



# Fall General Meeting

OCTOBER 1-5, 1956

Chicago, Illinois

Headquarters  
Morrison Hotel



Night View of Chicago Looking North on Michigan Avenue

Theme of this year's AIEE Fall General Meeting will be the **Nikola Tesla Centennial**. At the meeting, which will be held from October 1-5 at the Morrison Hotel, Chicago, Ill., Dr. Samuel G. Hibben will present a demonstration-type lecture commemorating Dr. Tesla's outstanding contributions to the electrical industry and to the world. He will speak chiefly on the aspects of Tesla's work that relate to high-frequency studies connected with radiation or luminous phenomena.

Several spectacular high-voltage and illumination demonstrations are promised. Dr. Hibben, formerly Director of Applied Lighting, Lamp Division of Westinghouse, is now an engineering consultant specializing in illumination.

On Thursday, October 4, 1956, **Dr. Charles F. Kettering** will be honored at a luncheon in the Terrace Casino of the Hotel Morrison to celebrate his 80th birthday. All members of the engineering profession are invited to pay tribute to his many accomplishments, not only in electrical engineering, but also in the automotive and mechanical fields.

Because of its central location, Chicago is easily accessible by air, rail, and automobile. Its widely diversified industries make Chicago an ideal spot for this important and commemorative meeting.

## TECHNICAL SESSIONS

The technical sessions are planned to cover the electrical industry as broadly as possible. They include: rotating machinery, protective devices, metallic rectifiers, chemical industry, land transportation, safety, transformers, insulated

conductors, industrial power systems, switchgear, telegraph systems, mining and metals, feedback control systems, system engineering, education, instruments and measurements, radio communication, communications maintenance, transmission and distribution, ethics, power generation, computing devices, TV and aural broadcasting, industrial control, communication theory, basic sciences, wire communications systems, and electronics.

The Management Committee is planning a panel discussion by several young graduate engineers (five or six years out of college) who work and were trained in the Chicago Area in various industries. These men will discuss their preparations for their work and the training they have received on their jobs, and the opportunities which have been presented to them.

## ELECTRONICS CONFERENCE

All AIEE members are invited to attend the 12th Annual National Electronics Conference on October 1-3 at the Hotel Sherman in Chicago. There will be more than 100 technical papers and 240 exhibits. Electronics technical sessions at AIEE will be held after the NEC closing date so that AIEE members interested in electronics can reap full benefit from both meetings.

## COME EARLY FOR RECEPTION

A relaxing time is promised those who come early to avoid the rush. A get-acquainted Tea and Hospitality Hour will be held on Sunday, September 30 in the hotel. This informal event lasts from 4 to 6 p.m., and is sponsored



## AIEE FALL GENERAL MEETING

jointly by the Fall General Meeting Committee and the Chicago Section of AIEE.

### LADIES PROGRAM

An interesting program for the ladies attending the fall meeting has been planned by Mrs. Foster A. Larson and her committee. On Monday afternoon the ladies will meet in the Walnut Room of the hotel for bridge or canasta and tea. This event is courtesy of Allis-Chalmers Mfg. Co.

On Tuesday at 11 a.m., General Electric Co. has cordially invited the ladies to attend a delightful program presented by Mrs. Purdie Meissner, one of the foremost monologuists in the midwest. She has promised us highlights from a new Broadway play. After the program, luncheon will be served. The program and luncheon will be held in the library of the Furniture Club of America overlooking Lake Michigan.

Wednesday is reserved for shopping, and tours of some of Chicago's most interesting attractions. Among them are the Art Institute of Chicago, the Field Museum, the Adler Planetarium, the new Prudential Building, etc. Guests are invited to name the place they would like to visit, and small tours will be organized by the hostesses.

On Thursday noon the committee has planned a luncheon at the Merchant's and Manufacturer's Club in the Merchandise Mart, followed by a tour of many of the Mart's home furnishings show rooms and NBC's new color studio while a program is in progress.

The Merchandise Mart, nicknamed "The City within a City", is internationally known as the world's biggest wholesale buying center. The tour will offer a fascinating glimpse of home fashions of the future. Tickets for this event are \$4.50. To make sure, send reservations to Mrs. Foster A. Larson, Chairman Ladies Committee, 323 Meota St., Park Forest, Illinois.

Coffee Hours—Each morning from 9:00 to 10:30 coffee and rolls will be served in Ladies' Headquarters. Hostesses will be in attendance to explain each day's program, and help guests plan the day's entertainment.

### FALL FROLICS

The committee is taking last year's Smoker, adding dancing and, they hope, your beautiful wives at each and every table and calling it the Fall Frolics. This colossal affair is scheduled for Wednesday night, Oct. 3. There will be a small group of musicians playing when you arrive in the Terrace Casino and they will continue playing while you enjoy an



Dr. Nikola Tesla and His High Voltage Research Coil

excellent dinner. An unusual show for your after-dinner entertainment is planned. Afterwards there will be music for your dancing or listening pleasure. Dress will be informal. Tickets are \$10.00 each. Order your Fall Frolics tickets now by sending your order and money to: Dick H. Beal, Chairman, Fall Frolics Committee, Room 1201, Illinois Bell Telephone Company, 208 West Washington Street, Chicago 6, Illinois.

### HOTEL RESERVATIONS

A sufficient number of rooms have been set aside at the Morrison Hotel, Madison and Clark Streets, to accommodate all those planning to attend the meeting.

Rates per day at the Morrison Hotel are:

Single room (one person) .....	\$6.00 to \$12.50
Double Room—Double Bed (two persons) .....	\$9.50 to \$16.00
Double Room—Twin Beds (two persons) .....	\$13.50 to \$16.00
Two Room Suite; Parlor, Bedroom	\$27.00 to \$41.00

All rooms with bath, Servidor, and ice water.

### TIPS AND NOTES ON MAKING HOTEL RESERVATIONS

1. Mr. Richard S. Roeing is in charge of Hotel Reservations and should be contacted in case you need assistance. Address your request to Mr. Roeing, Hotel Arrangements Committee, c/o C. E. Niehoff & Co., 4925 Lawrence Ave., Chicago 30, Illinois.

2. It is suggested that in order to help insure accommodations you mail the reservation card enclosed with this announcement by September 20, directly to the Morrison Hotel. If you mislay the card write to the Reservation Manager, Morrison Hotel, Madison and Clark Sts., Chicago 2, and be sure to mention AIEE.

3. Should you decide at the last minute to attend the meeting, your best bet for sleeping accommodations will still be the Morrison Hotel.

4. As you know, a definite room will not be reserved for you until you arrive. If at that time a room at the rate you requested is not available, you will be assigned a room of the next higher rate available.

5. If you plan to register at the Morrison after 6.00 p.m. you will come under the classification of Late Arrival. In order to insure a room for Late Arrival the following deposits will be required with your request for reservations.

Single Room . . . \$5.00	Double Room . . . \$10.00
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Send your deposit to the Morrison and a copy of your letter to Mr. Roeing so that he can make sure you will have a room when you arrive. If you find that you will not be able to use the room reserved by a deposit, notify the Morrison by 6.00 p.m. of the day the room is reserved for and your deposit will be refunded. Your deposit still may be refunded if you notify the Hotel later than 6.00 p.m.

### INSPECTION TRIPS

A number of varied and interesting inspection trips are planned for the week of the meeting. Among these are tours of the Acme Steel Co., Ridgeland Station of Commonwealth Edison Co., Zenith Radio Co. plant, Swift and Co., WNBQ color TV, Prudential Building, Kellogg Switchboard Co., and International Business Machines Office.

Members are asked to register in advance for all trips as the number that can be accommodated on the various trips is limited. In making trip reservations, members should include names, nationalities, business connections, and checks for bus fees. Aliens should give advance notice of plans to make inspection trips.

Continued on page 8

## TECHNICAL PROGRAM

### ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 40c each (80c each to nonmembers), by sending enclosed order form and remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. Mail orders, particularly from out-of-town members are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in \$10 denominations are available for those who wish to avoid remittance by check or otherwise. The Transactions Papers will also be published in the bimonthly publications.

Note: Unnumbered Conference Papers (CP.\*) may be available at or after the meeting, if copies are provided by the author. They are not intended for publication in the Transactions and are not presently scheduled for reproduction in any form by the Institute.

## Monday, October 1

### 9:00 a.m.—Rotating Machinery

56-935. A New Method for Determining Sequence Impedances of III Small Synchronous Machines. W. K. Gardner, Naval Research Lab.

56-936. Capacitive Loading of Saturated Synchronous Machines—III Part I. S. L. Mikhail and C. A. Keener, University of Illinois.

56-925. In-Service Temperature Measurement of the Amortisseur III Winding of Large Frequency Changers. P. K. Pavlides, Philadelphia Electric Co.

CP56-1013. Synchronizing Out of Phase. A. J. Wood, General Electric Co.

CP56-937. The Synchronous Double Fed Induction Machine. R. E. Bedford, Indian Institute of Technology.

### 9:00 a.m.—Protective Devices

56-939. Application of Expulsion Arresters on Cable-Connected Equipment. C. J. Baldwin, Jr. and J. M. Clayton, Westinghouse Electric Corp.

CP56-973. Lighting Protection of Unit-Connected Turbine Generators—Field and Laboratory Studies. A. P. Hayward, Duquesne Light Co., J. K. Dillard and A. R. Hileman, Westinghouse Electric Corp.

56-974. Design and Operating Features of an Expulsion Arrester III Without Follow Current. C. L. Stroup, Alex Vitkus and A. C. Westrom, Hubbard and Co.

### 9:00 a.m.—Metallic Rectifiers

56-975. The Fused Silicon Rectifier. Herbert W. Henkels, Westinghouse Electric Corp.

56-934. Rating and Application of Germanium and Silicon Rectifiers. I F. W. Gutzwiller, General Electric Co.

CP56-976. Direct Water-Cooled Germanium Power Rectifiers. Ralph E. Wahl, General Electric Co.

CP.\* A Comparison of Tests for Selenium Rectifiers. D. A. Klopfer, Westinghouse Electric Corp.

CP.\* Selenium Rectifiers and Their Aging Characteristics. C. E. Brigham, Richardson-Allen Co.

### 9:00 a.m.—Land Transportation

56-977. Power Supply for Commercial Frequency Railroad Electrification. J. C. Price, General Electric Co.

CP.\* Design Fundamentals of Diesel-Electric Locomotive Control Systems. A. V. Johansson, General Electric Co.

CP.\* Development of Wiring Diagram Standards for Land Transportation Vehicles. C. W. Martin and H. S. Ogden, General Electric Co.

CP56-978. Mobile Axle Flaw Detector Unit Carrier and Method Used to Ferret Out Defective Car Journals on the Chesapeake & Ohio. E. R. Hauer and C. M. Angel, Chesapeake & Ohio Railway Co.

56-979. Modernization of the Long Island Rail Road Passenger Car II Fleet. P. H. Hatch, The Long Island Rail Road Company. Re-presented for discussion.

### 2:00 p.m.—General Session

1. Introductions.
2. Welcome Address by Mayor Daley of Chicago.
3. Report on the Nikola Tesla centenary celebration in Yugoslavia by R. C. Sogge, AIEE delegate.
4. "Tesla's Contributions to Today's Arc And Vapor Illuminants." Dr. Samuel G. Hibben, Engineering Consultant.

## Tuesday, October 2

### 9:00 a.m.—Rotating Machinery

56-938. Induction Machinery Design Being Revolutionized by the III Digital Computer. C. G. Veinott, Reliance Electric & Engineering Co.

CP56-956. Polyphase Induction Motor Design by Digital Computer. A. E. Hartman, Robbins & Myers, Inc.

56-922. The Application of Computers to the Solution of Induction III Motor Thermal Circuits. A. E. Johnson, General Electric Co.

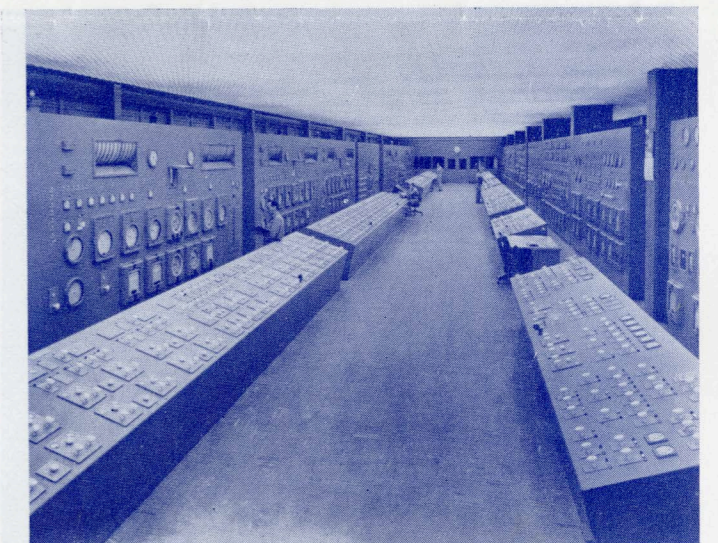
CP56-940. Application of High Speed Electronic Computer to Generator Design Problems. W. C. Brenner, R. Schinzing, and R. M. Suarez, Westinghouse Electric Corp.

### 9:00 a.m.—Safety

CP56-947. The Use of Nickel Cadmium Batteries in Emergency Lighting Applications. Theodore Ulrich, Nickel Cadmium Battery Corp.

CP.\* Dry Batteries in Emergency Equipment. R. C. Clock, Burgess Battery Co.

CP56-948. Electric Shock Hazard Analysis. K. S. Geiges, Underwriters' Laboratories, Inc.



600,000 KW Commonwealth Edison Ridgeland Station



## 9:00 a.m.—Transformers

- 56-949. The Rigorous Solution of an Electrostatic Field by Means of the Card Programmed Calculator. J. R. Faillace and L. Rabins, General Electric Co. Re-presented for discussion.
- 56-916. A Zero-Sequence Equivalent Circuit of Autotransformer Connections Which Yields Neutral Shift. B. A. Cogbill, General Electric Co.
- 56-950. Bushing-Type Current Transformers for High-Accuracy Revenue-Metering Equipment. J. M. Vanderleck, The Hydro-Electric Power Commission of Ontario.
- 56-926. Correlation Between the Breakdown Strength of Large Oil Gaps and Oil Quality Gauges. A. F. Rohlf and F. J. Turner, General Electric Co.
- 56-918. Effects on Transformer Insulation Structures of Long Duration Waves Representative of Switching Surges. H. E. Fiegel and J. S. Kresge, General Electric Co.

## 9:00 a.m.—Experience with Conductor for Industrial Systems

- CP56-1002. Mineral Insulated Cable in Heavy Industry. F. E. Maurer, Olin Mathieson Chemical Corp.
- CP56-1003 Bus Duct—An Experience Report. J. B. Cataldo, BullDog Electric Products Co.; H. A. Geisendorfer, Chrysler Corporation and Nelson Keib, Albert Kahn Associates.
- CP.\* Experiences in the Termination of Aluminum Wire and Cable in Industrial and Commercial Applications. Henry Esch, Kaiser Aluminum & Chemical Corp.

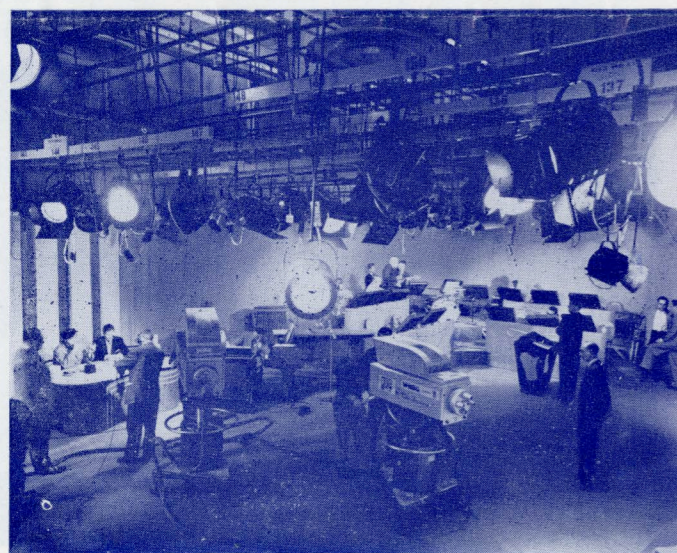
## 9:00 a.m.—TV & Aural Broadcasting

- CP.\* Closed Circuit Color TV at Walter Reed Hospital. L. E. Anderson, Radio Corporation of America.
- 56-972. Field Experience with the A2A Video System. Raymond W. I. Gast, New York Telephone Co.
- CP.\* R-F Diplexing in Color TV and Aural Relaying. T. G. Custin, General Electric Co.

## 1:45 p.m.—Presentation of the Members for Life Fund Medal in Electrical Engineering Education to Dr. Frederick E. Terman

## 2:30 p.m.—TV & Aural Broadcasting

- CP.\* Television Allocation Trends. O. W. B. Reed, Jr., Jansky & Bailey Consulting Engineers.
- CP.\* System Aspects of Tropospheric Scatter. William Collins, Page Communication Engineers.



NBC's Station WNBQ-TV

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- CP.\* Maintenance of TV Antennas and Transmission Lines. L. O. Krause, General Electric Co., presented by S. S. Sabeff.
- CP.\* The Zenith Royal 500 All-Transistor Radio. George Moore, Zenith Radio Corp.

## 2:30 p.m.—Insulated Conductors

- 56-951. Aluminum Sheathed Cable—A Utilization Wiring System for Industrial and Domestic Distribution. Philip J. Croft, Canada Wire & Cable Co., Ltd.
- 56-952. The Heating and Mechanical Effects of Installing Insulated Conductors in Steel Raceways. M. M. Brandon, K. S. Geiges, L. M. Kline, F. V. Paradise, Underwriters' Laboratories, Inc.
- 56-953. The Properties of Tellurium Alloy Lead Sheath for Power Cable. H. A. Hoover, John A. Roebling's Sons Corporation.
- CP56-964. A Further Examination of Protective Coverings for Metallic Sheathed Cables and for Pipes. D. M. Farnham, Quebec Hydro-Electric Commission.
- CP56-988. Corrosion Control on the Underground System of the Philadelphia Electric Co. R. C. DeMarco, J. E. Johnson, Philadelphia Electric Company.

## 2:30 p.m.—Chemical Industry

- CP.\* Modern Constant Voltage Chargers. W. D. Fletcher, Raytheon Mfg. Co.
- CP.\* Grid Alloys and Battery Characteristics. F. J. Port, Willard Storage Battery Co.
- CP.\* Some Charge Characteristics of Lead Acid Batteries. E. A. Hoxie, Electric Storage Battery Co.

## 2:30 p.m.—Basic Sciences

- 56-980. Accurate Determination of the Capacitance of a Thin Rectangular Plate. D. K. Reitan and T. J. Higgins, University of Wisconsin.
- 56-981. Integrated S—Plane Synthesis Using Two-Way Root Locus. I. John Zaborsky, Washington University.
- 56-982. Analysis of Linear Sampled-Data Systems With Finite Pulse Width (Open Loop). G. Farmanfarma, University of California.
- 56-983. A New Method for Treating Non-Linear Problems with Applications to Iron-Cored Oscillatory Circuits: (I—Sub-Harmonics Do Not Exist). M. Kamal Gohar, Cairo University. For Discussion Only.
- 56-984. Electrical Units and Dimensions. Leo Young, Westinghouse Electric Corp.

## 2:30 p.m.—Management

# Wednesday, October 3

## 9:00 a.m.—Rotating Machinery

Panel Discussion of the Use of Digital Computers in the Design of Rotating Machines.

*Moderator:* E. C. Barnes, Reliance Electric and Engineering Co.

*Panel Members:* Abraham Covo, Westinghouse Electric Corp.; E. L. Harder, Westinghouse Electric Corp.; A. E. Hartman, Robbins and Meyers, Inc.; Verner Kempinen, General Electric Co.; R. M. Saunders, University of California; C. G. Veinott, Reliance Electric and Engineering Co.; J. C. White, General Electric Co.

## 9:00 a.m.—Telegraph Systems

- 56-985. A Data Transmission Machine. C. R. Doty and L. A. Tate, I International Business Machines Corp.

- CP56-986. A High-Speed Fully Automatic Teleprinter Switching System for Brokerage Firms. C. J. Holloman, Western Union Telegraph Company.

- 56-987. A Transistorized Time Division Multiplex Telegraph Set. F. I. D. Biggam, Teletype Corporation.

- CP.\* Transmission of Newspapers by Facsimile Over a Wide-Band Channel. A. G. Cooley and J. R. Shonnard, Times Facsimile Corporation.

## 9:00 a.m.—Mining and Metal Industry

- CP.\* Predicting Performances of Large Power Shovels. L. A. Moucha and M. A. Neslin, General Electric Co.
- CP.\* Lower Operating Costs Through Statistical Analysis of Motor Failures. J. M. Jenkins, Reliance Electric & Engineering Company.
- CP.\* Automatic A. C. Mine Hoist at Trotter Coal Company. W. E. Thomas, Westinghouse Electric Corp.
- CP.\* Report of AIEE Conversion Substation Committee on D.C. Grounding Practices. R. R. Godard, U. S. Steel Corporation.

## 9:00 a.m.—Feedback Control Systems

- 56-954. Analysis of Servomechanisms with Nonlinear Feedback Control. Y. H. Ku, University of Pennsylvania.
- 56-958. Variably Damped Servomechanisms. L. Schieber, International Business Machines Corp.
- CP56-959. The Design of a Completely Static Accurately Regulated Power Supply. R. G. Hoft and M. A. Head, General Electric Co.
- CP.\* Transient Signal Analyzer. J. B. Reynolds, Jr.

## 9:00 a.m.—Communication Theory

- 56-928. The Technical Feasibility of Translating Languages by Machine. Victor H. Yngve, Massachusetts Institute of Technology.
- CP.\* Some studies of Visual Perception Speed. G. C. Sziklai, Radio Corporation of America.
- CP56-963. Moment Detection and Coding. J. J. Slade, Jr., S. Fich, L. F. Nanni and D. A. Molony, Rutgers University.
- 56-653. The Communication Engineer's Needs in Information Theory. W. T. Rea, Bell Telephone Laboratories, Inc. Re-presented for discussion.

## 1:45 p.m.—Automation

1. Introduction. C. M. Rhoades, Jr., General Electric Co.
2. "This is Automation." (Motion Picture.)

## 2:30 p.m.—Rotating Machinery

- CP56-1010. Calculation of Windage Noise Power Level in Large Induction Motors. M. E. Talaat, The Elliott Co.
- CP.\* Sound Power Measurements on AIEE Noise—Test Motor by Different Laboratories. A. F. Lukens, General Electric Co.
- CP.\* Noise Reduction in Electrical Machinery for Shipboard Installation. Samuel Feldman, Bendix Aviation.
- CP.\* Reduction of Motor Noise in the Field. R. H. Lee and Vaughn Hill.

## 2:30 p.m.—Switchgear

- 56-989. Isolated Phase Telescoping Bus Duct. S. C. Killian and K. III Boyajian, H. K. Porter Company, Inc.

- CP56-990. Switching Properties of Vacuum. Mohamed Khalifa, University of Cairo.

- CP56-991. A New 115 KV, 1000 MVA Gas-Filled Circuit Breaker. C. F. Cromer and R. E. Friedrich, Westinghouse Electric Corp.

- CP56-992. Interruption of Capacitance Charging Currents in Sulfur Hexafluoride. T. E. Browne, Jr. and A. P. Strom, Westinghouse Electric Corp.

## 2:30 p.m.—System Engineering

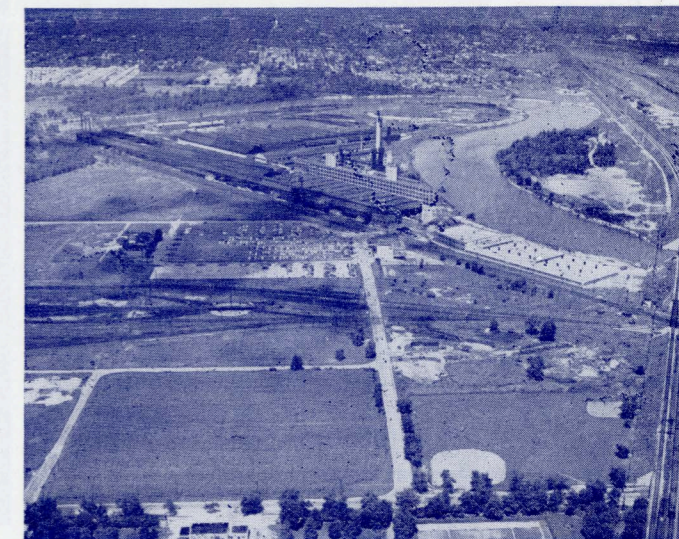
- 56-921. The Depreciation Annuity. P. H. Jeynes, Public Service Electric & Gas Co.
- 56-923. The Solution of Power System Stability Problems by Means of Digital Computers. D. L. Johnson, University of Washington and J. B. Ward, Purdue University.
- CP.\* Committee Report on Current Status of Load-Frequency Control Methods and Equipment by the System Controls Subcommittee of System Engineering. Presented by C. N. Metcalf.

## 2:30 p.m.—Mining and Metal Industry

- CP.\* Class H Insulation for Heavy-Duty D.C. Motors. F. C. Kreidler, General Electric Co.
- CP.\* Silicone Insulation in Mining Machine Motors. J. A. Buss, Reliance Electric & Engineering Co. and F. R. Hugus, Joy Manufacturing Co.
- CP.\* Rewinding Electrical Equipment with Silicone Class H Insulation. R. L. Bogardus, Westinghouse Electric Corp.

## 2:30 p.m.—Feedback Control Systems

- 56-924. Non-Linear Control System Response to Random Signals. P. II N. Nikiforuk, Canadian Armament Research and Development Establishment.
- 56-960. A Note on the Describing Function of an Element with Coulomb, Static and Viscous Friction. M. Y. Silberberg, Yale University.
- CP56-961. Sampled-Data Analysis of a Drift-Stabilization System. P. G. Pantazelos, Massachusetts Institute of Technology.
- 56-962. A Technique for the Analysis of Time-Varying Sampled Data II Systems. Bernard Friedland, Columbia University.



Acme Steel Plant, Riverdale, Illinois



Thursday, October 4

9:00 a.m.—Rotating Machinery

56-941. Thermal Analysis of a Small D.C. Motor Part I Dimensional Analysis of Combined Thermal and Electrical Processes. J. Kaye and S. W. Gouse, Jr., Massachusetts Institute of Technology.

56-942. Thermal Analysis of a Small D.C. Motor Part II Experimental Study of Steady-State Temperature Distribution in a D.C. Motor with Correlations Based on Dimensional Analysis. J. Kaye, S. W. Gouse, Jr., and E. C. Elgar, Massachusetts Institute of Technology.

56-930. Losses in Idle Conductors in D-C Machine Armature Slots. Edward Erdelyi and Frank T. DeWolf, General Electric Co.

CP56-943. Carbon Brush Capacity Calculations. J. G. Wilhite, Westinghouse Electric Corp.

CP.\* Problems in Standardizing Per Unit Quantities. R. M. Fisher, Jr., General Electric Co.

9:00 a.m.—System Engineering

CP56-1008. Digital Computers Can Aid Utilities. F. J. Maginniss, General Electric Co.

CP56-1006. What Is a Digital Computer? H. A. Peterson, University of Wisconsin.

CP56-965. Elementary Problem Preparation—Flow Diagrams. E. L. Harder, Westinghouse Electric Corp.

CP56-966. Organization and Personnel. E. R. Moore, The Detroit Edison Co.

9:00 a.m.—Ethics

CP.\* "A Proposed NSPE Brochure on Rules of Professional Conduct for Engineers." Otto H. Hall, Chairman of the National Committee on Ethical Practices of the NSPE.

CP56-1012. "The ECPD Program in the Field of Engineering Ethics." Dean C. J. Freund, University of Detroit, Chairman of the ECPD Committee on Ethics.

9:00 a.m.—Radio Communications

56-968. Propagation Test On 955.5 MC, 1965 MC, and 6700 MC. I H. R. Mathwich, Radio Corporation of America, E. D. Nuttall, A. M. Randolph, United Gas Corp. and J. E. Pitman, Philco Corp.

CP56-969. A Simple Method of Power Transformer Design. H. S. Sear, Sanborn Co.

CP56-970. Design of Wide-Band RF Transformers Utilizing A Synthesized Equivalent Network. Hitoshi H. Kajihara, Headquarters, Signal Corps Engineering Laboratories.

CP56-1001. Some Results with Frequency Diversity in a Microwave Radio System. F. H. Willis, Bell Telephone Labs., Inc.

2:00 p.m.—Rotating Machinery

56-944. An Electric Speed-Torque Device Based on Magnetic Principles. W. L. Probert, A. O. Smith Corp.

56-945. Performance Calculations on Capacitor Motors by the Cross-Field Theory. P. H. Trickey, Wright Machinery Co.

56-917. Graphical Determination of Starting Performance of Capacitor Motors. A. Covo, Westinghouse Electric Corp. and L. E. Lingo, Syracuse University.

56-915. Performance Calculations for Part-Winding Starting of Three-Phase Motors. P. L. Alger, General Electric Co.

56-946. Speed Control of Induction Motors Using Saturable Reactors. III P. L. Alger, General Electric Co. and Y. H. Ku, University of Pennsylvania.

2:00 p.m.—System Engineering

CP56-967. Principles of Programming. J. B. Ward, Purdue University.

CP.\* Electro Mechanical Accounting Machines for Power Engineering. L. A. Dunstan, Diginetics, Inc.

CP56-1000. Use of Digital Computers in Coordination of System Generation. P. L. Dandeno, Hydro-Electric Power Commission of Ontario.

56-920. Digital Calculation of Short-Circuit Currents in Large Complex-Impedance Networks. L. W. Coombe, Detroit Edison Co. and D. G. Lewis, General Electric Co.

2:00 p.m.—Wire Communications Systems

CP.\* Treatment of Wire Lines for Radio and Multiplex Application. E. E. Combs, Lynch Electric Company.

CP.\* A Frequency Converting Telephone Carrier Repeater for Military Use. G. Goltsof and J. H. Johnston, Signal Corps Engineering Laboratory, and R. B. Anderson, Lenkurt Electric Co.

CP.\* Automatic Telephone Answering Service. J. M. Standring, Jr., American Telephone and Telegraph Co.

56-929. Multi-Unit Neutralizing Transformers. T. F. Palmquist, Bell Telephone Company of Canada.

56-971. Lightning Protection on the Stevens Point-Wisconsin Rapids Inter-City. R. C. Dowling, Wisconsin Telephone Co.

2:00 p.m.—The Science of Materials in Electrical Engineering Practice

CP.\* A Material Producers' Views of the Electrical Equipment Manufacturing Industry. A. Pechukas, General Electric Co.

CP56-1009. Influence of Materials on the Electrical Product. P. S. Potts, General Electric Co.

CP56-1007. Semiconductor Materials and Electrical Engineer. Gene Strull, Westinghouse Electric Corp.

CP56-1014. The Modern Science of Materials for Electrical Engineers. W. W. Mullins, Westinghouse Electric Corp.



The Merchandise Mart, Chicago, Illinois

Friday, October 5

9:00 a.m.—Transmission & Distribution

56-993. A New Approach to the Study of Simultaneous Unbalances. III H. A. Peterson, J. J. Skiles, I. J. Nagrath, The University of Wisconsin.

56-994. An Analysis of the Radio Interference Characteristics of Bundled Conductors. G. E. Adams, General Electric Co.

CP56-999. Switching Surges Due to De-energization of Capacitive Circuits. Working Group on Switching Surges.

9:00 a.m.—Communication Maintenance

CP56-1005. The New Emphasis in Maintenance for Communications Systems. W. K. MacAdam, American Telephone & Telegraph Co.

CP.\* Maintenance Problems and Considerations in the Independent Telephone Industry. B. L. Arnold, Automatic Electric Sales Corp.

CP.\* Manufacturer's Program for Equipment Maintenance. G. D. Wallenstein.

9:00 a.m.—Power Generation

CP56-995. Excitation Voltage Response Definitions and Significance in Power Systems. M. Temoshok and F. S. Rohde, General Electric Co.



The New Prudential Building Chicago Architectural Photographing Company

CP56-996. Excitation System Response—A Utility Viewpoint. P. L. Dandeno and K. R. McClymont, The Hydro-Electric Power Commission of Ontario.

CP.\* Tests of Excitation System Transient Performance. R. W. Ferguson and T. J. Bliss, Westinghouse Electric Corp.

CP.\* Defining Excitation System Response. H. W. Cory and W. F. Eagan, Allis-Chalmers Mfg. Co.

9:00 a.m.—Industrial Control

56-652. Protecting A.C. Motors with Low-Voltage Air Circuit Breaker Series Trips. F. P. Brightman, P. J. Reifschneider, R. R. McGee, General Electric Co.

CP56-955. Application of Magnetic Logic Elements to the Control of an Automatic Bus Duct Welder. J. P. Conner, Westinghouse Electric Corp.

56-932. A Pressure-Control Switch with a Pulsation Filter. L. P. II Schaefer, The Hinchman Corporation.

CP.\* An Improved Method of Phase Failure Protection. W. Kniel.

2:00 p.m.—Transmission & Distribution

56-933. Report of a Survey on Controls for Automatically-Switched Capacitors. Working Group of the AIEE Subcommittee on Capacitors.

CP56-1004. Computer Simulates Water Heater Operation for Demand Analysis. H. E. Campbell and R. Habermann, Jr., General Electric Company.

CP.\* Effect of Atmospheric Contamination on Generated Radio Influence Voltage. C. J. Miller.

2:00 p.m.—Power Generation

CP56-997. Steam Station Auxiliary Systems for Large High-Pressure Turbine-Generator Units. A. C. Dolbec, J. J. Heagerty, and A. G. Mellor, General Electric Co.

CP56-998. Simplicity of Station Design and Operation with Cross-Compound Turbine Generator Sets. P. E. Benner, P. G. Brown, R. C. Buell, and A. G. Mellor, General Electric Co.

2:00 p.m.—Seminar on Education in Electronics

2:00 p.m.—Communication Maintenance

CP.\* Over-all Aspects of Telegraph Maintenance. R. Hoover, Western Union Telegraph Co.

CP.\* Transmission and Reliability Maintenance of Type TD2 Radio Relay Systems. E. T. Fruhner and R. D. Service.

CP.\* Importance of Fringe Tests in Vacuum Tube Maintenance. D. S. Wise, Hickok Electrical Instrument Co.

CP56-1011. A Discussion of Radio Relay Maintenance. G. B. Woodman, Western Union Telegraph Co.

NOTE: Unnumbered Conference Papers (CP.\*) may be available at or after the meeting, if copies are provided by the author. They are not intended for publication in the Transactions and are not presently scheduled for reproduction in any form by the Institute.

NOTE: The TRANSACTIONS papers will be printed in the bimonthly publications as follows:

- I COMMUNICATIONS AND ELECTRONICS.
- II APPLICATIONS AND INDUSTRY.
- III POWER APPARATUS AND SYSTEMS.



# AIEE FALL GENERAL MEETING

Transportation will be by chartered bus in each case, except for the Prudential Building, WNBQ-TV studios, and IBM, which are within easy walking distance of the Morrison Hotel. Bus fare will be \$2.00 for each trip.

Send trip registrations and fees to:

H. E. Nason, Westinghouse Electric Corp., Room 262, Merchandise Mart Plaza, Chicago 54, Illinois. Tickets will be held in members' names at the Trips Registration Desk for pick-up during the convention.

**Acme Steel**—Tuesday, Oct. 2. A trip by special bus in the morning to the Acme Steel Co. located in Riverdale where there will be an opportunity to see mill-type electrical equipment and to witness the operation of hot mills, cold strip mills, and galvanizers. Lunch will be available at nominal cost in the Acme cafeteria.

Afternoon there will be a walking trip to the IBM office in the loop where a demonstration of rotating machine calculations will be made on a digital computer. (IBM 650).

**Ridgeland Station**—Wednesday, Oct. 3 (a.m.). A bus trip to the Ridgeland Station of the Commonwealth Edison Co. located in nearby Stickney. This is a very modern 600,000 kw station with four generators located on the Illinois Waterway which supplies condensing water and provides for delivery of coal by barge to a unique gantry crane. Of particular interest are the cyclone furnaces in the boilers and the modern coal-handling equipment.

**Zenith Radio Co.**—Wednesday, Oct. 3 (p.m.). A trip by bus to the plant of the Zenith Radio Co., one of the largest in the industry, where there will be an opportunity to see modern methods of production of both radio and television receivers and, it is hoped, hearing aids.

**Swift & Co.**—Thursday, October 4 (a.m.)—A bus trip to the famous Chicago Stock Yards and a tour through the facilities of Swift & Co. where each may see the processing of "Premium" products.

**WNBQ-TV**—Thursday, October 4 (Noon). A short walking trip to the color studios of WNBQ-TV located atop the Merchandise Mart where it will be possible to see studios,

equipment, and also an actual program as it is being broadcast during the noon hour.

**Prudential Building**—Thursday, October 4 (p.m.). A short walk to the Prudential Building, the newest of Chicago's skyscrapers, which has the fastest automatic elevators, the highest lighting intensity, an observation platform at the 600-ft. level, available for a nominal 50-cent fee, and a popular cocktail lounge.

**Kellogg Switchboard Co.**—Friday, October 5 (a.m.). A trip by bus to the Kellogg Switchboard Co., one of the oldest independent manufacturers of telephone, central-office-to-subscriber equipment. Kellogg recently became a division of the International Telephone and Telegraph Co.

## REGISTRATION

Members can simplify registration procedure by returning advance registration cards promptly which will save time in completing details upon arrival at the hotel. The registration desk at the hotel will be open during the get-acquainted Tea on Sunday afternoon and from 8 a.m. to 4 p.m. daily thereafter during the convention. The registration will be \$5.00 for members and \$8.00 for nonmembers. No fee will be required for immediate families of members or for Student members.

## COMMITTEE

Desiring to make the Fall General Meeting a memorable one are the following Committee members: General Chairman, W. M. Ballenger; Vice-Chairman, G. L. Welch; Secretary, E. F. Koncel, Jr.; Treasurer, F. M. Scott; M. J. Adams, special activities; D. H. Beal, Fall Frolics; J. F. Bracken, hospitality; B. T. Carmody, hotel arrangements; E. H. Finch, finance and budget; D. F. Hayworth, sale of papers; C. F. Hill, technical program and monitors; Mrs. F. A. Larson, Ladies; F. A. Larson, entertainment; D. L. Levine, registration; H. E. Nason, trips and transportation; J. A. Romano, general session; and J. T. Tyner, publicity.

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