

Meetings

Instrumentation

One of the purposes of the annual Symposium on Recent Developments in Research Methods and Instrumentation and the allied exhibit of research equipment is to bring together workers in widely differing disciplines and provide them with ample opportunity to see and hear experts in different fields discuss and demonstrate the methods and instrumentation used in current research. About half the papers give a general review of a field; the other half report the most recent developments in instrumentation.

This year's conference was held from 8 to 12 October at the National Institutes of Health, Bethesda, Maryland. The sessions were devoted to such diversified topics as thin-film and gas chromatography, ion exchange techniques, nuclear magnetic resonance, optical masers, vacuum-ultraviolet studies, x-ray microscopy, automation in research, physiological monitoring, and x-ray diffraction studies of proteins.

Thin-layer chromatography and various methods of gas chromatography were discussed by D. Humm, who described the preparation, uses, and advantages of the new "acrylothin" plates for combination electrophoresis and thin-layer chromatography separations. James Watts discussed electron-capture gas chromatography at sensitivities in the picogram (10^{-12}) range.

In a session on nuclear magnetic resonance, three areas of that field were investigated. F. A. Bovey described the use of solutions to get fine-line, high-resolution spectra for the determination of polymer structure. Paul C. Lauterbur reported on double resonance techniques and demonstrated how the second radio-frequency field could be used to elucidate spectra of, for example, naturally occurring carbon-13 and complex molecules such as $\text{Al}(\text{BH}_4)_3$. Saul Meiboom discussed line width, fast passage, and spin-echo

techniques as applied to the kinetics of fast reactions.

In a session concerned with optical masers, S. Porto reviewed parameters for maser operation and suggested some of the uses to which masers may be put. He reported the attempts at the Bell Laboratories to use masers as Raman sources and mentioned the recent report from the Hughes Laboratories on Raman-line intensity achieved by using a sample holder in the Fabry-Pérot cavity. Up to 20 percent of the output radiation was associated with Raman lines. Other speakers reported on the use of masers as cutting and welding machines and as instruments in certain eye operations. Measures for protecting the eyes of those working with masers were outlined by C. Koester.

The vacuum-ultraviolet section of the spectrum was the subject of one session. The development of instrumentation to produce vacuum-ultraviolet radiation and the biological effects of the radiation were discussed. A. Boggess then reported some unexpected results from vacuum-ultraviolet studies of stars made by instruments mounted in rockets for research above the ozone layer of the earth. The published ultraviolet black-body curves extrapolated from the observed visible spectra on earth were not confirmed by instruments in these rocket flights. No theory has been proposed to explain the discrepancies. Many previously accepted star parameters, such as temperature, are now in apparent disagreement with the observed vacuum-ultraviolet data.

Automation in research was discussed from two general points of view. Some of the applications of commercial instruments such as the Auto Analyzer and the Robot Chemist to routine biochemical analysis were shown. Ease of use, reliability, and cost per sample analyzed were discussed. A. Savitzky reported on the advantages, in laboratory measurement, of computer-

instrument linkages. The most obvious advantage is in the storing and retrieving of large volumes of data. Other advantages lie in the ability of computers to smooth out "noisy" curves, to get peak and inflection points as well as integrated areas for intensity measurements, and to separate large masses of data into contributions of the individual components.

There were papers on the uses of electronic equipment to monitor physiological phenomena such as heart-beat irregularities and motor-control responses of the extremities. The use of ultrasonic vibration in modifying and examining tissue was discussed.

The final session was concerned with x-ray studies of proteins. D. L. D. Caspar presented studies on virus geometry, and C. Cohen discussed helical coils in muscle.

Interest in these symposia, which are cosponsored and supported by the National Institutes of Health and by eight Washington, D.C., area chapters of professional societies, is evidenced by the attendance figures, which show about a threefold increase since the first session, 8 years ago. More striking is the number of companies interested in showing their wares at the exhibit. From the modest beginning of only 38 firms at the first show, in 1951, the number has increased so greatly that last year the sponsors were forced to ask the companies to take turns and exhibit only biennially.

Abstracts and other information about next year's meeting may be obtained from James Davis, National Institutes of Health, Bethesda, Md.

T. E. KENNEY
E. R. LIPPINCOTT

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Forthcoming Events

January

5. **Pediatrics, Medicine, Surgery, and Obstetrics**, seminar, Manila, Philippines. (A. C. Reid, 118 Riverside Dr., New York 24)

5-12. **Medical Conf.**, Dakar, Senegal. (P. Pene, c/o Faculté de Médecine, Dakar)

5-12. **Tumors of Conjunctive Tissue**, symp., Dakar, Senegal (by invitation). (H. F. Dorn, Intern. Union Against Cancer, c/o National Institutes of Health, Bethesda 14, Md.)

7-8. **Ultra-High Energy Nuclear Physics**, conf., Bristol, England. (Administrative Assistant, Inst. of Physics and the Physical Soc., 47 Belgrave Sq., London S.W.1, England)

7-9. Relations between the Structure and Mechanical Properties of **Metals**, conf., Teddington, Middlesex, England (by invitation only). (D. McLean, Metallurgy Div., Natl. Physical Laboratory, Teddington, Middlesex)

7-10. **Millimeter and Submillimeter**, conf., Orlando, Fla. (H. L. Bassett, Millimeter Conf., Martin Company-MP-75, Orlando)

9-12. National Soc. of **Professional Engineers**, winter meeting, San Antonio, Tex. (P. H. Robbins, 2029 K St., NW, Washington 6)

13-18. American **Chemical Soc.**, Cincinnati, Ohio. (A. H. Emery, 1155 16th St., NW, Washington 6)

14-16. **Radiation Research**, intern. conf., Natick, Mass. (Army Quartermaster Research and Engineering Center, Natick)

14-18. Association of **Surgeons of West Africa**, Ibadan, Nigeria. (V. A. Ngu, University College Hospital, Ibadan)

14-19. Atomic and Molecular **Quantum Theory**, symp., Sanibel Island, Fla. (D. W. Smith, Chemistry Dept., Univ. of Florida, Gainesville)

15-15 Feb. World Meteorological Organization, Working Group on **Meteorological Transmissions**, Paris, France. (WMO, 41 Avenue Giuseppe Motta, Geneva, Switzerland)

15-17. Association of **American Colleges**, annual, Atlantic City, N.J. (T. A. Distler, AAC, 1818 R St., NW, Washington 9)

15-17. **Sesame**, intern. conf., Maracay, Venezuela. (D. G. Langham, Sesamum Foundation, Milford, Conn.)

15-19. **Immunopathology**, intern. symp.,

La Jolla, Calif. (by invitation). (Science Information Div., National Foundation, 800 Second Ave., New York 17)

17-19. **Engineers' Training**, conf., Strasbourg, France. (Council of Europe, Avenue de l'Europe, Strasbourg)

17-19. Royal College of **Physicians and Surgeons of Canada**, annual, Edmonton, Alberta. (J. H. Graham, RCPSC, 74 Stanley Ave., Ottawa 2, Ont., Canada)

18-19. **Blood**, annual symp., Detroit, Mich. (G. F. Anderson, Dept. of Physiology and Pharmacology, Wayne State Univ., 1401 Rivard St., Detroit 7)

21-23. Chemistry and Biochemistry of **Seed Proteins**, intern. conf., New Orleans, La. (C. H. Fisher, Southern Utilization Research and Development Div., Agricultural Research Service, U.S. Dept. of Agriculture, P.O. Box 19687, New Orleans 19)

21-23. Institute of the **Aerospace Sciences**, annual, New York, N.Y. (IAS, 2 E. 64 St., New York 21)

21-24. American **Meteorological Soc.**, annual, New York, N.Y. (R. L. Pfeffer, Lamont Geological Observatory, Columbia Univ., Palisades, N.Y.)

21-24. Advances in **Gas Chromatography**, intern. symp., Houston, Tex. (A. Zlatkis, Chemistry Dept., Univ. of Houston, Houston)

22. Infectious Diseases of the **Heart and Circulation**, conf., New York, N.Y. (C. A. R. Connor, New York Heart Assoc., 10 Columbus Circle, New York 19)

22-24. **Reliability and Quality Control**, natl. symp., San Francisco, Calif. (L. W. Ball, Boeing Co., P.O. Box 3707, Seattle 24, Wash.)

23-25. **Elevated Temperature Mechanics**, intern. conf., 3rd Navy Structural Mechanics Symp., New York, N.Y. (by invitation). (A. M. Freudenthal, 624 Mudd Bldg., Columbia Univ., New York 27)

23-26. American Assoc. of **Physics Teachers**, New York, N.Y. (R. P. Winch, Williams College, Williamstown, Mass.)

23-26. American Group **Psychotherapy Assoc.**, annual, Washington, D.C. (AGPA, 1790 Broadway, New York 19)

24-27. American **Mathematical Soc.**, annual, Berkeley, Calif. (AMS, 190 Hope St., Providence 6, R.I.)

25-6. International College of **Surgeons**, West Indies congr., aboard S.S. *Santa Rosa*. (Secretariat, 1516 Lake Shore Dr., Chicago 10, Ill.)

26. Association for **Symbolic Logic**, Berkeley, Calif. (T. Hailperin, Dept. of Mathematics, Lehigh Univ., Bethlehem, Pa.)

26-28. **Mathematical Assoc. of America**, annual, Berkeley, Calif. (H. M. Gehman, Univ. of Buffalo, Buffalo 14, N.Y.)

27-1. American Inst. of **Electrical Engineers**, winter general meeting, New York, N.Y. (R. S. Gardner, AIEE, 33 W. 39 St., New York 18)

28-2. American **Library Assoc.**, Chicago, Ill. (D. H. Clift, ALA, 50 E. Huron St., Chicago 11)

28-2. **Body Composition**, conf., New York, N.Y. (J. Brozek, Dept. of Psychology, Lehigh Univ., Bethlehem, Pa.)

30-1. Military **Electronics**, natl. winter convention, Los Angeles, Calif. (F. P. Adler, Space Systems Div., Hughes Aircraft Co., Culver City, Calif.)

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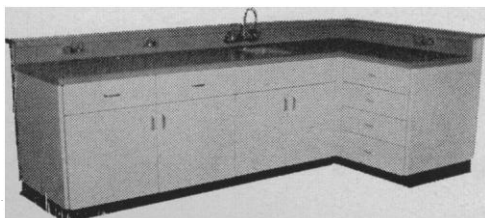
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31-1. American Soc. for **Engineering Education**, college-industry conf., Atlanta, Ga. (W. L. Collins, Univ. of Illinois, Urbana)

31-1. Society of **Rheology**, annual western regional meeting, Emeryville, Calif. (T. L. Smith, Stanford Research Inst., Menlo Park, Calif.)

31-2. Western Soc. for **Clinical Research**, annual, Carmel-by-the-Sea, Calif. (H. R. Warner, Latter-day Saints Hospital, Dept. of Physiology, Salt Lake City 3, Utah)

February

4-8. **Rice Genetics and Cytogenetics**, symp., Los Baños, Laguna, Philippines. (Inter. Rice Research Inst., Manila Hotel, Manila, Philippines)

4-9. Recent Trends in **Iron and Steel Technology**, symp., Jamshedpur, India. (Secretary, Indian Inst. of Metals, 31 Chowringhee Rd., Calcutta, India)

4-20. Application of **Science and Technology** for the Benefit of Less Developed Areas, U.N. conference, Geneva, Switzerland. (Science Conference Staff, Agency for International Development, 826 State Dept. Annex 1, Washington 25)

5-14. International **Radio Consultative Committee**, Plan Subcommittee for Asia, New Delhi, India. (V. Barthoni, 128 rue de Lausanne, Geneva, Switzerland)

6-9. American College of **Radiology**, Chicago, Ill. (F. H. Squire, Presbyterian-St. Luke's Hospital, 1753 W. Congress St., Chicago 12)

8-18. United Nations Committee on **Industry and Natural Resources** in Asia and the Far East, Bangkok, Thailand. (S. Santitham, Rajadamnern Ave., Bangkok)

10-15. **Management Function** in Research and Development, conf., Pasadena, Calif. (Management Development Section, Industrial Relations Center, California Inst. of Technology, Pasadena)

10-16. **Planned Parenthood**, intern. conf., Singapore. (V. Houghton, Intern. Planned Parenthood Federation, 69 Eccleston Sq., London, S.W.1, England)

11-14. American Soc. of **Heating, Refrigerating, and Air-Conditioning Engineers**, New York, N.Y. (R. C. Cross, 345 E. 47th St., New York 17)

11-14. **Industrial Lubrication**, intern. conf. and exhibit, London, England. (E. V. Paterson, Scientific Lubrication, 217a Kensington High St., London W.8)

11-15. **Quantum Electronics**, intern. symp., Paris, France. (Secrétariat, Troisième Congrès International d'Electronique Quantique, 7 rue de Madrid, Paris 8°)

12-14. **Lysozymes**, symp. (by invitation), London, England. (Ciba Foundation, 41 Portland Pl., London W.1)

13-15. **Electrochemistry**, 1st Australian conf., part I, Sydney, Australia. (F. Gutmann, Physical Chemistry Dept., Univ. of New South Wales, Kensington, N.S.W., Australia)

13-16. National Soc. of **College Teachers of Education**, Chicago, Ill. (E. J. Clark, Indiana State College, Terre Haute)

14-15. American Soc. for **Quality Control**, Textile and Needles Trades Div., an-

nual conf., Clemson, S.C. (H. F. Littleton, c/o Charles H. Bacon Co., Lenoir City, Tenn.)

15-14 Apr. **Aeronautics and Space**, intern. exhibition, São Paulo, Brazil. (Santos Dumont Foundation, Avenida Ipiranga N°. 84, São Paulo)

16-23. Caribbean **Dental Convention**, Port of Spain, Trinidad. (A. V. Awon, 43-45 Frederick St., Port of Spain)

17-21. Technical Assoc. of the **Pulp and Paper Industry**, annual, New York, N.Y. (TAPPI, 360 Lexington Ave., New York 17)

18-20. American **Standards Assoc.**, natl. conf., New York, N.Y. (ASA, 10 E. 40 St., New York 16)

18-20. **Biophysical Soc.**, annual, New York, N.Y. (A. Mauro, Rockefeller Inst., New York)

18-20. **Electrochemistry**, 1st Australian conf., part II, Hobart, Tasmania. (J. N. Baxter, Chemistry Dept., Univ. of Tasmania, Hobart)

18-25. Expert Committee on **Food Additives**, FOA/WHO, Rome, Italy. (Intern. Agency Liaison Branch, Office of the Director General, Food and Agriculture Organization, Viale delle Terme di Caracalla, Rome)

19-22. **Radiochemistry**, inter-American conf., Montevideo, Uruguay. (Pan American Union, Washington 6)

20-22. Fundamental **Cancer Research**, annual symp., Houston, Tex. (L. Dmochowski, Section of Virology and Electron Microscopy, M. D. Anderson Hospital, Houston 25)

20-22. **Solid-State Circuits**, intern. conf., Philadelphia, Pa. (F. J. Witt, Bell Telephone Laboratories, Inc., Murray Hill, N.J.)

20-23. National Assoc. for Research in **Science Teaching**, Washington, D.C. (J. D. Novak, Biological Science Dept., Purdue Univ., Lafayette, Ind.)

20-24. Diseases of the **Chest**, intern. congr., New Delhi, India. (M. Kornfeld, American College of Chest Physicians, 112 E. Chestnut St., Chicago 11, Ill.)

21-22. American Soc. for **Quality Control**, regional conf., Las Vegas, Nev. (S. R. Wood, Dept. 61, Bldg. 160, Aerojet-General Corp., Azusa, Calif.)

22-23. American **Psychopathological Assoc.**, annual, New York, N.Y. (F. A. Freyhan, c/o St. Elizabeths Hospital, Washington 20, D.C.)

23-28. American Soc. for **Testing and Materials**, annual, Atlantic City, N.J. (H. H. Hamilton, 1916 Race St., Philadelphia 3, Pa.)

24-25. Unit Processes in **Hydrometallurgy**, symp., Dallas, Tex. (F. T. David, Colorado School of Mines, Golden)

24-27. **Diffusion**, intern. conf., Palm Springs, Calif. (J. A. Biles, Univ. of Southern California, School of Pharmacy, Los Angeles 7)

24-28. American Inst. of **Mining, Metallurgical, and Petroleum Engineers**, annual, Dallas, Tex. (E. Kirkendall, AIME, 345 E. 47 St., New York 17)

25-27. Advanced **Marine Engineering Concepts for Increased Reliability**, symp., Ann Arbor, Mich. (G. L. West, Jr., Dept. of Marine and Nuclear Engineering, Univ. of Michigan, Ann Arbor)

(See 23 November issue for comprehensive list)

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