



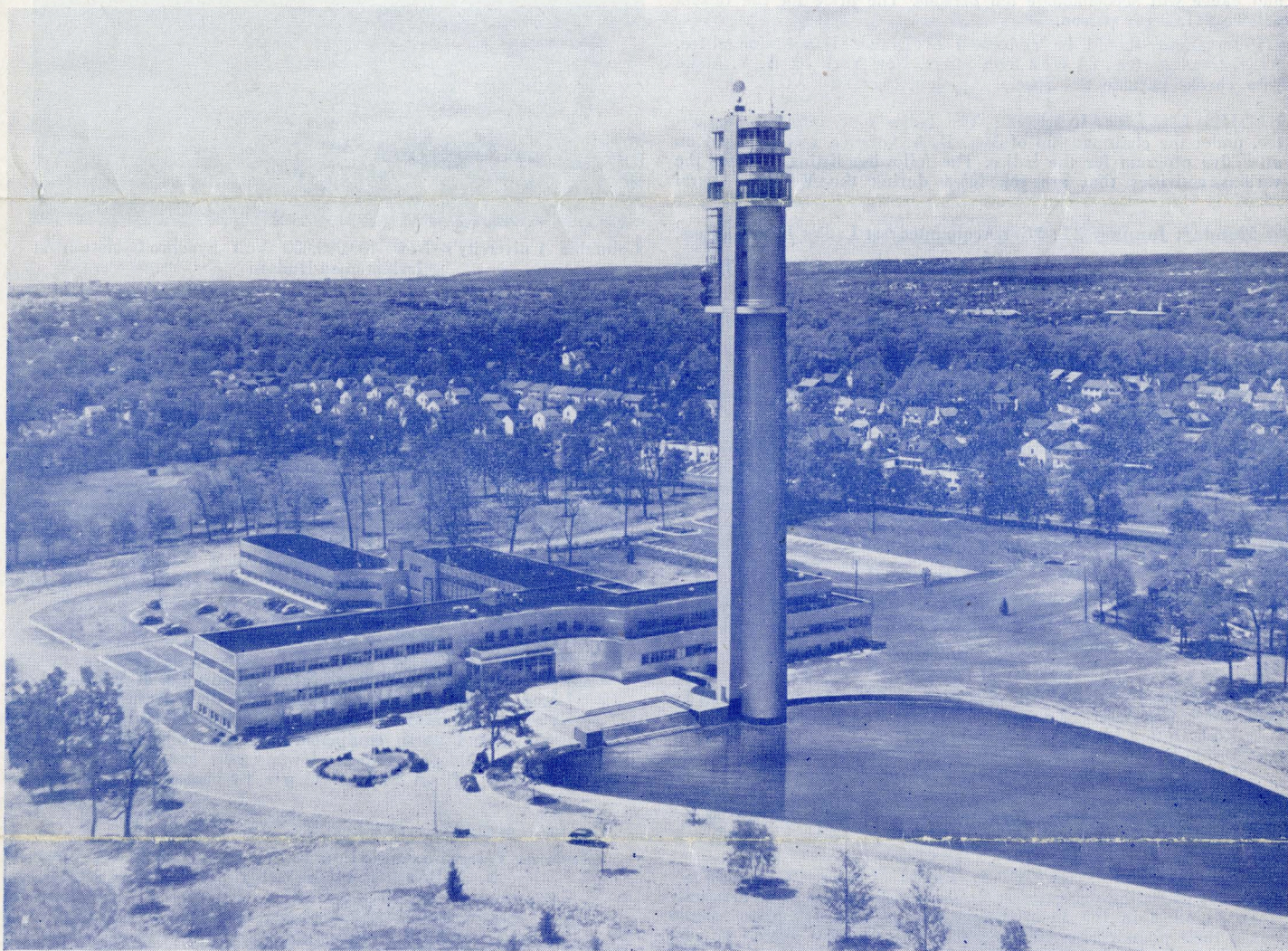
# Winter General Meeting

January 31 – February 4, 1949

Headquarters

Hotel Statler (Pennsylvania)

7th Avenue and 33rd Street, New York, N. Y.



Federal Telecommunications Laboratories, Nutley, N. J., which may be visited during the Meeting

## MEETING FEATURES

The Winter General Meeting to be held at the Hotel Statler (Pennsylvania) in New York, N. Y., January 31-February 4, 1949, will feature a broad program of professional and social activities. The technical program, the largest in the history of the Institute, is a manifestation of the effort of the technical committees of the AIEE to cover the electrical field completely. The tentative program is comprised of 38 technical sessions presenting about 150 papers and 18 technical conferences.

The Edison Medal presentation ceremonies will take place at a general session Wednesday morning. There will also be talks by President Charles E. Wilson of the General Electric Company and our president, Everett S. Lee, will also address us at that time.

A group of inspection trips also has been arranged closely allied with the subject matter of several sessions.

On the social side, there will be a dinner-dance, a smoker, theater tickets for out-of-town members and special entertainment for the

ladies. Meeting headquarters will be in the Hotel Statler. Please note that this is the new name of the world renowned Hotel Pennsylvania.

**REGISTRATION FEES REQUIRED:** Members and nonmembers should register in advance by filling in the advance registration card sent to you with the mailed announcement. In accordance with the policy as set up by the Board of Directors, a registration fee of \$3.00 will be required for members and a fee of \$5.00 for nonmembers. This is to help make the meeting self-supporting and obviate the need for raising the annual dues. Student members and the immediate families of members will not be required to pay any fee.

**SMOKER:** All arrangements are well underway for that very popular "Smoker" which will be held this year on Thursday night, February 3, at the Hotel Commodore. Chairman A. Cooper advises that the evening will open with a cocktail hour at 5:30 p.m. in the West Ballroom with dinner and show to follow. Tables for ten persons



# AIEE WINTER GENERAL MEETING

will be available to the maximum capacity of the Grand Ballroom. Price of the tickets will be \$8.00 per person. Though every effort will be made to meet all demands for tickets, the physical limits of the room have made this difficult for several years past. Reservations should be addressed to the Smoker Committee, AIEE Headquarters, 33 West 39th Street, New York 18, N. Y. Make your checks payable to "Special Account, Secretary AIEE."

**DINNER DANCE:** At this year's meeting we are to again enjoy the pleasure of a formal dinner dance. It will be held in the Grand Ballroom of the Hotel Statler, Tuesday evening, February 1. Dinner will be served at 7:00 p.m. followed by dancing. Tables for the dinner and dance will accommodate ten persons. The price for the tickets will be \$11.00 per person.

Reservations should be addressed to Dinner Dance Committee, AIEE Headquarters, 33 West 39th Street, New York 18, N. Y. Make your checks payable to "Special Account, Secretary AIEE."

**LADIES ENTERTAINMENT:** The ladies entertainment committee, under the chairmanship of Mrs. D. A. Quarles, has arranged an attractive program for the ladies. The following listing outlines the various activities that are scheduled during the Winter General Meeting. Other interesting features may be added later.

**Monday, January 31:** "Get Acquainted" at Ladies Headquarters.

**Tuesday, February 1:** Trip to United Nations (Buses will leave the Hotel Statler at 10:00 a.m.).

**Wednesday, February 2:** Tea and Fashion Show for out-of-town ladies at Hotel Pierre at 3:30 p.m. through the courtesy of the Westinghouse Electric Corporation.

**Thursday, February 3:** Dinner and Bridge, 6:00 p.m., Engineering Womens Club.

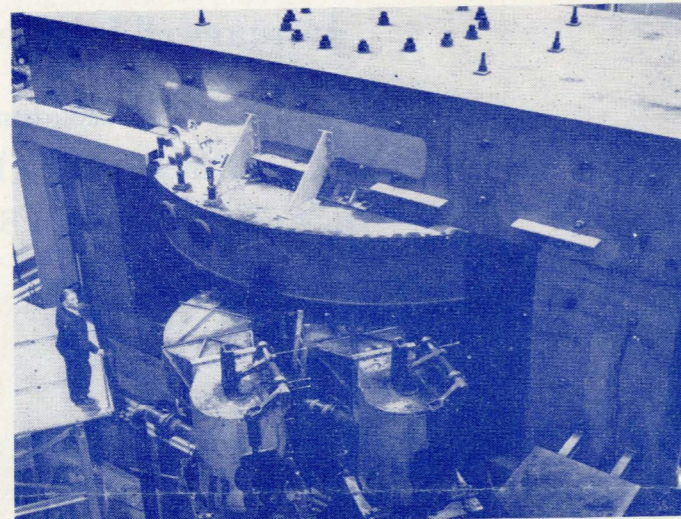
**Theater Tickets:** It is expected that tickets will be available as shown below. Please note that orders should be accompanied by checks and will be filled in the order received for even numbers of tickets only unless there are opportunities to combine orders for odd numbers.

Shows	Price	
	Matinee	Evening
Annie Get Your Gun	\$3.60	\$6.00
High Button Shoes		4.80
Inside U. S. A.	3.60	6.00
Life With Mother	3.60	4.80
Mr. Roberts	3.60	4.80
Love Life	3.60	6.00
Light Up The Sky	3.60	4.80

**HOTEL ACCOMMODATIONS:** Blocks of rooms have been set aside for attending delegates at five of our hotels in close proximity to each other in the Pennsylvania Station area. Members should make their plans early. All requests for reservations should be sent directly to the hotel. A copy of your letter to the hotel should also be sent to Mr. R. T. Oldfield, Public Service Commission, 233 Broadway, New York 7, N. Y.

The hotel rooms and prices are listed below:

Hotel	Room Type	Price
Hotel Statler (Pennsylvania)	single room with bath	\$ 4.00 to \$ 8.50
	double room, double bed	7.00 to 10.50
	double room, twin beds	8.00 to 14.00
Hotel New Yorker	single room, tub and shower	5.00
	double room, double bed	7.50 up
	double room, twin beds	8.50 up
Hotel Governor Clinton	single room with bath	4.00 to 6.00
	double room, double bed	6.50 to 8.00
	double room, twin beds	8.00 to 9.50



Columbia University's New 400,000,000 Volt Synchro-Cyclotron at Irvington-on-Hudson

Hotel McAlpin	Room Type	Price
Hotel McAlpin	single room and bath	4.00 to 7.00
	double room, double bed	6.50 to 10.00
	double room, twin beds	7.50 to 11.00
	suites	13.00 to 16.00

Hotel Martinique	Room Type	Price
Hotel Martinique	double room with bath	6.00 to 8.00

**INSPECTION TRIPS:** The Inspection Trips Committee has arranged a group of inspection trips which will appeal to the varied interests of members. It will be of material assistance to the committee in making transportation arrangements if members will make application for inspection trip tickets soon after registering. The schedule of trips is as follows:

**Monday, January 31**

**Jamaica Substation, Consolidated Edison Co.** at Jamaica, Long Island. A new substation having double-deck arrangement of 138 Kv and 27 Kv buses; metal-clad, isolated phase 27 Kv equipment; terminal and pump equipment for three oil-o-static and compression cable pipe feeders; low pressure gas-filled cable equipment. Leave Hotel Statler 1:15 p.m. by bus; return 5:30 p.m.

**Tuesday, February 1**

**Federal Telecommunication Laboratories, I. T. & T. Corp.** at Nutley, N. J. Research in the fields of communications, aerial navigation, microwaves and allied subjects. 300 foot tower of steel and aluminum for microwave studies. Unusual features of laboratory and office space arrangements. Leave Hotel Statler 1:15 p.m. by bus; return 6:00 p.m.

**Jamaica Substation, Consolidated Edison Co.** at Jamaica, Long Island. (Repeat of Monday trip.)

**Wednesday, February 2**

**Columbia University Cyclotron** at Irvington-on-Hudson, N. Y. The new 400,000,000 volt synchro-cyclotron. Electromagnet having 2500 ton steel yoke, 300 ton copper exciting coils, 160 inch diameter pole face and field strength of 18,000 gauss. Associated buildings and laboratory open for inspection. Convenient transportation by N. Y. Central R.R. Get detailed information at Inspection Trips Desk. Leave about 1:15 p.m.; return about 6:00 p.m.

**Westinghouse Meter Div.** at Newark, N. J.

Manufacturing operations devoted exclusively to protective relays, watt-hour meters and electrical measuring instruments. Leave Hotel Statler 1:15 p.m. by bus; return 6:00 p.m.

Thursday, February 3

**Material Laboratory, U. S. Navy Yard** at Brooklyn, N. Y.

Testing of naval engineering materials and equipment. Includes applied mechanics section, power and communication cable testing, electronic, acoustical and illumination sections, servo-mechanisms and high power tests. Leave Hotel Statler 1:15 p.m. by bus; return 5:00 p.m.

**Federal Telecommunication Laboratories, I. T. & T. Corp.,** at Nutley, N. J. (Repeat of Tuesday trip.)

## WINTER GENERAL MEETING COMMITTEE

A. E. Knowlton, <i>Chairman</i>	H. E. Farrer, <i>Secretary</i>
G. J. Lowell, <i>Vice-Chairman</i>	W. J. Barrett, <i>Budget Coordination</i>
D. T. Braymer, <i>Registration, Meetings</i>	R. T. Oldfield, <i>Hotel Reservations</i>
A. J. Cooper, <i>Smoker</i>	J. J. Pilliod, <i>General Session</i>
E. T. Farish, <i>Dinner Dance</i>	C. S. Purnell, <i>Reception</i>
R. W. Gillette, <i>Inspection Trips</i>	T. J. Talley III, <i>Theatre, Radio</i>
R. K. Honaman, <i>Press Relations</i>	H. M. Turner, <i>Technical Program Liaison</i>

## The Eta Kappa Nu Dinner

The Eta Kappa Nu Association will hold its Annual Recognition Dinner at the Henry Hudson Hotel, 353 West 57th Street, New York, New York, on Monday evening, January 31, 1949. This dinner will be held at 6:30 p.m. in the Tudor Room, and the cost will be \$5.00

At this dinner, Dr. A. M. Zarem, Director of the Los Angeles Division of the Stanford Research Institute, will receive the Eta Kappa Nu plaque in commemoration of his being chosen the Most Outstanding Young Electrical Engineer for 1948. Honorable Mention certificates will be awarded to Mr. J. W. Forrester of Massachusetts Institute of Technology and Mr. M. E. Mohr of the Bell Telephone Laboratories. These gentlemen were selected from among 50 candidates for the 1948 recognition by a jury consisting of Dr. E. L. Moreland, Chairman, Dean O. W. Eshbach, Mr. J. E. Murdoch, Mr. C. F. Craig, Mr. R. W. Wilbraham, Dr. S. R. Warren and Dean N. S. Hibshman.

## Monday, January 31

**8:30 a.m.—Registration**

**10:30 a.m.—Conference on Applied Mathematics**

\*\*CP. The Teaching of Field Theory to Engineers. L. V. Bewley, Lehigh University.

\*\*CP. Calculation of Flux Distribution with Saturation. H. Poritsky, General Electric Company.

\*\*CP. Tables of Green's Functions, Fourier Series, and Impulse Functions for Rectangular Coordinate Systems. J. J. Smith, General Electric Company.

\*\*CP. Recent European Developments in Applied Mathematics. Richard Courant, New York University.

**10:30 a.m.—Home Radio Receivers and Broadcasting**

\*\*CP. Brightness and Contrast in Television. P. C. Goldmark, Columbia Broadcasting Studios.

\*\*CP. Development of Large Screen Metal Kinescope for Television. H. P. Steier, Radio Corporation of America.

# TECHNICAL PROGRAM

\*\*CP. Progress Report on Ultra High Frequency Television. T. T. Goldsmith, Allen B. DuMont Laboratories, Inc.

\*\*CP. Input Power Requirements of Television Receivers. S. C. Spielman, Philco Corporation.

\*\*CP. Large Screen Projection Television. R. V. Little, Jr. Radio Corporation of America.

**10:30 a.m.—D-C Machinery (A)**

49-15. Development of a Small Integral Horsepower D-C Motor. \*ACO. Lanier Greer, J. A. Clark, The Reliance Electric and Engineering Company.

\*\*CP. The Design of Direct Current Motors for Use in Automatic Control Systems. Paul Lebenbaum, General Electric Company.

\*ACO. An Improved Dual Circuit D-C Generator. D. B. Hoover, \*ACO. Westinghouse Electric Corporation.

\*\*CP. Limitations in Design of D-C Adjustable Speed Motors. L. G. Opel, Westinghouse Electric Corporation.

49-39. Solid Short Circuit of D-C Motors and Generators. T. M. Linville, H. C. Ward, General Electric Company.

**10:30 a.m.—Watt-hour Meters and Miscellaneous Instruments**

49-20. Surge Protection in a Modern Watt-hour Meter. F. H. Busch, G. D. Williams, General Electric Company.

\*\*CP. A New Device for Calibrating Watt-hour Meters. H. F. Robison, W. H. Wickham, Commonwealth Edison Company.

49-22. A New Thermal Volt Ampere Demand Meter. M. E. Douglass, W. H. Morong, General Electric Company.

49-23. A New Type Instrument for Measuring Air Velocity. C. E. \*ACO. Hastings, Hastings Instrument Company, Inc.

49-24. An Electrooptical Shutter for Photographic Purposes. A. M. Zarem, Stanford Research Institute; F. R. Marshall, F. L. Poole, U. S. Naval Ordnance Test Station.

\*\*CP. General Electric Metals Comparator. D. E. Bovey, General Electric Company.

**10:30 a.m.—Conference on Chemical, Electrochemical, and Electrothermal Processes**

\*\*CP. Power Cable Distribution for a Gulf Coast Chemical Plant. B. J. Nankervis, Dow Chemical Company.

\*\*CP. Experience with Power Cable and Open Wiring in the Chemical Industry.

**2:00 p.m.—Conference on Fluorescent Lighting—Summary of a Decade of Progress**

\*\*CP. Trends in Fluorescent Lamps. W. C. Brown, General Electric Company.

\*\*CP. Economic Considerations. R. G. Clauer, Sylvania Electric Products, Inc.

\*\*CP. Trends in Application Techniques. Marshall Waterman, Westinghouse Electric Corporation.

**2:00 p.m.—Radio Communication Systems**

49-25. A Time Division Multiplexing System. W. P. Boothroyd, E. M. Creamer, Jr., Philco Corporation.

\*\*CP. Clampers in Video Transmission. S. Doba, Jr., J. W. Rieke, Bell Telephone Laboratories, Inc.

\*\*CP. The Transistor, a New Solid State Amplifier. J. A. Becker, J. M. Shive, Bell Telephone Laboratories, Inc.

\*\*CP. The Coaxial Transistor. W. E. Kock, R. L. Wallace, Jr., Bell Telephone Laboratories, Inc.

**2:00 p.m.—D-C Machinery (B)**

49-27. Oscillographing Commutation. M. J. Baldwin, General Electric Company.

49-28. Commutation of D-C Machines and Its Effects on Radio Influence Voltage Generation. D. P. Motter, General Electric Company.





Jamaica Substation, Consolidated Edison Company, which may be seen on Monday and Tuesday afternoons

- 49-29. Effects of Commutator Surface Film Conditions on Commutation. C. Lynn, H. M. Elsey, Westinghouse Electric Corporation.
- 49-30. Electrical Noise at the Sliding Contact. V. P. Hessler, University of Illinois; M. C. Cotton, University of Kansas.
- 49-31. Measuring Commutation with an Indicating Instrument. R. \*ACO. T. Lundy, General Electric Company.

**2:00 p.m.—Miscellaneous Instruments**

- \*\*CP. Resistance Wire Strain Gages As Elements of the Wheatstone Bridge. Vincent Petrucelly, Jr., American Machine and Foundry Company.
- 49-33. A Study of Slidewire Contact Resistances. W. E. Belcher, Jr., \*ACO. The Brown Instrument Company.
- 49-34. Dielectric-Loss Measurement with a New Deflecting-Meter \*ACO. Circuit. E. H. Povey, Doble Engineering Company.
- \*\*CP. Theoretical Considerations in the Use of an Ergometer. J. Schroder, Naval Ordnance Laboratory.

**2:00 p.m.—Basic Sciences**

- \*\*CP. Natural Electrical Phenomena of the Atmosphere. O. H. Gish, Carnegie Institution of Washington.
- \*\*CP. The Brain as a Computing Machine. W. S. McCulloch, University of Illinois.
- \*\*CP. Basic Theory, and Experimental Verification, of the Percent Limit Resistance Bridge. T. J. Higgins, University of Wisconsin.
- \*\*CP. Magnetic Amplifier Analysis Using Ideal Magnetization Curves. P. M. Kintner, University of Illinois.
- \*\*CP. Fundamentals of Contact Resistance. Ragnar Holm.

**2:00 p.m.—Conference on Chemical, Electrochemical, and Electrothermal Processes**

- \*\*CP. Power Wiring in Petroleum Refineries. W. H. Dickinson, Standard Oil Development Company.
- \*\*CP. Sixth Years of Electrical Distribution in a Petroleum Refinery. J. A. Britton, W. J. O'Meara, The Atlantic Refinery Company.
- \*\*CP. Experience with Power Cable and Open Wiring in the Petroleum Industry.
- \*\*CP. The Use of Electric Power in the Transportation of Natural Gas through the Former Big and Little Inch Pipe Lines. W. T. Thagard, Texas Eastern Transmission Corporation.

**Tuesday, February 1**

**9:30 a.m.—D.C. Machinery (C)**

- \*\*CP. Direct-Current Motors in Coal Mining Machinery. F. R. Terant, Lanier Greer, The Reliance Electric and Engineering Company.
- \*\*CP. Use of Magnetic Growler in Locating All Leads in a Finished Armature. Roy Stott, Jr., Westinghouse Electric Corporation.
- \*\*CP. Transient Inductance of Interpole Windings. Allis-Chalmers Manufacturing Company.
- \*\*CP. Linestarting Direct-Current Motors. E. C. Watson, Westinghouse Electric Corporation.
- \*\*CP. Use of Cumulative and Differential Series Fields in the Parallel Operation of Motors. A. W. Kimball, Westinghouse Electric Corporation.

**9:30 a.m.—Land Transportation**

- 49-42. Application Engineering on Diesel-Electric Locomotives in Railroad Service. G. T. Bevan, General Electric Company.
- 49-43. Twenty-five Years Progress in the Design of Traction Motors. M. J. Baldwin, General Electric Company.
- 49-44. The Renaissance of Electric Motive Power. A. H. Candee, Westinghouse Electric Corporation.
- 49-45. Electrical Equipment for Chesapeake and Ohio Railway Co. Steam Turbine-Electric Locomotives. C. A. Atwell, C. E. Baston, Westinghouse Electric Corporation.
- 49-46. Selenium Rectifiers in Motor Vehicle Power Systems. Glen Ramsey, Fansteel Metallurgical Corporation.

**9:30 a.m.—Communication Switching**

- 49-99. Vibrating Reed Selectors for Mobile Radio Systems. A. C. Keller, L. G. Bostwick, Bell Telephone Laboratories, Inc.
- 49-100. Vibrating Reed Selective Signaling System for Mobile Telephone Use. H. M. Pruden, D. F. Hoth, Bell Telephone Laboratories, Inc.
- 49-101. Application of Multi-Frequency Pulsing in Switching. C. A. Dahlbom, A. W. Horton, Jr., D. L. Moody, Bell Telephone Laboratories, Inc.
- \*\*CP. Tape-to-Page Translator. A. E. Frost, The Western Union Telegraph Company.

**9:30 a.m.—Electronic Instruments**

- 49-120. A Square-Law Power-Level Recorder. W. R. Clark, Leeds and Northrup Company; W. R. Turner, Naval Ordnance Laboratory; A. J. Williams, Leeds and Northrup Company.

- 49-47. Polar Vector Indicator. A. H. Waynick, E. A. Walker, P. G. Sulzer, The Pennsylvania State College.
- \*\*CP. A Regulated, Adjustable Low Voltage D-C Supply for Electrolysis and Other Use. M. L. Greenough, W. E. Williams, National Bureau of Standards.
- \*\*CP. A Cathode Ray Oscillograph with Amplifier and Attenuator Uniform to 30MCps. R. U. Naghe, C. F. West, Raytheon Manufacturing Company.

**9:30 a.m.—Symposium on Magnetics**

- \*\*CP. Recent Advances in Magnetic Theory. R. M. Bozorth, Bell Telephone Laboratories, Inc.
- \*\*CP. Materials with Preferred Grain and Domain Orientation. (A) Iron-Silicon Alloys. G. H. Cole. (B) Iron-Nickel and Other Alloys. E. A. Gaugler. (C) Crystal Orientation in Magnetic Alloys. M. F. Littman.
- \*\*CP. Fe-Co Alloys for High Induction Applications. J. K. Stanley.

**9:30 a.m.—Conference on Electrical Tests on Dielectrics in the Field**

- \*\*CP. Practices and Trends in Low Voltage D-C Tests on Dielectrics in the Field. E. B. Curdts, James G. Biddle Company.
- \*\*CP. Insulation Resistance Tests on Low-Tension D-C Cables. Reginal Middleton, Massachusetts Transit Authority.
- \*\*CP. High-Voltage Direct-Current Testing. L. A. Gray, Simplex Wire and Cable Company.
- \*\*CP. Potential Distribution Tests. F. C. Doble, Doble Engineering Company.

**9:30 a.m.—Recovery Rates on Distribution Systems**

- \*\*CP. Short Circuit Currents and Recovery Voltages on Rural Distribution Systems. W. H. Eason, I. B. Johnson, J. W. Kalb, General Electric Company; H. A. Peterson, Automatic Electric Company.
- 49-53. Voltage Recovery Characteristics of Distribution Systems. R. L. Witzke, Westinghouse Electric Corporation.

**2:00 p.m.—Land Transportation**

- 49-104. Trackless Trolley Operations in Rhode Island. H. R. Blomquist, United Electric Railways Company.
- 49-105. Trolley Coaches Replace Buses. A. B. McMillon, General Electric Company. (Presentation of these two papers will be followed by a meeting of the Land Transportation Committee.)

**2:00 p.m.—Transmission and Distribution**

- 49-3. Hy-Therm Copper—An Improved Overhead-Line Conductor. L. F. Hickernell, A. A. Jones, C. J. Snyder, Anaconda Wire and Cable Company.
- 49-9. Detection of Over-Heated Transmission Line Joints by Means of a Bolometer. J. R. Leslie, J. R. Waite, Hydro-Electric Power Commission of Ontario.
- 49-10. Distribution Transformer and Secondary Conductor Economics. Bryce Brady, Oklahoma Gas and Electric Company.
- \*\*CP. Overcurrent Investigation on a Rural Distribution Systems. G. F. Lincks, General Electric Company; D. R. Edge, Graybar Electric Company, Inc.; W. C. McKinley, Central Electric Cooperative, Inc.; J. H. Leh, General Electric Company.

**2:00 p.m.—Wire Communication Systems**

- 49-26. The Distinction Between Effective and Circuit Bandwidths. W. J. Kessler, University of Florida.
- \*\*CP. A Carrier System for 3,000-Cycle Program Transmission. R. A. Leconte, D. B. Penick, C. W. Schramm, A. J. Wier, Bell Telephone Laboratories, Inc.

- \*\*CP. Delay Equalization of 8-Kc Carrier Program Circuits. C. H. Dagnall, P. W. Rounds, Bell Telephone Laboratories, Inc.
- \*\*CP. Band Pass Filter, Band Elimination Filter and Phase Simulator Network for Carrier Program Systems. F. S. Farkas, F. J. Hallenback, F. E. Stehlik, Bell Telephone Laboratories, Inc.
- 49-59. Rubber Insulators for Pole Lines. H. H. Wheeler, W. F. Markley, The Western Union Telegraph Company.

**2:00 p.m.—Rotating Machinery (E)**

- 49-49. Vaporization Cooling of Large Electrical Machines. Th. de \*ACO. Koning.
- 49-50. A Semi-Empirical Approach to Voltage Dip. L. T. Rosenberg, Allis-Chalmers Manufacturing Company.
- 49-51. The Geometric Loci of the Synchronous Tie. L. A. Finzi, Carnegie Institute of Technology; L. C. Wellard, Molded Insulation Company.
- \*\*CP. Differential Leakage of the Different Patterns of a Fractional Slot Winding. M. M. Liwischitz, Polytechnic Institute of Brooklyn.
- 49-35. Methods for Determining the Effect of Contaminants on Electrical Insulation. K. N. Mathes, General Electric Company; L. E. Sieffert, H. P. Walker, U. S. Navy Department; R. H. Lindsey, General Electric Company.

**2:00 p.m.—Electronic Digital Computer Instrumentation**

- \*\*CP. Application of Electronic Digital Computers in the Public Domain—the Interests of the United States Government. S. N. Alexander, National Bureau of Standards.
- \*\*CP. Outlook for Electronic Digital Computers—The Scope of the Engineering Involved. J. W. Forrester, Massachusetts Institute of Technology.
- \*\*CP. The Ultimate Digital Storage Capacity for Ultrasonic Delay Lines. C. F. West, H. N. Beveridge, John Deturk, Raytheon Manufacturing Company.
- \*\*CP. An Octal System Automatic Computer. J. R. Weiner, Eckert Mauchly Computer Corporation.
- \*\*CP. The EDVAC. R. L. Snyder, University of Pennsylvania.

**2:00 p.m.—Symposium on Magnetics**

- \*\*CP. Materials for High Frequency Application. (A) Thin Gage Alloys. D. C. Dieterly. (B) Ferrites (Ferroxcubes). Frank Brockman.
- \*\*CP. Magnetic Properties at High Operating Temperatures. M. L. Manning.
- \*\*CP. Permanent Magnet Materials. A. H. Geisler.

**2:00 p.m.—Conference on Electrical Tests on Dielectrics in the Field**

- \*\*CP. Low-Voltage Alternating-Current Testing. I. G. Easton, General Radio Company.
- \*\*CP. Intermediate-Voltage Alternating Current Tests. E. D. Doyle, Leeds and Northrup Company.
- \*\*CP. Intermediate-Voltage Alternating Current Tests. I. W. Gross, American Gas and Electric Service Corporation.
- \*\*CP. High-Voltage Alternating-Current Tests. A. L. Brownlee, Commonwealth Edison Company.

Digests of most papers will appear in **ELECTRICAL ENGINEERING**



## Wednesday, February 2

### 10:00 a.m.—General Meeting, Everett S. Lee, Presiding—

"Our Institute"—Everett S. Lee, President AIEE.  
Edison Medal Presentation.  
Address by Charles E. Wilson, President, General Electric Company.

### 2:00 p.m.—Conference on Control of Electric Hazards in Rural Areas

- \*\*CP. Electric Shock Hazards on the Farm. W. B. Buchanan, Hydro-Electric Power Commission of Ontario.
- \*\*CP. Grounding Conditions in Rural Areas. J. H. Waghorne, Hydro-Electric Power Commission of Ontario.
- \*\*CP. Protective Grounding of Electrical Installations on Customer's Premises. A. H. Schirmer, Bell Telephone Laboratories, Inc.
- \*\*CP. Electric Fences—Their Hazards, Effective Design and Safe Application. C. F. Dalziel, University of California.

### 2:00 p.m.—Carrier Current

- 49-6. Line Tuning Equipment Used with Coaxial Cable for Carrier Current Installation on Power-Lines. H. J. Sutton, Gulf States Utilities Company.
- 49-5. Microwave Channels for Power System Applications. Carrier Current Committee.
- \*\*CP. Symposium on Tests of Power Cables at Carrier Current Frequencies.
  - (a) D. M. MacGregor.
  - (b) H. F. Lindemuth.
  - (c) S. C. Leyland.
  - (d) T. A. Cramer.

### 2:00 p.m.—Special Communication Applications

- 49-54. The Mechanism of the Supersonic Bias. Angelo Montani, \*ACO. W M Instrument Corporation.
- 49-107. Application of Experimental Test Procedures and Methods of Analysis of Results to Research Problems in Magnetic Recording. C. S. Thompson, The Franklin Institute.
- 49-108. Considerations on Facsimile Transmission Speed. H. F. Burkhard, Signal Corps. By title only.
- 49-109. Control Chart Methods Applied to Frequency Response Curves. A. B. Mundel, Sonotone Corporation.
- \*\*CP. An Overall Inspection Program. H. M. Wolfson, Western Electric Company.

### 2:00 p.m.—Conference on Energy Sources

- \*\*CP. Effects of Electricity on the Human Body. W. B. Kouwenhoven, The Johns Hopkins University.
- \*\*CP. Electric Fishes. C. W. Coates, New York Aquarium.
- \*\*CP. Chemical Mechanism of Nerve Electricity. David Nachmansohn, Columbia University.
- \*\*CP. Analysis of the Electric Discharge of the Electric Eel. M. V. Brown, College of the City of New York.

### 2:00 p.m.—Lightning and Corona

- 49-110. Lightning Investigation on a Rural Distribution System. D. D. MacCarthy, D. A. Stann, General Electric Company; D. R. Edge, Graybar Electric Company, Inc.; W. C. McKinley, Central Electric Cooperative, Inc.
- 49-111. Transmission Line Design and Performance Based on Direct Lightning Strokes. E. L. Harder, J. M. Clayton, Westinghouse Electric Corporation.
- 49-60. Radio Influence from High-Voltage Corona. G. R. Slemon, The Hydro-Electric Power Commission of Ontario.

49-61. Advances in Technique of Lightning Measurements. Theodore Brownlee, General Electric Company.

### 2:00 p.m.—Conference on D.C. Motor Test Program

- 49-62. Temperature Rise Values for Direct-Current Machines. Subcommittee on D-C Machines, Rotating Machinery Committee, AIEE.
- 49-63. Stray Load Losses Measured in D-C Motors. Subcommittee on D-C Machines, Rotating Machinery Committee, AIEE.
- \*\*CP. Progress Report on AIEE Test Code for Electric Brushes. Joint Subcommittee on Electric Brushes.

### 2:00 p.m.—Conference on Heat Balance in Chemical Plants

- \*\*CP. By Product Power Via Topping Turbines. J. B. Glasby, The Atlantic Refining Company.
- \*\*CP. Steam and Electrical Balance in Chemical Plants. L. W. Roush, Carbide and Carbon Chemicals Corporation.

## Thursday, February 3

### 9:30 a.m.—Relays

- 49-65. Protection of Stations without High-Voltage Switching. Project Committee, Relay Committee, AIEE.
- \*\*CP. Sensitive Ground Protection. Project Committee, Relay Committee, AIEE.
- 49-7. Shipshaw Relay Protection. J. T. Madill, F. H. Duffy, Aluminum Company of Canada.
- 49-66. Electronic Relay Developments. J. J. Loving, Jr., Airborne Instruments Laboratory, Inc.

### 9:30 a.m.—Industry's Active Part in Education

- \*\*CP. Cooperative Education at the Undergraduate Level. E. M. Strong, Cornell University.
- \*\*CP. Industry's Cooperation in Graduate Education. W. A. Lewis, Illinois Institute of Technology.
- \*\*CP. Internship for the Engineering Graduate. K. B. McEachron, Jr., General Electric Company.
- \*\*CP. Professional Development of the Young Engineer in Industry. Guy Kleis, J. C. McKeon, Westinghouse Electric Corporation.

### 9:30 a.m.—Protection of Electronic Power Converters

- 49-67. Protection of Electronic Power Converters. Subcommittee on Electronic Converter Circuits, Committee on Electronic Power Converters, AIEE.
- 49-68. Rectifier Fault Currents II. C. C. Herskind, A. Schmidt, Jr., C. E. Rettig, General Electric Company.
- \*\*CP. Rectifier Transformer Characteristics. Rectifier Transformer Subcommittee, Electronic Power Converter Committee, AIEE
- \*\*CP. Current Practice on Rectifier Switchgear. M. E. Reagan, H. V. Nye, D. C. Hoffmann.

### 9:30 a.m.—Fractional Horsepower Machinery

- 49-69. Die Cast Rotors for Induction Motors. L. C. Packer, Westinghouse Electric Corporation.
- 49-70. Armature Iron Losses in Series Motors. S. S. L. Chang, J. H. Karr, Robbins and Myers, Inc.
- 49-71. Fundamental Theory of Inherent-Overheating Protection Under Running Overload Conditions. C. G. Veinott, L. C. Schaefer, Westinghouse Electric Corporation.
- 49-72. The Field Fluxes of the Shaded-Pole Motor. E. E. Kimberly, The Ohio State University.
- \*\*CP. An Automatic Test Board for Fractional Horsepower Motors. S. S. Wolff, Century Electric Company.

### 9:30 a.m.—Symposium on Gas Turbines for Power Generation

- 49-112. Outage Rates of Steam Turbines and Boilers and Hydro Units for the Calculation of Generating Capacity Reserves. Joint Subcommittee on Application of Probability Methods to Capacity Problems. Presentation by title only.
- 48-282. Performance Characteristics of Speed Governors on Automatic Extraction Turbines Driving Electric Generators. L. B. Wales, General Electric Company. Presentation by title only.
- \*\*CP. Brief Review of Gas Turbine Fundamentals. B. G. A. Skrotzki, "Power," McGraw-Hill Publishing Company.
- \*\*CP. A Review of High-Speed Drives for Gas-Turbine Test Plant. D. W. Knowles, A. V. Roe, Canada, Limited.
- 49-113. A 3,000 Horsepower Gas Turbine Power Plant. J. S. Haverstick, DeLaval Steam Turbine Company.
- \*\*CP. Elliott Gas Turbine Developments Applicable to Power Generation. E. S. Dennison, Elliott Company.
- \*\*CP. A Design of Gas Turbine Suitable for Peak-Load and End-of-Transmission-Line Operation. W. B. Tucker, Allis-Chalmers Manufacturing Company.

### 9:30 a.m.—System Engineering

- 49-96. Equivalent Circuits for Power Flow Studies. J. B. Ward, Purdue University.
- \*\*CP. An Operating View of the Problem of Fluctuating Loads on Steam Plants. G. H. McDaniel, American Gas and Electric Service Corporation.
- 49-97. Design of Boilers and Control for Fluctuating Loads. P. S. Dickey, P. R. Loughin, The Babcock and Wilcox Company.
- 49-98. Effect of Fluctuating Load on Steam Turbines. R. L. Reynolds, Westinghouse Electric Corporation.
- \*\*CP. Are Modern High Pressure, High Temperature Turbines Suitable for Use with System Speed and Load Control? E. E. Parker, C. W. Ellston, General Electric Company.
- \*\*CP. Status of Automatic Load and Frequency Control Equipment. Subcommittee on System Controls. Presentation by title only.

### 9:30 a.m.—Electrostatic Precipitation

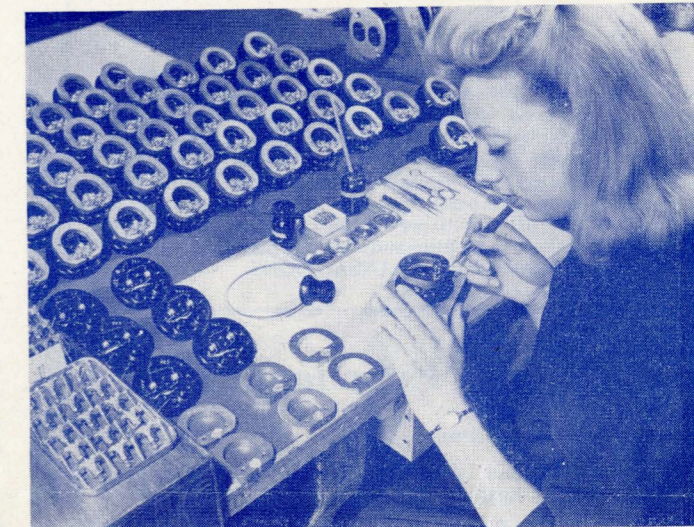
- 49-74. Electrically Charged Dust in Rooms. G. W. Penney, Carnegie Institute of Technology; G. W. Hewitt, Westinghouse Research Laboratories.
- \*\*CP. Kenotron Tubes for Industrial Precipitation Applications. D. W. Hawkins, General Electric Company.
- \*\*CP. Characteristics of Power Supplies for Electrostatic Precipitation. W. F. Strong, General Electric Company.
- \*\*CP. Electrostatic Painting. E. P. Miller.

### 9:30 a.m.—Industrial Control

- 49-116. Air Core Reactors Used to Raise the Fault Capacity of Existing Motor Starting Equipment. T. W. Haymes, Jr., Shell Oil Company.
- 49-117. The Use of Air-Core Reactors as Fault Limiting Means on High Interrupting Capacity Controllers. J. D. Leitch, The Electric Controller and Manufacturing Company.
- \*\*CP. Prediction of Ultimate Temperature Rise from Early Heat-Run Data. J. E. Ryan, General Electric Company.
- 49-119. Wound Rotor Induction Motors for Synchronized Drives. \*ACO. E. L. Schwarz-Kast, The University of Chicago.

### 2:00 p.m.—Conference on Back-Up Protection

- \*\*CP. Practice and Extent of Back-Up Protection. W. L. Ridenhour.
- \*\*CP. Back-Up Protection Studies. Lee Marts.
- \*\*CP. Back-Up Protection and Bus Splitting, Canadian Practices. H. W. Haberl.



Assembly Operation at Westinghouse Meter Division, Newark, N. J.

### 2:00 p.m.—Conference on Education in Power Electronics

- \*\*CP. Scope of Power Electronics and Its Industrial Applications.
- \*\*CP. Power Electronics As An Educational Medium.
- \*\*CP. Courses in Power Electronics. (Three papers—10 minutes each.)
- \*\*CP. Assistance by AIEE Committees to Educators in Power Electronics.

### 2:00 p.m.—Symposium on Gas Turbines for Power Generation

- 49-114. Two Gas Turbines for Power Generation and Other Applications. Alan Howard, General Electric Company.
- 49-115. Gas Turbines in Stationary Power Generation. F. T. Hague, Westinghouse Electric Corporation.

### 2:00 p.m.—High Frequency Cables

- 49-76. Coaxial Line Supports of Optimum V.S.W.R. Performance. \*ACO. J. W. E. Griemsmann, Polytechnic Institute of Brooklyn.
- 49-77. Heating of Radio-Frequency Cables. W. W. Macalpine, Federal Telecommunication Laboratories, Inc.
- 49-78. The Power Rating of Radio-Frequency Cables. R. C. Mildner, The Telegraph Construction and Maintenance Company, Ltd.

### 2:00 p.m.—Conference on Nucleonics

- \*\*CP. Radioisotopes in Industrial Process Control. A. P. Schreiber, Tracerlab, Inc.
- \*\*CP. Radioactive Tracers in the Study of Friction. John Burwell, Massachusetts Institute of Technology.
- \*\*CP. The Protection of Industrial Workers from Radiation. K. Z. Morgan, Oak Ridge National Laboratory.
- \*\*CP. Quantitative Dosage Measurements by Autoradiographic Techniques. R. A. Dudley, Massachusetts Institute of Technology.

### 2:00 p.m.—Industrial Control

- \*\*CP. A Servomechanism Analysis of Photo-Electric Loop Control. L. U. C. Kelling, General Electric Company.
- \*\*CP. Regulated System Performance. H. Gayek, General Electric Company.
- 49-55. Some Fundamentals of D-C Controlled Reactors with Resistive Load. H. F. Storm, General Electric Company.
- \*\*CP. Improvements in the Characteristics of A-C Lead Networks for Servomechanisms. Donald McDonald, University of Michigan.



## ADVANCE COPIES OF PAPERS

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## Friday, February 4

### 9:30 a.m. Servomechanisms

- 49-79. Damper Stabilized Instrument Servomechanisms. A. C. Hall, Massachusetts Institute of Technology.
- 49-80. Graphical Determination of Transfer Function Loci for Servomechanism Components and Systems. E. C. Easton, C. H. Thomas, Harvard University.
- 49-81. Operating Characteristics of Two-Phase Servo Motors. R. J. W. Koopman, Washington University.
- \*\*CP. A New Field, Systems Engineering. H. T. Marcy.

### 9:30 a.m.—Insulated Conductors

- \*\*CP. A New Technique in the Manufacture of Soldered Porcelain Potheads. A. E. Papp, J. H. Nicholas, G and W Electric Specialty Company.
- 49-84. High-Pressure, Gas-Filled Cable Impregnated with Extra-High Viscosity Oil. Joseph Sticher, G. H. Doan, The Detroit Edison Company; R. W. Atkinson, Louis Meyerhoff, General Cable Corporation.
- 49-2. The Temperature Rise of Buried Cables and Pipes. J. H. Neher, Philadelphia Electric Company.
- 49-83. The Thermal Movement of Moisture in Soil. A. S. Mickley, Philadelphia Electric Company.

### 9:30 a.m.—Switchgear

- \*\*CP. A New 69-Kv Oil-Blast Circuit Breaker. E. B. Rietz, C. J. Ballentine, General Electric Company.
- 49-93. A Manually Operated Spring Mechanism for Medium Voltage Oilless Circuit Breakers. B. W. Wyman, E. J. Casey, General Electric Company.
- 49-94. A New 69-Kv Compressed Air Circuit Breaker. B. P. Baker, E. Frisch, Westinghouse Electric Corporation.
- \*\*CP. Development and Testing of an Improved High-Voltage High-Capacity Impulse Breaker. E. B. Rietz, General Electric Company.

### 9:30 a.m.—New Electronic Devices

- \*\*CP. Synchronized Micro Time Photographic Techniques. A. M. Zarem, Stanford Research Institute.
- \*\*CP. A Sub-miniature Tube Application. W. W. Snyder, Sylvania Electric Products, Inc.
- \*\*CP. Close-spaced Triodes for Operation as Broadband Amplifiers at 4000 Mc. Dr. R. M. Ryder, Bell Telephone Laboratories, Inc.
- \*\*CP. The Type H Leak Detector. J. E. Bigelow, General Electric Company.
- \*\*CP. Ultrafax. D. S. Bond, RCA Laboratories.

### 2:00 p.m.—Conference on Textile Industry

- \*\*CP. Contribution of Electricity in the Development of Synthetic Fibers. A. W. Frankenfield, E. I. DuPont de Nemours Company.
- 49-86. Selection of Electric Drives for Looms. R. J. Demartini, A. F. Lukens, General Electric Company.

- \*\*CP. History and Development of the Rayon Spinning Motor. H. D. Else, Westinghouse Electric Corporation.
- \*\*CP. Traverse Drives for Rayon Spinning Frames. R. R. Prechter, H. I. Kintz, General Electric Company.

### 2:00 p.m.—Symposium on New Tools for Research

- \*\*CP. Electronic Digital Computers. H. H. Aiken, Harvard University.
- \*\*CP. Microwave Spectroscopy. D. K. Coles, Westinghouse Electric Corporation.
- \*\*CP. Use of Nuclear Spin Techniques to Measure and Control Magnetic Fields. J. L. Lawson, General Electric Company.
- \*\*CP. Application of Microwave Magnetic Analyses to Detect Nuclear Spins for the Study of Dielectrics. E. Purcell, Harvard University.
- \*\*CP. Mass Spectrometer as a Research Tool. H. W. Washburn.
- \*\*CP. X-Ray Spectroscopy. O. S. Duffendack, Phillips Lab., Inc.
- \*\*CP. Electron Microscope. James Hillier, RCA Laboratories.
- \*\*CP. Application of High Speed Photography to Research. J. H. Waddell, Bell Telephone Laboratories, Inc.

### 2:00 p.m.—Conference on Computing Devices

- \*\*CP. Application of the Cal Tech Electric Analog Computer to Nonlinear Mechanics and Servo Mechanisms. G. D. McCann, C. H. Wilts, B. N. Locanthi, California Institute of Technology.
- 49-13. Comparison of Long Time and Short Time Analog Computers. Victor Paschkis.
- 49-8. The Transient Behavior of the Two-Stage Rototrol Main Exciter Voltage Regulating System As Determined by Electrical Analogy. J. T. Carleton, Westinghouse Electric Corporation.
- \*\*CP. Summary of Transformations Useful in Constructing Electrical Analogs of Linear Vibration Problems. J. P. Corbett, Northwestern University.

### 2:00 p.m.—Electronics

- 49-106. Transconductance as a Criterion of Electron Tube Performance. T. Slonczewski, Bell Telephone Laboratories, Inc.
- \*\*CP. A New Standard Frequency Source with Power Output Up to 10 Kw. J. J. Larew, General Electric Company.
- 49-88. High-Voltage Rectifier Tubes with Thoriated Tungsten Filaments. Z. J. Atlee, Dunlee Corporation.
- 49-4. Universal Curves for D-C Controllable Reactors. W. C. Johnson, Princeton University; B. C. Merrell, Proctor and Gamble, Inc.
- \*\*CP. Compact Radiographic Tubhead Using Forced Oil Cooling. Samuel Gilman, Joseph Lempert, Westinghouse Electric Corporation.

### 2:00 p.m.—Symposium on the Control and Protection of Household Equipment

- \*\*CP. Evolution of the Modern Automatic Iron. B. F. Parr, Westinghouse Electric Corporation.
- \*\*CP. Flame Detectors for Domestic Fuel Burner Safety Devices. J. A. Deubel, Perfex Corporation.
- \*\*CP. Synthetic Load for Testing Rectifiers. C. L. Tetherow, Underwriters Laboratories, Inc.
- 49-1. Heat Pump—Its Significance as a Potential Electric Load. Constantine Bary, Philadelphia Electric Company. Presentation by title only.

\*\*CP. Conference paper; no advance copies are available; not intended for publication in Transactions.

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