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

aurora, and various problems connected with the earth's magnetism and atmospheric electricity.

Papers having possible international interest may be considered for inclusion in the program of the Association of Terrestrial Magnetism and Electricity sessions to take place during the ninth general assembly of the International Union of Geodesy and Geophysics, which is to be held in Brussels from August 21st through September 1st. The Association, which is one of seven belonging to the union, plans to hold several joint sessions with the Association of Meteorology and the Joint Committee of Physics of the Earth.

Further information may be obtained by writing to the secretary of the Terrestrial Magnetism and Electricity Section of the American Geophysical Union, L. R. Alldredge, National Research Council, Washington, D. C.

URSI AND IRE

The regular spring meeting of the U.S.A. National Committee of the International Scientific Radio Union (URSI) and the Professional Group on Antennas and Wave Propagation of the Institute of Radio Engineers will be held in Washington, D. C., on April 16, 17, and 18, 1951, at the National Bureau of Standards.

Administrative meetings will be held on Monday, April 16, and the technical sessions will take place during the two following days. An inspection trip to the National Bureau of Standards is being arranged for the afternoon of April 16; an informal social evening is planned for April 17 when a summary of the Zurich General Assembly of the URSI will be presented. Technical sessions, sponsored by four URSI Commissions, will be held on radio propagation, noise, and antennas. Advance registration cards may be obtained from the Secretary, Dr. Newbern Smith, National Bureau of Standards, after March 1st. Registration fee is $2.00 in advance or $2.50 at the time of the meeting.

DISCUSSION INVITED

AGENDA FOR SUN COMMISSION MEETING

At the next meeting (July 1951 in Copenhagen) of the International Union of Pure and Applied Physics, the Commission on Symbols, Units, and Nomenclature will discuss and may adopt resolutions recommending the universal use of certain units and symbols of interest to many American physicists, including certain symbols and nomenclature for nuclei, and units for electricity and magnetism. Universal agreement on units and symbols is certainly desirable though admittedly very difficult of attainment. It is a policy of the SUN Commission to recommend a usage only when there is overwhelming support for it. The Commission therefore invites discussion of questions on its agenda and in particular the questions presented here. Comments and discussion may be sent directly to Professor J. de Boer, Secretary of the SUN Commission, University of Amsterdam, Holland or to the writer of this notice for transmittal to the Commission. A. Perard, Director of the International Bureau of Weights and Measures, Sevrès, France, is President of the SUN Commission. Other members are: J. de Boer (Amsterdam), E. Griffiths (Teddington), H. Konig (Berne), E. Perucca (Turin) and F. G. Brickwedde (National Bureau of Standards, Washington, D. C.).

Nuclei

1. *Symbols for Nuclei.* It has been proposed that the "diagonal" notation for nuclei be universally adopted. An example of this notation is:

$$_3Li^6 \text{ which is } {}_{(\text{atomic no.})}\text{Li}^{(\text{mass number})}.$$

This is already in general use by American physicists. It is objected to by French scientists, especially chemists, who indicate the atomic composition of molecules by upper right hand indices (e.g. H^2O). This upper index notation for the composition of molecules, however, is in contradiction to a previously made recommendation of the SUN Commission. Also, some American chemists prefer to reserve the upper right hand index space for the sign (+ or −) of an ion.

The indication of the atomic composition of molecules by lower right hand indices would be retained. Two suggestions for writing the atom numbers are illustrated by

$$\text{(a) } Li^6{}_2 \text{ and (b) } (Li^6)_2.$$

The second form (b) has the advantages that it does not require the back-spacing necessary for the typing of parallel super- and sub-scripts, and it can be printed with regular superscript and subscript monotype. The parallel notation of form (a) calls for special type.

2. *Nomenclature for Nuclei.* It is proposed that the word *monobar* be universally used to indicate a single atomic species having a definite atomic number and a definite mass number as $_1H^3$ and $_9F^{19}$. It is proposed also that the word *isotopes* be used only to indicate monobars having the same atomic numbers but different mass numbers. *Isobars* would be recommended to indicate monobars having the same mass numbers but different atomic numbers.

Electrical Units

1. *The Giorgi-MKS System and the Fourth (Electrical) Unit.* The general Assembly of the International Union of Pure and Applied Physics in Amsterdam, July 1948, approved the following resolution proposed by the SUN Commission:

"The International Union of Pure and Applied Physics decides to ask the International Bureau of Weights and Measures to accept, for international use, an *international practical system* of units. It is not proposed that the CGS-system should be abandoned by physicists.

"The International Union of Pure and Applied Physics recommends as an international practical system of units the system: *metre, kilogram (mass), second* and an electrical unit of the absolute practical system (to be chosen in near future).

"The unit of force in this system (i.e. the force, which acting on a mass of 1 kg produces an acceleration of 1 m/s^2) should be called the *newton*".

The Union of Physics had two objectives in making this recommendation: (1) the elimination of other practical systems of units which use mass units as force units, and (2) the reaching of universal agreement on the fourth quantity of electrical or magnetic nature for a satisfactory description of electric and magnetic phenomena.

The above resolution of the Union made no choice for the fourth unit. There is merit in the suggestion that electric charge or electric current be used as the basis of the fourth unit. Industrial physicists have advocated fixing the numerical value of the permeability of vacuum at 10^{-7} making the practical MKS units decimal fractions or multiples of the electromagnetic CGS units.

2. *The Rationalization of the Electrical Units.* A report of the SUN Commission approved by the General Assembly of the Union of Physics, London, 1934 states that be-