whereas the other is irreversible and represents a change in polycrystalline texture. Using the formation of crystal nuclei in rubber as an example of the latter type he drew on his arguments to explain why the melting range of rubber crystallites should be independent of the extent of crystallization.

The final session was held Saturday afternoon in the more comfortable surroundings of Cobb Hall and comprised a group of six contributed papers. This meeting was featured by continuing reports of the Wisconsin group on the mechanical properties of high polymers, emphasizing the relaxation time distributions in polystyrene and polyisobutylene as derived from dynamic rigidity and viscosity data. Also included were papers on the molecular weight of polymer precipitated from solution, proof of sedimentation equilibrium for high polymer solutions in the ultracentrifuge, electrical measurements on carbon blacks dispersed in oil and subjected to shear, and a biophysical paper which attempted to explain the pairing up of kindred chromosomes in cells by a resonance interaction of identical oscillators.

At the business meeting it was announced that the next meeting of the Division will be held in Washington at the National Bureau of Standards on April 26–28, 1951 as a part of the Bureau's Semicentennial celebration. A committee headed by L. A. Wood has been appointed to organize a program for this meeting.

In conclusion the writer wishes to express the appreciation of the entire Division to J. D. Ferry, Chairman, R. L. Anthony, J. E. Field, and L. A. Matheson who constituted the program committee and were largely responsible for the success of the Chicago meeting.

**W. L. Davidson**

## GASEOUS ELECTRONICS

THIRD ANNUAL CONFERENCE

The third annual Conference on Gaseous Electronics was held at the Barbizon Plaza Hotel in New York City, October 19–21, 1950. Among the 221 people registered were representatives of 113 industrial organizations, 64 educational institutions, and 33 government organizations. Members came from 20 states, and 4 came from foreign countries. The participation at this Conference by such a large number of scientists working in the field of gaseous electronics indicates the need of holding such meetings on an annual basis.

A total of 47 contributed papers and one invited paper, covering a wide range of gaseous conduction phenomena, made a very full and instructive program. The invited paper was presented by Dr. F. M. Penning of the Philips Research Laboratories, Eindhoven, Netherlands, who discussed the factors affecting the reproducibility of gas discharges.

Only a few of the many interesting contributed papers can be mentioned in this brief summary. Researches of fundamental importance in connection with ionization and deionization were presented in papers by R. B. Holt and M. Richardson, R. B. Bryan, M. A. Biondi, and A. V. Phelps. The discrepancy between the theoretical and experimental values of ion mobilities in the rare gases was clarified by the papers presented by J. P. Molnar and J. A. Hornbeck. Studies of mercury band fluorescence and the decay time of imprisoned radiation were reported by D. Alpert, A. O. McCoubrey and T. Holstein. L. B. Loeb summarized the work of the Berkeley group engaged in studying corona and related phenomena.

A paper on the energy distribution of electrons in electrodeless discharges by W. P. Allis presented the basic relations for microwave breakdown and related phenomena. This served as an introduction to a series of experimental papers on microwave gas discharge phenomena. S. C. Brown discussed the extension of the microwave breakdown theory to frequencies of the order of 100 mc and reported good agreement with experiment. D. J. Rose compared theory with experiment for the electric field required to maintain a discharge at microwave frequencies. The electron recombination and probability of collision measurements made in a decaying plasma in $H_2$ by means of microwave techniques were reported on by L. J. Varnerine, Jr. and by O. T. Fundingsland.

The sessions on arcs and on glow discharges presented the customary amount of new, interesting and unexplained phenomena, among which were oscillations, moving striations, and retrograde motion. L. Malter and E. O. Johnson, by means of a notably successful demonstration, presented some of the characteristics of the non-oscillating hot-cathode discharge, including the "ball-of-fire" effect. Some characteristics of heavy current arcs were presented by W. Finkelnburg.

The lively discussions of many of the papers contributed much to the value of the Conference.

The Conference committee for this year's meeting was W. P. Allis, D. Alpert, J. A. Hornbeck and J. D. Cobine. The success of the Conference was due in large measure to Dr. John A. Hornbeck who, with assistance from the Bell Telephone Laboratories, the unofficial host, made all the arrangements and attended to the many details involved. The Conference was temporarily affiliated for this year, as an experiment, with the Division of Electron Physics of The American Physical Society. This arrangement proved very satisfactory and permanent affiliation was voted at the business session. At the annual dinner, the Conference was duly welcomed into the D.E.P. fold with appropriate remarks by K. K. Darrow. The dinner followed the social hour at the Yacht Lounge where the view, etc. were thoroughly enjoyed. After the dinner, Mr. T. R. Burnight, head of the Ionosphere Section of the Naval Research Laboratory, presented a short sound film in color showing the launching of V2 rockets at White Sands and discussed some of the interesting problems involved in upper atmosphere research. Dr. Allis announced at the dinner that the executive committee for the 1951 conference agreed on by the nominating committee was as follows: W. P. Allis, J. A. Hornbeck, R. B. Holt, A. O. McCoubrey and J. D. Cobine. It was also announced that the committee had accepted the invitation of the General Electric Company to hold the next conference at the new Research Laboratory in Schenectady, New York, October 4, 5, 6, 1951.

Bound copies of abstracts of the papers presented at the Conference may be obtained, while the supply lasts, from Dr. J. A. Hornbeck, Bell Telephone Laboratories, Murray Hill, New Jersey.

**J. D. Cobine**

## MEETINGS TO BE HELD

TERRESTRIAL MAGNETISM AND ELECTRICITY

The thirty-second annual meeting of the American Geophysical Union will be held in Washington April 30–May 2, 1951. The Union's Section on Terrestrial Magnetism and Electricity has announced plans for its technical session at this meeting, with papers to be presented on such topics as the ionosphere, cosmic rays, earth currents, studies of the