

GRASSLANDS

Editor: Howard B. Sprague 1959

6" x 9", 424 pp., 37 illus., index, cloth.
Price \$9.00, AAAS members' cash orders \$8.00. AAAS Symposium Volume No. 53.

This volume is intended as a review of knowledge on many aspects of grasslands resources. The 44 authors were selected by their own professional colleagues as being particularly competent to present the respective subjects. Thirty-seven papers are arranged under these chapter headings:

1. Sciences in Support of Grassland Research
2. Forage Production in Temperate Humid Regions
3. Engineering Aspects of Grassland Agriculture
4. Forage Utilization and Related Animal Nutrition Problems
5. Evaluation of the Nutritive Significance of Forages
6. Grassland Climatology
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symp., Tallahassee, Fla. (W. F. Tanner, Geology Dept., Florida State Univ., Tallahassee.)

28-5. American College of Allergists, Miami Beach, Fla. (E. Bauers, 2160 Rand Tower, Minneapolis 2, Minn.)

29-3. American College of Surgeons, Boston, Mass. (H. P. Saunders, 40 E. Erie St., Chicago, Ill.)

29-4. Pittsburgh Conf. on Analytical Chemistry and Applied Spectroscopy, Pittsburgh, Pa. (L. P. Melnich, U.S. Steel Corp., Monroeville, Pa.)

March

3-5. American Acad. of Forensic Sciences, Chicago, Ill. (W. J. R. Camp, AAAS, 1853 W. Polk St., Chicago 12.)

4-6. National Wildlife Federation, Dallas, Tex. (C. H. Callison, 232 Carroll St., NW, Washington 12.)

6-13. American Otorhinologic Soc. for Plastic Surgery, Miami Beach, Fla. (J. G. Gilbert, 75 Barbary Lane, Roslyn Heights, N.Y.)

7-9. Wildlife Management Inst., Dallas, Tex. (C. R. Gutermuth, 709 Wire Bldg., Washington 5.)

7-11. American Soc. of Civil Engineers, New Orleans, La. (E. S. Kirkpatrick, ASCE, 33 W. 39 St., New York 18.)

10. Recent Developments in Poultry Nutrition (Assoc. of Vitamin Chemists), Chicago, Ill. (J. T. Sime, Director of Research, Evaporated Milk Assoc., 228 N. La Salle St., Chicago 1.)

13-14. American Otological Soc., Miami Beach, Fla. (L. R. Boies, University Hospital, Minneapolis 14.)

14-16. American Railway Engineering Assoc., annual conv., Chicago, Ill. (N. D. Howard, AREA, 59 E. Van Buren St., Chicago 5.)

14-17. Positive Health of Older People, forum, Miami Beach, Fla. (A. Mallach, National Health Council, 1790 Broadway, New York 19.)

15-16. American Broncho-Esophango-logical Assoc., Miami Beach, Fla. (F. J. Putney, 1712 Locust St., Philadelphia 3.)

15-21. Nondestructive Testing, 3rd intern. conf., Tokyo and Osaka, Japan. (S. Ishizaka, Scientific Attaché, Embassy of Japan, 2514 Massachusetts Ave., NW, Washington 8.)

17. Congress for Pharmacists, 2nd annual, Jamaica, N.Y. (Congress for Pharmacists, Public Relations Office, St. John's Univ., Jamaica 32.)

17-19. American Radium Soc., conf., San Juan, Puerto Rico. (ARS, 635 East Union, Pasadena, Calif.)

17-19. Blood Platelets, intern. symp. (by invitation only), Detroit, Mich. (Miss S. A. Johnson, Henry Ford Hospital, Detroit 2.)

17-20. International Assoc. for Dental Research, Chicago, Ill. (D. Y. Burrill, Northwestern Univ. Dental School, 311 E. Chicago Ave., Chicago 11.)

18-19. American Laryngological Assoc., Miami Beach, Fla. (L. Richards, Massachusetts Inst. of Technology, Cambridge 39.)

20-23. American Assoc. of Dental Schools, Chicago, Ill. (R. Sullen, 840 N. Lake Shore Drive, Chicago 11.)

(See issue of 18 December for comprehensive list)

New Products

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Neither Science nor the writer assumes responsibility for the accuracy of the information. All inquiries concerning items listed should be addressed to the manufacturer. Include the department number in your inquiry.

■ **PULSE GENERATOR**, completely transistorized, supplies 15-volt positive and negative pulses with separately controlled amplitudes. Pulse width is variable from 0.5 to 100 μ sec with rise time less than 0.1 μ sec. Repetition rate is continuously variable between 20 and 5000 pulses/sec. Output pulse delays up to 100 μ sec and anticipation up to 10 μ sec relative to sync output are included. (Solidyne, Dept. Sci272, 7460 Girard Ave., La Jolla, Calif.)

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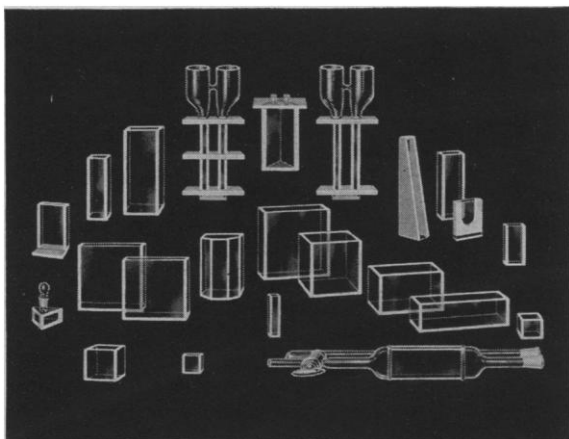
■ **CHROMATOGRAM SCANNER** draws a curve of color density as a function of distance scanned along a paper strip. Simultaneously, the curve is integrated and a second pen draws saw-tooth marks whose number is proportional to the concentration of each component separated on the strip. A balancing cam is used to make results linear with concentration. Other cams are available to present output linear in percent transmission or in optical density. (Beckman Instruments Co., Spinco Div., Dept. Sci282, Stanford Industrial Park, Palo Alto, Calif.)

■ **A-C VOLTMETER**, model 403A, is a transistorized, battery-operated instrument with a frequency range 1 cy to 1 Mcy/sec. Voltage is measured in 12 ranges from 1 mv full scale to 300 volts full scale. Accuracy is ± 3 percent from 5 cy to 500 kcy/sec, and ± 5 percent over the remainder of the range. Noise is less than 50 μ v. Battery life is 400 hr. (Hewlett Packard Co., Dept. Sci283, 275 Page Mill Rd., Palo Alto, Calif.)

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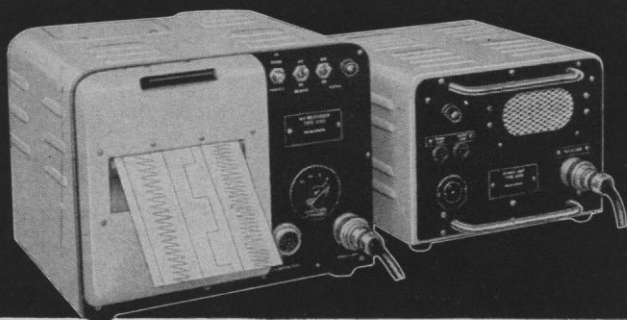
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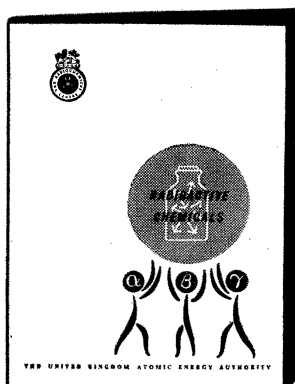
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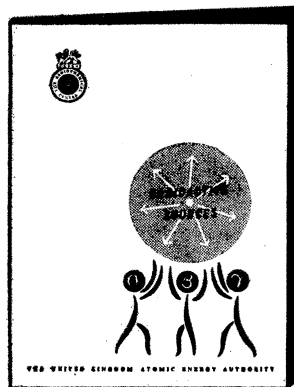
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■ **SIGNAL ANALYZER** permits measurement of amplitudes from 300 cy to 400 kcy/sec. The instrument uses the heterodyne principle and highly selective crystal filters. Metering circuits indicate levels from -80 to $+32$ dbm with accuracy said to be ± 0.5 db. (Railway Communications Inc., Dept. Sci-308, 9351 E. 59 St., Raytown 33, Mo.)

■ **LOW-FREQUENCY OSCILLATOR**, type 1305A, covers frequencies between 0.01 and 1000 cy/sec. The output is continuously variable in phase and is calibrated from 0 to 360 deg. Three- and four-phase outputs are also available. Accuracy of output phase is ± 0.5 deg for angles less than 10 deg. Maximum error is ± 3 deg at higher phase angles. Small phase differences can be measured at any point with accuracy ± 0.25 deg. Output voltage is indicated. (General Radio Co., Dept. Sci286, West Concord, Mass.)

■ **LEAK DETECTOR** of mass spectrometer type is a helium-sensitive instrument capable of detecting a leak rate of 10^{-13} standard cm^3/sec with 10-percent deflection of an output meter and a signal-to-noise ratio of 1 or better. Response time is less than 2 sec for $\frac{2}{3}$ of final response. Seven ranges provide full-scale rates from 10^{-12} to 10^{-9} cm^3/sec . An auxiliary vacuum system is provided for evacuation of the system under test. (Crosby-Teletronics Corp., Dept. Sci293, 299 Robbins Lane, Syosset, L.I., N.Y.)

■ **SIGNAL SAMPLING UNIT**, for use with conventional oscilloscopes, makes possible viewing of repetitive pulses with rise times less than 0.5 m μ sec on oscil-

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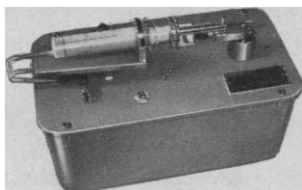
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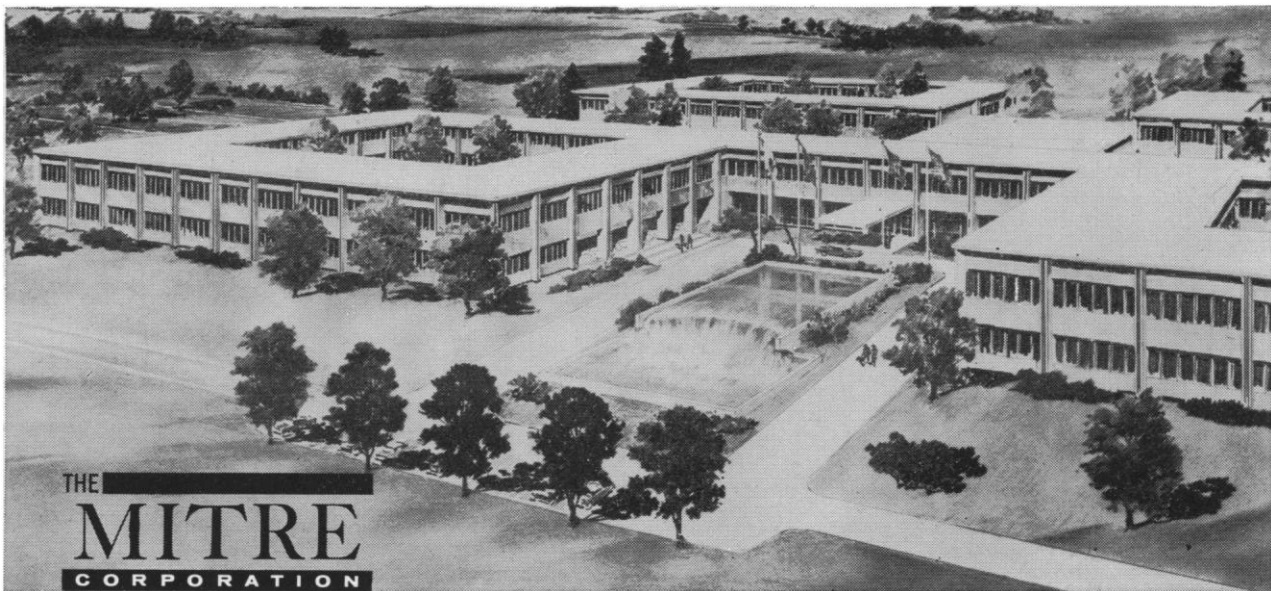
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NEW HEADQUARTERS UNDER CONSTRUCTION IN SUBURBAN BOSTON

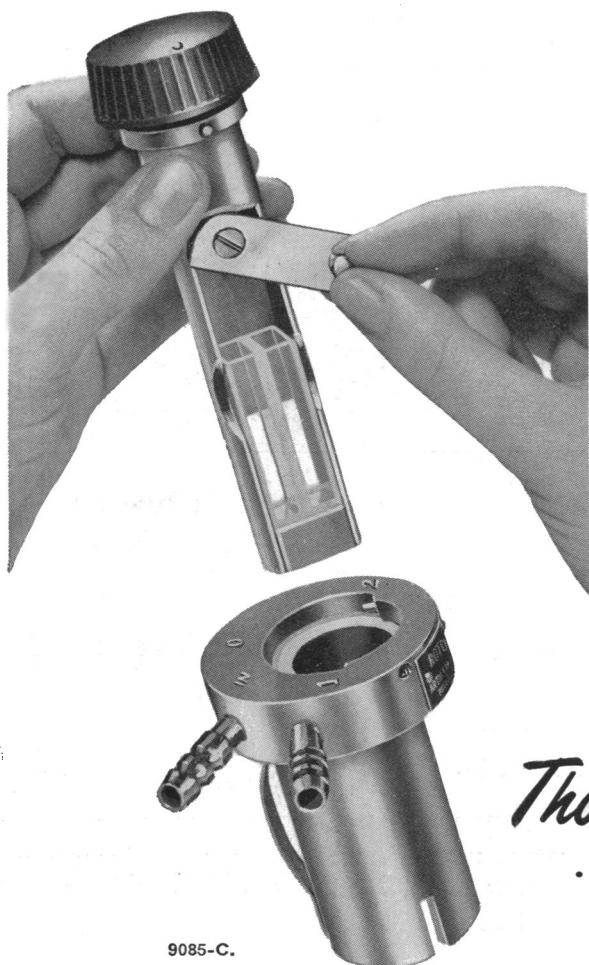
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If you possess a baccalaureate or advanced degree in engineering, mathematics or the physical sciences, you are invited to inquire about career opportunities in these areas:

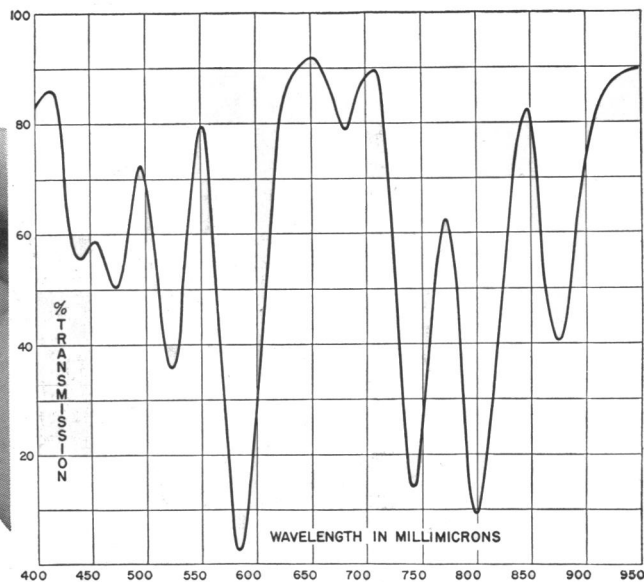
- SYSTEM DESIGN
- COMPONENT DEVELOPMENT
- RADAR SYSTEMS
- OPERATIONS ANALYSIS
- WEAPONS SYSTEM INTEGRATION
- COMMUNICATION SYSTEMS
- ELECTRONIC WARFARE
- INTEGRATED SYSTEM EVALUATION
- COMPUTER PROGRAMMING
- PROGRAM LOGISTICS

*To arrange an immediate confidential interview, direct your inquiries to:
Dana N. Burdette, Personnel Director, Dept. 11-C*

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9085-C.



Didymium transmission curve showing resolution obtainable with Spectronic 20

Thomas ROTO-CELL

... for converting Spectronic 20 into an inexpensive spectrophotometer for control, research, teaching, etc.

ROTO-CELL. A double cell in swivel action carrier with water-jacketed housing, for rapid scanning at controlled temperatures.

Readily interchangeable with the single place sample holder of Spectronic 20.

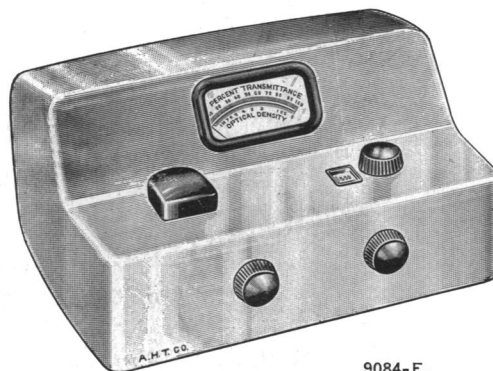
Finger tip rotation of knob introduces either cell chamber into light beam and provides dark current check.

9085-C. Roto-Cell, Thomas, with double 1 ml cell of Vycor brand glass, with cover; with 10 mm light path.....**80.00**

9084-E. Spectrophotometer-Colorimeter, B. & L. Spectronic 20. A compact, direct reading, versatile instrument, simple to operate. Range 375 to 950 mμ, band width 20 mμ. Reads in transmission and optical density. Complete outfit for rapid spectral scanning and plotting of absorption curves, consisting of blue and red-sensitive phototubes and filter, voltage stabilizing transformer and Thomas Roto-Cell with double 1 ml cell for 10 mm light path. For 115 volts, 60 cycles, a.c....**381.50**

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