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Meetings

NATIONAL ACADEMY OF SCIENCES

ANNUAL MEETING IN WASHINGTON

Featured by a special symposium on artificially produced mesons, the annual meeting of the National Academy of Sciences took place on April 23, 24, and 25 in Washington, D. C. The meson conference, which was part of a scientific session held at the National Bureau of Standards in recognition of the fiftieth anniversary of the Bureau's founding, constituted a complete review of recent meson production by means of modern laboratory accelerating equipment. The symposium speakers included E. T. Booth of Columbia University's Nevis Cyclotron Laboratories, Bernard Feld of the Massachusetts Institute of Technology, C. Richman of the University of California Radiation Laboratory, A. Roberts of the University of Rochester, and Robert R. Wilson of Cornell University.

The scientific session held during the first day of the meeting took place in the Academy building and was followed in the evening by an address on the Palomar Observatory by Ira Sprague Bowen, director of the Mt. Wilson and Palomar Observatories.

FREQUENCY CONTROL

SIGNAL CORPS SPONSORS SYMPOSIUM

The fifth annual Frequency Control Symposium, sponsored by the Signal Corps Engineering Laboratories, Fort Monmouth, New Jersey, was held at the Berkeley-Carteret Hotel, Asbury Park, New Jersey, on May 1 through May 3. This symposium is held each year to review the progress made on problems connected with precision frequency control, primarily at radio frequencies.

The program was made up of invited papers given by representatives of laboratories of universities and other organizations engaged in Government-sponsored research and development in this field, by members of the radio industry, and by engineers of the Signal Corps Engineering Laboratories.

The first day's program was concerned with progress made in the field of crystal synthesis. Papers were concerned with the basic problems of physical chemistry encountered in crystal growth and with techniques for growing large single crystals of quartz.

Discussion on the second day centered around items such as the physics of quartz oscillator plates, mathematical theory of nonlinear oscillator circuits, improved characteristics of crystal units, electromagnetic filters, and basic theory of piezoelectricity in crystals.

Problems of crystal unit and radio equipment manufacturers, as related to frequency control, were discussed on the third day. Items included the review of newly developed crystal fabricating equipment, test equipment and procedures, and military specifications for crystal units.

A banquet held in connection with the symposium was well attended. Lt. Col. William M. Young, director of Squier Signal Laboratory, Fort Monmouth, New Jersey, acted as toastmaster. The principal speaker was Dr. Frederick Pough of the American Museum of Natural History; his talk, entitled "The Glamorous Crystal", was concerned with gems in general and was illustrated by color slides.

Attendance at the symposium was most gratifying, the total registration being 255. The breakdown of attendance showed representation from sixteen universities, five industrial laboratories, twenty-seven Government agencies, and fifty-two manufacturers. Geographically, this attendance covered all major regions of the United States. Great Britain, Canada, and Australia also were represented.

E. W. Johnson
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THE AMERICAN PHYSICAL SOCIETY

ANNUAL SPRING MEETING HELD IN WASHINGTON

This year's Spring Meeting of the American Physical Society, held in Washington, D. C. on the 26th, 27th, and 28th of April, departed significantly from recent Washington APS meetings in that it was conveniently and centrally located. All of the individual sessions were within easy walking distance of one another. The National Bureau of Standards, this year celebrating its fiftieth anniversary, played host for a considerable portion of the meeting, although a number of sessions were held at two nearby hotels, the Shoreham and the Wardman Park. About three hundred ten-minute papers (including several post-deadline papers) were presented during the three-day meeting and were distributed among some twenty-five technical sessions. Attendance, it is reported, was at an all-time high. A total of 2150 Physical Society members and guests registered for the meeting.

Although nuclear physics, theoretical and experimental, dominated much of the program, several well-attended sessions and special symposia were concerned with such relatively nonnuclear subjects as high-polymer physics, ultrasonics, fluid dynamics, ferromagnetism, crystals and semiconductors, spectroscopy, biophysics, electrical phenomena in gases, and low temperature physics. The Society's division of high-polymer physics held two symposia. The first, with the theme "Transitions in Polymers", included a session of seven contributed papers which was presided over by L. A. Wood and which featured an invited thirty-minute paper by T. G. Fox, Jr. in review of the factors influencing glass formation and crystallization in polymers. The second symposium, with A. V. Tobolansky presiding, dealt at length with the relative effects of frequency and temperature on the dynamic mechanical properties

of polymers and consisted of a series of invited papers by Toblansky, J. D. Ferry, T. W. de Witt, R. S. Marvin, A. W. Nolle, and H. S. Sack. The high polymer division sessions will be described in more detail in the August issue of *Physics Today*.

A comprehensive picture of the work being done at the National Bureau of Standards was given during a full-day program of invited papers on April 27th. A. V. Astin, who presided over the first session, reviewed generally the Bureau's current research activities, after which other members of the Bureau's scientific staff described specific NBS projects. R. D. Huntoon discussed the use of atomic systems for defining standards of measurement, U. Fano spoke on the diffusion and penetration of x-rays and electrons, W. F. Meggers gave a good picture of the Bureau's work in establishing the spectra of artificially-produced elements, J. R. Pellam reviewed some recent NBS results in supraconductivity and superfluidity, and A. G. McNish spoke on the physical state of the outer atmosphere. The second part of the NBS program, with W. R. Brode presiding, consisted of a set of six additional papers. J. H. Curtiss described the Bureau's application of the "Monte Carlo" method to calculations of Eigenvalues, and two papers, by R. J. Slutz and I. C. Gardner, were concerned with high-speed computing machines. H. F. McMurdie then spoke on crystal synthesis, G. B. Schubauer discussed the hot-wire technique in aerodynamic research, and recent developments in acoustics were reviewed by R. K. Cook.

The use of computing machines in solving physical problems at several major laboratories was the theme of a symposium given the following day at another session in the East Building of the Bureau of Standards. Ray Pepinsky of the Pennsylvania State College described crystal-structure calculations on X-RAC; the computation of statistical fields for atoms was discussed by L. H. Thomas of the Watson Scientific Laboratories; J. A. Wheeler and D. L. Hill, Los Alamos, presented a paper on droplet dynamics and nuclear fission; L. V. Spencer of the NBS spoke on the solution of x-ray diffusion problems with the SEAC; and calculations on the formation of the elements in an expanding universe were discussed by R. A. Alpher and R. C. Herman of Johns Hopkins. A symposium on stable isotopes, with C. C. Lauritsen presiding, consisted of four papers by C. P. Leim, J. R. McNally, Jr., M. L. Pool and D. N. Kundu, and A. O. C. Nier, who reviewed recent developments in the production and the use in research (especially in atomic spectroscopy) of stable and enriched isotopes.

Two visitors from abroad gave invited papers on the general subject of "material testing" during the first afternoon of the meeting. A. Scheibe, of the Physikalisch-Technische Bundesanstalt at Braunschweig, Germany, described the current research program of that laboratory, and W. Ehrenberg, of Birkbeck College in London, spoke on temperature effects in electron-bombardment conductivity and in impurity semiconductors.

The banquet of the Physical Society featured addresses by NBS director E. U. Condon and by Alan T. Waterman, director of the National Science Foundation. Congratulations upon having completed its first half-century were offered to the Bureau of Standards by C. C. Lauritsen, president of the Physical Society, together with a warm tribute in praise of the Bureau's many contributions to the progress of physics in particular, and to the national welfare in general.

RADIO-ELECTRONICS

IRE CONVENTION DRAWS 23,000

The 1951 IRE National Convention became the largest meeting ever held in a single field of engineering or science when over 23,000 radio engineers and scientists from the United States and thirty foreign countries gathered at the Waldorf-Astoria Hotel and Grand Central Palace, overflowing to the Belmont-Plaza, in New York City on March 19–22 to witness a comprehensive program of 210 technical papers and 280 exhibits. The papers and exhibits covered every phase of the radio-electronic field with particular attention being given to the impact of the mobilization effort on the industry and to recent developments in television.

The subject of television received a send-off when on the first day of the convention, a 14-foot scale model of the Empire State multiple TV antenna was unveiled at a ceremony attended by FCC commissioners and the heads of the broadcast stations that will be using the new antenna in the near future. The model was later placed on display at Grand Central Palace where, on the following day, a symposium was held by the IRE Professional Group on Broadcast Transmission Systems at which the electronic and mechanical constructional features were described in detail.

Tube reliability and quality control were the subjects of a symposium at which tube designers, manufacturers, and users discussed tube life and causes for failure. Circuits were extensively considered in a series of six sessions, with one session devoted to applications of circuit theory to the study of such far-removed phenomena as the spread of rumors, the spread of contagious diseases, and the efficiency of operation of a five-man task group under different conditions of communication with each other. Other sessions held during the convention included information theory, propagation, antennas, microwaves, nuclear science, instrumentation, audio, radar and navigation, computers, and telemetering and remote control.

Grand Central Palace was the scene of 280 exhibits where examples of the latest electronic devices were on display. The exhibits featured materials, components, transmitters and receivers, measuring instruments of all descriptions, and complete communication systems. The Navy, Air Force, and Signal Corps combined to put on an Armed Services exhibit depicting the latest military electronic apparatus not on the restricted list. Radiation detection devices, cloud height indicators, telemetering systems, and facsimile equipment were given prominent