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 $Al(BH_4)_3$. 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.

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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 Médicine, 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)