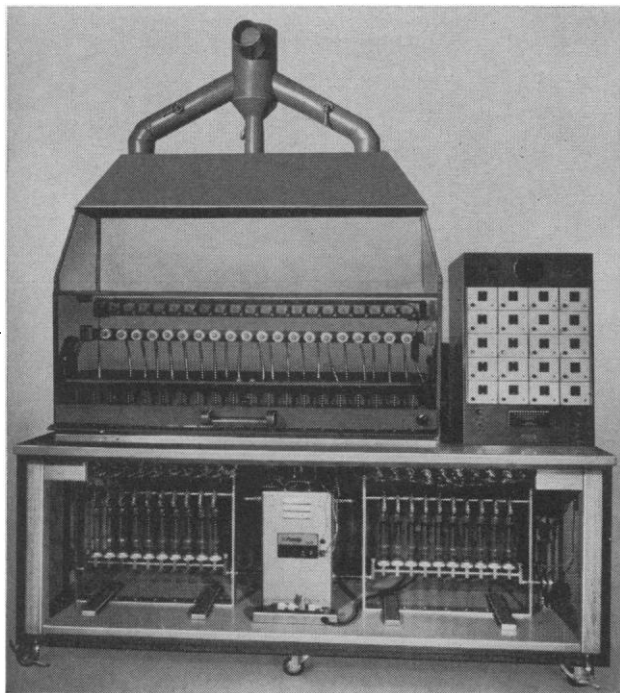
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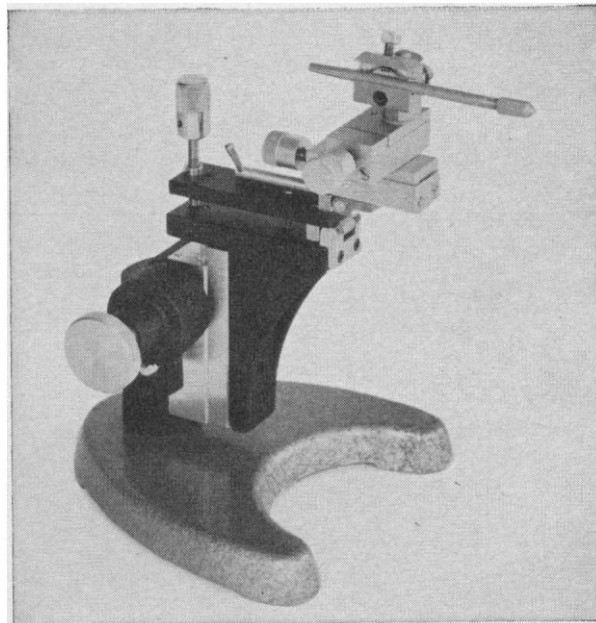
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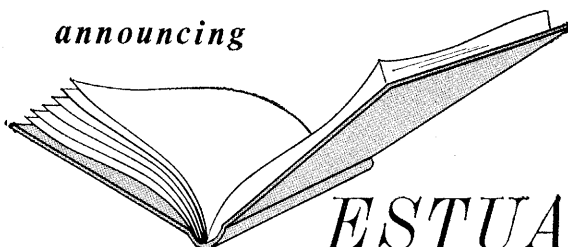
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24-29. American College of Allergists, 24th annual congr., Denver, Colo. (E. Bauers, 2160 Rand Tower, Minneapolis, Minn. 55402)

24-30. American Soc. of Clinical Pathologists, New Orleans, La. (L. H. Hoyt, Methodist Hospital, Indianapolis, Ind.)

25-27. Operations Research Symp., 2nd, Pittsburgh, Pa. (H. O. Teeple, TAPPI, 360 Lexington Ave., New York 10017)

25-27. Simulation and Support Conf., AIAA 2nd flight test, Los Angeles, Calif. (Meetings Manager, American Inst. of Aeronautics and Astronautics, 1290 Sixth Ave., New York 10019)

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25-28. Organic Solid State Chemistry Symp., Upton, N.Y. (G. Adler, Brookhaven National Lab., Upton, L.I., N.Y. 11973)

25-28. Southeastern Surgical Congr., Washington, D.C. (A. H. Letton, 340 Boulevard NE, Atlanta, Ga. 30312)

27. Oral Cancer Symp., 6th, Poughkeepsie, N.Y. (M. A. Engelman, One East Academy St., Wappingers Falls, N.Y. 12590)

27. Association for the Advancement of Psychoanalysis, New York, N.Y. (E. Schattner, Secretary, 147 E. 50 St., New York 10022)

27-28. Railroad Conf., Chicago, Ill. (Institute of Electrical and Electronics Engineers, Inc., 345 E. 47 St., New York 10017)

27-29. Linear Free Energy Relationships, 2nd conf., Irvine, Calif. (J. E. Lefler, Dept. of Chemistry, Florida State Univ., Tallahassee 32306)

28-30. American Fertility Soc., San Francisco, Calif. (H. H. Thomas, 944 S. 18 St., Birmingham, Ala. 35205)

28-31. Missouri State Medical Assn., Kansas City. (R. McIntyre, The Association, 515 E. High St., Jefferson City, Mo. 65101)

29. Symbiosis, symp., Fullerton, Calif. (L. A. Stevens, Div. of Life Sciences, Fullerton Junior College, 321 Chapman Avenue, Fullerton 92634)

29-30. Rural Health, 21st natl., Seattle, Wash. (B. L. Bible, 535 N. Dearborn St., Chicago, Ill. 60610)

29-31. American Psychosomatic Soc., Inc., Boston, Mass. (H. Weiner, Secretary-Treasurer, 265 Nassau Road, Roosevelt, N.Y. 11575)

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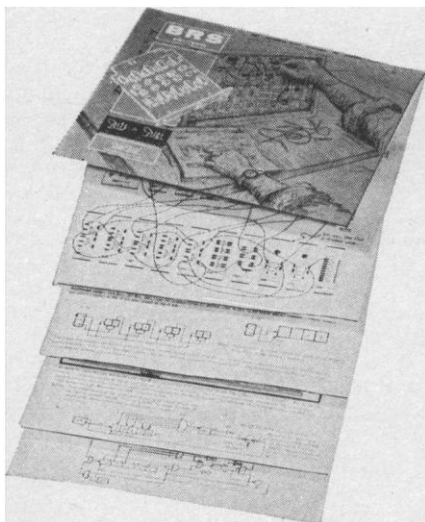
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Write for a complimentary copy of **Bits-of-Digi**.  
Fifty pages of well diagrammed,  
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explaining solid state digital logic.

The 50-page manual **Bits-of-Digi** is an outgrowth of a continuing BRS program to introduce researchers to solid state, digital logic applications. For almost two years, BRS has been conducting 3-day, complimentary, short courses for researchers, introducing them to the simplicity of digital logic packages for event programming, recording, and analyzing data. **Bits-of-Digi** follows the same pattern as a sort of do-it-yourself introduction. Through illustration, narrative and diagrams, the reader can gain valuable comprehension of circuit construction and a vocabulary of the "language". **Bits-of-Digi** approaches the subject from a non-engineer, researcher viewpoint. It is very basic. But, with a little diligence, a lot can be learned. What is an "AND GATE"—or a "FLIP FLOP"... how do you set up a "RING COUNTER" or an "INTER-EVENT TIME RECORDING" circuit? You'll learn how to read and draw logic diagrams. This manual will undoubtedly become a well-used reference tool whenever you're talking digital systems with engineers or researchers.

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**BRS electronics**  
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2 FEBRUARY 1968

30-3. Technical Assoc. of Pulp and Paper Industry, 5th water conf., Portland, Ore. (The Association, 360 Lexington Ave., New York 10017)

31-3. Erosion as Related to Air and Water Pollution, Las Vegas, Nev. (R. B. Reams, Desert Research Inst., Univ. of Nevada, Reno 89507)

31-4. American Assoc. of Cereal Chemists, 53rd annual, and American Oil Chemists Soc., 58th annual, joint mtg., Washington, D.C. (R. J. Tarleton, 1955 University Ave., St. Paul, Minn. 55104)

31-4. Materials Engineering and Sciences, conf. and exposition, Philadelphia, Pa. (C. S. Grove, Jr., 5110 Brockway Lane, Fayetteville, N.Y. 13066)

31-5. American Chemical Soc., 155th spring natl. mtg., San Francisco, Calif. (A. T. Winstead, 1155 16th St., NW, Washington, D.C. 20036)

31-7. North American Clinical Dermatologic Soc., New Orleans, La. (E. F. Finnerty, The Society, 510 Commonwealth Ave., Boston, Mass. 02115)

## International and Foreign Meetings

### February

6-8. Weed Control, Inter-American conf., New Orleans, La. (J. B. Baker, Dept. of Botany and Plant Pathology, Louisiana State Univ., Baton Rouge)

7-9. Canadian Inst. of Surveying, annual mtg., Ottawa, Ont., Canada. (Secretary, The Institute, 157 McLeod St., Ottawa)

12-16. Early Behavior and Brain Mechanisms, London, England. (Ciba Foundation, 41 Portland Pl., London, W.1)

14-16. Automatic Laboratory Techniques, exhibition and conference, 2nd, London, England. (Southern Exhibitions Ltd., 11 Liverpool Terrace, Worthington, England)

14-16. International Solid State Circuits Conf., Philadelphia, Pa. (L. Winner, 152 W. 43 St., New York 10036)

17-21. South East Asia and Pacific Area League against Rheumatism, 1st cong., Bombay, India. (M. M. Desai, Indian Rheumatism Soc., Fetch Manzil, 457-59, Lamington Road, Bombay 4)

17-25. International Trade Exhibitions of Building Material, Structural Elements and Interior Finishing, Munich, Germany. (Munchener Messe-Und Ausstellungsgesellschaft MBH., Theresienhohe 13, 8 Munich 12)

19-23. Australian Conf. on Electrochemistry, Melbourne. (D. F. A. Koch, % Div. of Mineral Chemistry, Commonwealth Scientific and Industrial Research Organization, P.O. Box 124, Port Melbourne, Victoria, Australia)

20-21. New Synthetic Fibers, Rotterdam, Netherlands. (Secretariat, % Holland Organizing Centre, 16 Lange Voorhout, The Hague, Netherlands)

20-6. Commonwealth Broadcasting, 7th conf., Wellington, Wairakei, Auckland, New Zealand. (M. Stephens, Commonwealth Broadcasting Conference Secretariat, Broadcasting House, London, W.1, England)

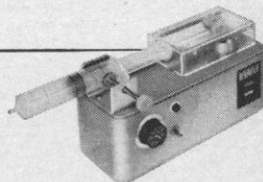
22. Pollution Symp., Montreal, Canada. (K. Dunlop, Domtar Chemicals Ltd., 1155 Dorchester Blvd. W, Montreal)

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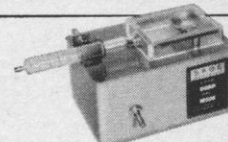
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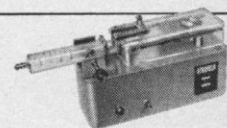
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