guests but also to members of the other four societies of the AIP family. A special program of demonstrations had been prepared for this occasion.

During the two days of regular sessions some seventy contributed papers were presented, on diverse subjects included within the wide gamut of fields covered by the Optical Society. To mention two papers which may be regarded as lying near the respective extremes of theory and application, there was "Study of Excentration Aberrations", by A. Maréchal of the Institut d'Optique of Paris, and "A Photoelectric Photometer for Evaluating the Color and Maturity of Yellow Sweet Corn", by Lukens, MacKenzie, and Kunsman of the U.S.D.A. Western Regional Research Laboratory. Among the papers which attracted special attention was one describing special high-power telescopes for photographing missiles in flight, developed at the Naval Ordnance Test Station. New studies of the brightness of the twilight sky were reported by scientists from the Naval Research Laboratory. The amount of light necessary to see objects in their proper colors was also discussed, in a paper from the National Research Council of Canada: "At night all cats are gray", but if the illumination is better than that given by a very bright full moon, proper colors should be discernible. The importance to all forms of organized transportation—land, sea, or air—of the international standardization of signal light colors was emphasized; this is one of the many items that is being studied by the International Commission on Illumination.

At the annual business meeting, the presidency of the Optical Society was relinquished by Dr. William F. Meggers of the National Bureau of Standards to Professor Brian O'Brien of the University of Rochester. The newly elected vice president is Dr. Deane B. Judd of the Bureau of Standards, and the newly elected directors-at-large are Norman F. Barnes of the General Electric Company and W. E. K. Middleton of the National Research Council of Canada. Future meetings of the Optical Society were announced for New York in March, 1952, and for Boston in October, 1952.

Stanley S. Ballard
Tufts College

Gaseous Electronics

Annual Conference of Electron Physics

New tools and techniques are making possible a more definitive understanding of the fundamental processes which occur in gaseous discharge. It is becoming more and more possible to study these processes as distinct entities. Such studies constituted a substantial portion of the proceedings of the Fourth Annual Conference on Gaseous Electronics held at the Research Laboratory of the General Electric Company at The Knolls, Schenectady, New York, October 4–6, 1951. The over 200 individuals present included representatives not only from diverse universities, industrial, and government laboratories throughout the country, but also some leading workers in the field from abroad.

It is impossible in this brief notice to do justice to more than a selection from the many interesting studies included in the thirty-three contributed and one invited paper presented at the conference. The latter, presented by Dr. A. v. Engel of Oxford University, discussed the factors which control the breakdown of a gas in a high-frequency field.

An outstanding experimental determination of the ionization processes due to electron impact in a number of gases was described by H. D. Hagstrum. Papers on electron attachment in oxygen were presented by M. A. Biondi and by M. A. Harrison and R. Geballe. Light was shed on the probability of the formation of the recently discovered noble gas molecular ions by J. A. Hornbeck. By means of a mass spectrometer, A. V. Phelps was enabled to separate atomic and molecular ions and thus substantiate the microwave method of determining the nobility of He^+. The phenomena in mercury band fluorescence were analyzed by A. O. McCoubrey. An electron-beam technique for measurement of fields in a glow discharge was presented by L. B. Loeb for R. P. Stein.

Indirectly heated hot-cathode arcs have shown themselves to be particularly susceptible to clarification by the newer techniques. Elegant studies in so-called "dark plasmas" were presented by D. Gabor, and by E. O. Johnson and W. M. Webster. In these plasmas wherein ion generation does not occur, comparison of theory and experiment and separation of fundamental processes become relatively simple. The extension of the low-voltage arc to the truly amazing cases of negative arc drops was described by G. Medicus and G. Wehner. An experimental confirmation of the ambipolar diffusion theory was presented by J. Slepian and L. S. Frost. The sources of errors in the interpretation of probe data were discussed by G. Wehner and G. Medicus and by W. M. Webster. The former two demonstrated the profound disturbance which impurity films on the probes could produce on the determined constants. The latter, from an electrostatic analogue study, concluded that accepted methods could produce large factor errors. A spirited discussion did not result in concordance. A. W. Hull described his work on the cesium arc.

Microwave discharges received attention in a number of papers. The phenomenon of magnetic optical rotation in the case of microwaves guided through a plasma in the presence of a magnetic field was treated both theoretically and experimentally by L. Goldstein, M. Lampert, and J. Heney.

The University of California and New York University continue their clarification of the corona processes in the form of papers by M. Menes and L. H. Fisher, and by E. J. Lauer.

The annual dinner followed a period devoted to experimental studies of the reactions produced by condensed gases upon the conference participants. At the conclusion of the dinner the perennial master of ceremonies, W. P. Allis, introduced some of the distin-

W. P. Allis (left), MIT mathematical physicist and master of ceremonies at the annual dinner of the Gaseous Electronics Conference, shown during the meeting with D. Gabor and S. Dushman.

guished guests who included, among the pioneers in the field, I. Langmuir, A. W. Hull, S. Dushman, W. D. Coolidge, W. B. Nottingham, A. v. Engel, and L. Tonks. Dr. Langmuir spoke about studies in the crystallization of super-cooled water vapor and Dr. Tonks discoursed on the physiological effects of warm Martinis. The affair concluded with an illustrated talk by Dr. Coolidge of his personal studies of the Mayan culture of the Yucatan peninsula.

The conference committee for the 1951 meeting consisted of J. D. Cobine, W. P. Allis, R. B. Holt, J. A. Hornbeck, A. O. McCoubrey, and L. Malter. The success of the conference was due largely to the efforts of Dr. Cobine, excellently supported by the host organization, the General Electric Company.

The executive committee elected for the 1952 conference consists of W. P. Allis, D. Alpert, J. D. Cobine, J. A. Hornbeck, L. Varney, and L. Malter. The hosts in 1952 will be RCA Laboratories and Princeton University. The conference will be held at Princeton University on September 4, 5, 6, 1952.

Bound copies of abstracts of the papers presented at the conference may be obtained, while the supply lasts, from Dr. J. D. Cobine, General Electric Company, Schenectady, New York.

L. Malter
RCA Laboratories

Electron Emission

APS Division of Electron Physics Meets

A meeting of the Division of Electron Physics of the American Physical Society was held November 1, 2, and 3 at the National Bureau of Standards. This was one of the events commemorating the 50th anniversary of the Bureau. The subject of the meeting was the emission of electrons from surfaces.

The meeting opened with a review by Dr. Conyers Herring of the theory of the metallic surface. About half of the program was concerned with thermionic emission. In this part of the meeting there were a number of papers on electron emission from BaO and on the physical and chemical experiments contributing to an understanding of this emission. Barium sulfide, thorium dioxide, and "L-cathode" thermionic emitters were discussed.

Several papers were presented on experimental and theoretical studies of secondary emission from metals and semiconductors. A feature of this part of the program was an experimental study presented by Dr. R. R. Law which indicated that a time delay of the order of 3×10^{-10} seconds may be intrinsic in the secondary emission of electrons. There were several papers on field emission, electron emission by ion bombardment, "flicker effect", contact arcing, and the periodic deviation in the Schottky effect.

The attendance at this meeting was about 250. The program was arranged by a committee headed by Dr. J. B. Johnson. Dr. and Mrs. L. Marton and their associates at the National Bureau of Standards provided excellent local arrangements. A dinner was held on November 2 with Professor S. C. Brown as toastmaster and with talks by Professor A. E. Ruark and Dr. E. R. Piore.

R. L. Sproull
Cornell University

Physics Teaching

The AAPT Meeting in Chicago

The American Association of Physics Teachers held their own special part of the twentieth anniversary meeting of the AIP on Friday and Saturday (October 26–27) of that most interesting week of meetings last fall. Quite a few people were heard to remark that they enjoyed the frequent contacts with many physicists made possible by the location of all the meetings in the same building. The excellent exhibits arranged by the cooperating industries also provided an attractive general feature.

The committee who planned the program for the AAPT performed a most significant service. The invited papers were timely, presented with appropriate emphasis, and covered a wide range of interest. The program consisted of five sessions of contributed and invited papers dealing with problems and methods of teaching physics, demonstration experiments and lectures, and numerous topics in physics of particular interest to the teaching profession. Teachers who reported recent successes in presenting physics to students in the "contributed papers" part of the program provided stimulating ideas for their associates for many phases of the subject; and that the leaders of the panel titled "Cooperation of High Schools and Colleges on Problems of Physics Teaching" did a fine job was evidenced by the pointed and constructive reactions heard in the general discussion. It was unfortunate that all of the high school and college teachers of the nation could not have been there to listen and participate.

One vivid impression growing out of this meeting of physics teachers should be stated and pondered. Phys-