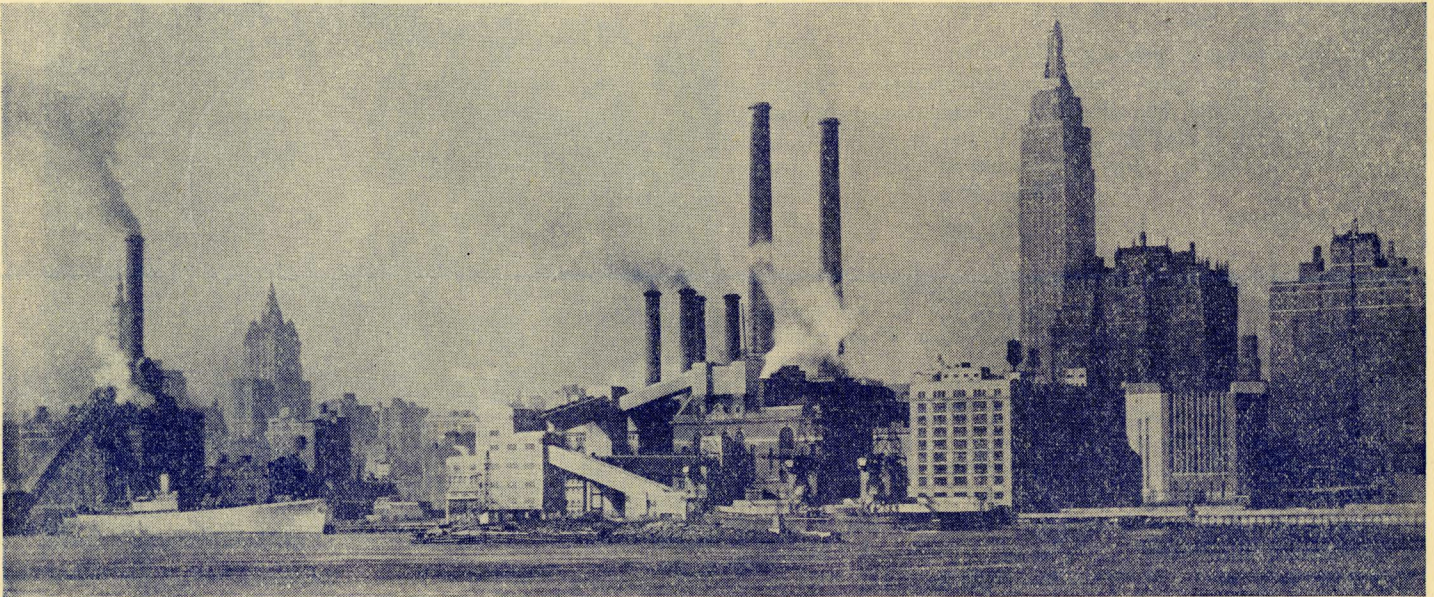




# Winter Meeting

January 27-31, 1947

Headquarters  
Engineering Societies Building  
33 West 39th Street, New York 18, N. Y.



Waterside Generating Station of the Consolidated Edison Company of New York, Inc., which may be visited during the Meeting

## MEETING FEATURES

The Winter Meeting to be held in New York, N. Y., January 27-31, 1947, will feature a broad program of professional and social activities. The technical program, the largest in the history of the Institute, is in keeping with the effort of the AIEE to cover the technical field completely. This is further evidenced by the holding of a special conference on the technical activities. The program is comprised of 26 technical sessions, presenting about 100 papers, and 16 technical conferences. As an innovation, the Edison, John Fritz, and Hoover Medals will be presented in general sessions in the afternoons, coordinated with technical sessions appropriate to the fields of achievements of the medalists. A group of inspection trips has also been arranged closely allied with the subject matter of several sessions. On the social side there will be a smoker, theatre tickets for out-of-town members, and special entertainment for the women. Meeting headquarters will be in the Engineering Societies' Building.

**SMOKER:** This very popular event will be held as usual on Tuesday night, January 28, at the Hotel Commodore. The evening will open with a cocktail hour at 5:30 pm in the West Ballroom with dinner and show to follow. Tables for dinner for six, eight and ten persons will be available to the maximum capacity of the Grand Ball Room. Price of the tickets will be \$7.50 per person. While 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. Get your reservations in early.

**DINNER-DANCE:** Due to the greatly increased cost that would be involved in arranging a Dinner-Dance and maintaining the class of affair for which the Winter Meeting has been noted, the committee decided to cancel the Dinner-Dance this year.

**LADIES ENTERTAINMENT:** The Ladies Entertainment Committee has arranged for two affairs which should prove of great interest to all ladies attending the Winter Meeting. They are as follows:

**1. Sightseeing Trip and Tea—Tuesday, January 28 at 2 pm.**

Buses will be available for an extensive sightseeing trip around New York City stopping at the "Tavern on the Green" in Central Park for tea at 4:30 pm. Tickets: \$1.00 per person.

**2. Luncheon and Bridge—Wednesday, January 29 at 12:30 pm.**

A luncheon will be served at the Engineering Women's Club, 2 Fifth Avenue, with a bridge party to follow. Tickets: \$1.00 per person.

Members should arrange for early reservations for the ladies who will be attending the meeting as accommodations are limited for both affairs.

**ELECTRICAL SHOW:** During the entire week of the Winter Meeting an Electrical Show will be in progress at the 71st Regiment Armory, Park Avenue and 34th Street. This show staged and managed entirely by the International Exposition Company should prove of great interest to all engineers. Among the many exhibits featured will be the following: Electronic signal circuits, new developments in instrumentation, insulation materials and plastics, generators, motors, batteries, switchgear, panelboards, lighting equipment. Admission will be by invitation only; the show will not be open to the public. Tickets will be available at AIEE Headquarters inspection trip desk.

**THEATRE TICKETS:** In an effort to again meet the demands of our out-of-town members attending the Winter Meeting for tickets to popular shows, the Theatre Ticket Committee is negotiating the purchase of blocks of tickets for:

Carousel .....	\$6.00
Oklahoma .....	4.80
Harvey .....	4.20

Most tickets are being purchased for Wednesday and Thursday evenings, the 29th and 30th. In making your reservation requests please give one or two alternative preferences. Out-of-town members will be given preferences on all reservations.

**HOTEL ACCOMMODATIONS:** The hotel situation in the metropolitan area is still acute. Members should make their plans early and make all arrangements for reservations directly with the hotel preferred. The Institute has no connections with any of the hotels and cannot undertake to make reservations.



# AIEE WINTER MEETING

**INSPECTION TRIPS:** The Inspection Trips Committee has set up an interesting and comprehensive schedule of inspection trips coordinated as far as possible with the various technical sessions. The schedule is as follows:

*Monday, January 27*

**RCA Laboratories at Princeton, N. J.**  
(Equation solver, antennalyzer, electron microscope, infrared telescope, materials for electronics, acoustics.) Leave Headquarters by bus at 1:00 pm; return 6:30 pm.

*Tuesday, January 28*

**Gruman Aircraft Co. at Hicksville, L. I.**  
Leave Pennsylvania Station by Long Island R. R. (See production line methods in manufacture of latest types of both military and commercial planes.)

**Bell Telephone Laboratories at Summit, N. J.**  
Leave Headquarters by bus at 1:00 pm, return 6:30 pm. Recent developments in metallurgical research, rubber, synthetic crystals and radar. Special arrangements may be considered for the admission of non-citizens by written request addressed to "Inspection Trips Committee, American Institute of Electrical Engineers, 33 West 39th Street, New York 18, N. Y." Such applications should be mailed not later than January 15, 1947.

**Waterside Generating Station at 708 First Avenue, New York City.** Assemble at 708 First Avenue at 2:00 pm. (High-pressure boilers, 600,000 pounds steam at 925F and 1400 pounds per square inch, four topping turbogenerators.)

*Wednesday, January 29*

**RCA Laboratories at Princeton, N. J.**  
Leave Headquarters by bus at 1:00 pm, return at 6:30 pm. (Repeat of Monday trip.)

**CBS Television Tour**  
Visitors may witness the sending and receiving of images.

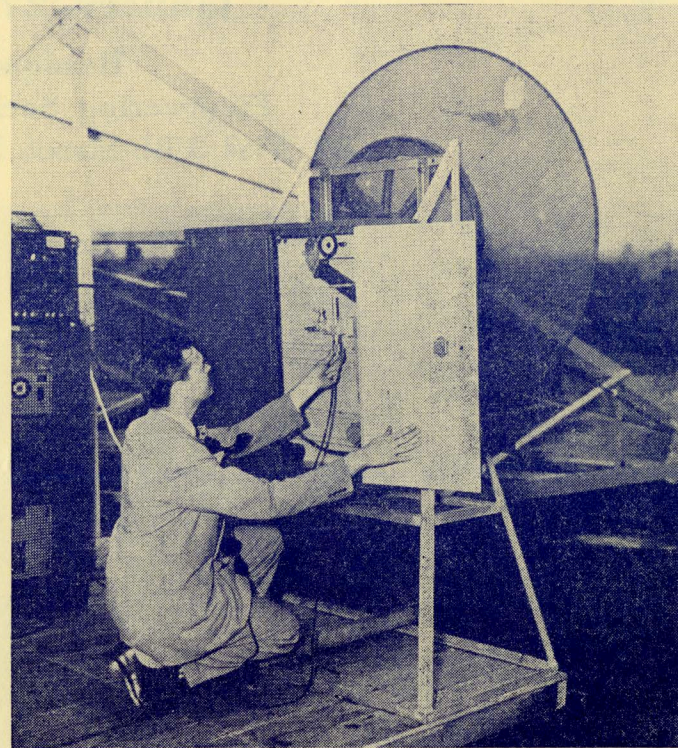
**Waterside Generating Station at 708 First Avenue, New York City.** (Repeat of Tuesday trip.)

**Pennsylvania and New York Central Railroad Equipment Inspection.**

Leave Headquarters by bus at 1:30 pm. (See latest types of cars designed to meet competitive transportation.)

**REGISTRATION:** Members should register in advance by filling in the advance registration card enclosed. A registration fee of \$2.00 will be charged all nonmembers, except Enrolled Students, and the immediate families of members. The nonmember registration fee will be strictly enforced by requiring a showing of badges for admission to all technical sessions and conferences.

H. H. HENLINE, *Secretary*



Bell Telephone Laboratories Portable Television Transmitting Terminal on roof of Yankee Stadium for relaying sports events

*Thursday, January 30*

**CBS Television Tour.**  
(Repeat of Wednesday trip.)

**Waterside Generating Station at 708 First Avenue, New York City.** (Repeat of Tuesday trip.)

Those wishing to make inspection trips are urged to make arrangements and secure tickets as soon as possible after registering at the Winter Meeting in order that adequate transportation facilities may be provided.

Where buses are required a nominal charge will be made to defray this expense.

## WINTER MEETING COMMITTEE

C. S. Purnell, *Chairman*  
W. J. Barrett      P. C. Cromwell      A. E. Knowlton  
O. E. Buckley      M. D. Hooven      J. H. Pilkington  
R. A. Jones

### Subcommittee Chairmen

C. T. Hatcher, *Smoker*  
H. H. Heins, *Theatre Tickets*  
R. T. Oldfield, *Inspection Trips*

## Eta Kappa Nu Dinner

Eta Kappa Nu's "Kary" dinner will be held at 6:30 Monday evening, January 27 at the Building Trades Employers' Association's Dining Room, 2 Park Avenue, New York.

Professor V. Karapetoff, Professor Emeritus of Electrical Engineering, Cornell University, will speak on "Into the Fourth Dimension by the Back Door." The subject will be treated in a manner understandable to the ladies and they are cordially invited.

Price of dinner is \$3.00.

# SCHEDULE OF EVENTS AIEE WINTER MEETING

JANUARY 27-31, 1947

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<p><b>9:30 A.M.</b></p> <p>Light Traction</p> <p>Automatic Stations</p> <p>Metallic Rectifiers</p> <p>Conference of Student Branch Counselors</p>	<p><b>9:30 A.M.</b></p> <p>Protective Devices</p> <p>Electronic Instruments</p> <p>Diesel-Electric Locomotives</p> <p>Conference on Power Supply for Resistance Welding</p> <p>Servomechanisms</p>	<p><b>9:30 A.M.</b></p> <p>Conference on Energy Sources</p> <p>Industrial Control Devices</p> <p>Conference on Distribution Circuit Protection</p> <p>Conference on Some New Electronic Devices and Methods</p>	<p><b>9:30 A.M.</b></p> <p>Applications in the Textile Industry</p> <p>Conference on Aircraft Safety</p> <p>Basic Sciences</p> <p>Conference on Interconnected Systems</p>	<p><b>9:30 A.M.</b></p> <p>Symposium on Lightning</p> <p>Electric Machinery</p> <p>Symposium on Grounding Portable Electric Equipment</p>
<p><b>2:00 P.M.</b></p> <p>Electronics</p> <p>Electric Railways</p> <p>Conference on Applied Mathematics</p> <p>Conference on Technical Activities</p>	<p><b>1:45 P.M.</b></p> <p>General Session Edison Medal Presentation</p> <p><b>2:30 P.M.</b></p> <p>Television and Demonstrations</p> <p>Power Relays</p> <p>Instruments and Measurements</p> <p>Resistance Welding</p> <p>Conference on Statistical Methods</p>	<p><b>1:45 P.M.</b></p> <p>General Session John Fritz Medal Presentation</p> <p><b>2:30 P.M.</b></p> <p>Symposium on Limitations of Light Production</p> <p>Hydroelectric Systems</p> <p>Symposium on Rural Telephone Facilities</p> <p>Conference on Industrial Voltages</p> <p>Electric Machinery</p>	<p><b>1:45 P.M.</b></p> <p>General Session Hoover Medal Presentation</p> <p><b>2:30 P.M.</b></p> <p>Conference on Large-Scale Computing Devices</p> <p>Industrial Power Applications</p> <p>Conference on Aircraft Safety</p> <p>Conference on Testing Telephone Receivers and Transmitters</p>	<p><b>2:00 P.M.</b></p> <p>Power Transmission</p> <p>Industrial Instrumentation and Control</p> <p>Electric Machinery</p> <p>Communications Components and Techniques</p>
	<p><b>5:30 P.M.</b></p> <p>Smoker (Hotel Commodore)</p>			

## TECHNICAL PROGRAM

### Monday, January 27

**9:30 a.m.—Light Traction**

Address: "Rapid Transit Plans for New York." Major General Charles P. Gross, Chairman, Board of Transportation, N. Y. City Transit Sys.

47-43. Modern Car Equipment for New York City's Subway System. B. F. Cordts, N. Y. City Transit Sys. 15 cents by mail.

47-44. Special Ten-Car Train for the New York City Transit System. J. J. Sinclair, N. Y. City Transit Sys. 15 cents by mail.

47-45. Can the Trolley Coach Compete Economically with the Gas or Diesel Bus Where No Overhead Facilities Exist? J. H. Gauss, General Elec. Co. 15 cents by mail.

**9:30 a.m.—Automatic Stations**

47-51. Automatic Control of Air Switches for Line Sectionalizing and Load Transfer. F. W. Rich, M. S. Kirwen, The Commonwealth and Southern Corp. Presentation by title. 20 cents by mail.

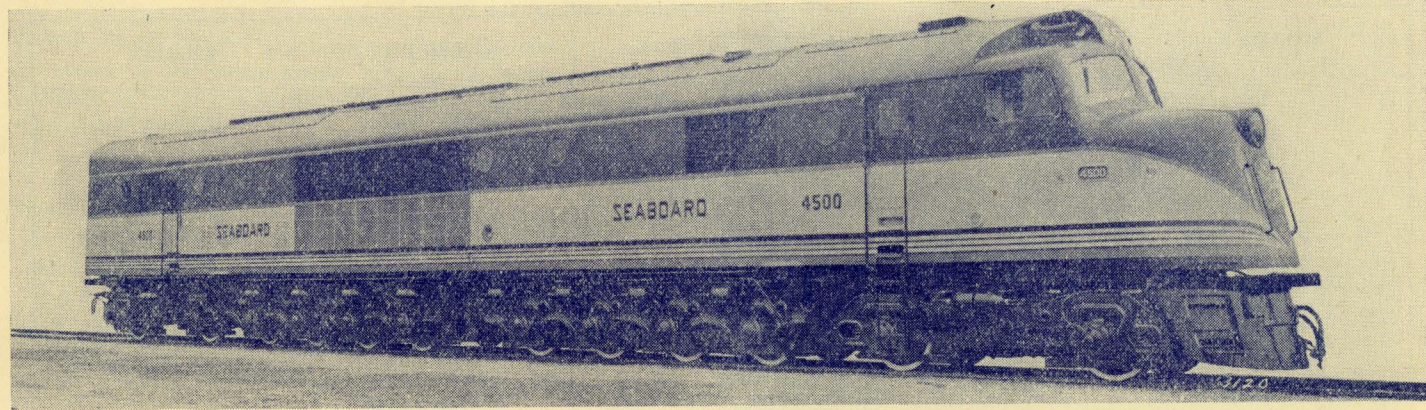
47-54. Automatic Switching Schemes for Capacitors. W. H. Cuttino, Westinghouse Elec. Corp. 15 cents by mail.

47-55. The Economics of Using Capacitors in Amounts to Require Automatic Switching. J. W. Butler, General Elec. Co. 20 cents by mail.

**9:30 a.m.—Metallic Rectifiers**

47-34. The Physics of Electronic Semi-Conductors. G. L. Pearson, Bell Telephone Labs., Inc. 20 cents by mail.





3,000-Hp Diesel-Electric Locomotive, built for Seaboard Air Line Railway by Baldwin-Westinghouse. This is to be described in the Tuesday morning session

- 47-25. Higher Voltage Copper Oxide Rectifiers. I. R. Smith, Westinghouse Elec. Corp. 15 cents by mail.
- 47-26. Electrical Characteristics of the Junction in a Simplified Selenium Rectifier Cell. S. J. Angello, Univ. of Penna. 20 cents by mail.
- 47-27. Automatically Controlled Copper-Oxide Rectifiers for Electroplating and Anodizing Applications. J. J. Buckley, General Elec. Co. 15 cents by mail.
- \*\*CP. Discussion of Report on Proposed Definitions for Metallic Rectifiers. Subcommittee on Metallic Rectifiers.
- \*\*CP. Report on Bibliography of Metallic Rectifiers. Subcommittee on Metallic Rectifiers.

**9:30 a.m.—Conference of Student Branch Counselors**

Demonstration of a film and talk which might be used before Student Branches in support of membership efforts. Tomlinson Fort, Chairman, Membership Committee.

**2:00 p.m.—Electronics**

- 47-68. The Shunt Tube Control of Thyatron Rectifiers. J. A. Potter, Bell Tel. Labs., Inc. 15 cents by mail.
- 47-69. Electronic Constant Current Motor Systems. O. W. Livingston, General Elec. Co. 20 cents by mail.
- \*\*CP. Sealed Ignitrons for Power Rectifiers. W. E. Pakala, C. R. Marcum, Westinghouse Elec. Corp.
- 47-71. Arc-Back Testing of Graphite. W. E. Pakala, C. J. Cucullu, Westinghouse Elec. Corp. 15 cents by mail.

**2:00 p.m.—Electric Railways**

- 47-8. Developments in Current Collectors for High-Speed Service. B. F. Langer, Westinghouse Elec. Corp. 15 cents by mail.
- 47-41. Some Recent Developments in the P.C.C. Car. S. B. Cooper, Westinghouse Elec. Corp. 15 cents by mail.
- 47-42. Recent Developments in Track Brakes and Drum Brakes for P.C.C. Cars. S. J. Vouch, General Elec. Co. 15 cents by mail.
- 47-53. Investigation of Silicone Insulation on High Temperature Railway Motor. George Grant III, T. A. Kauppi, Dow-Corning Corp.; G. L. Moses, Westinghouse Elec. Corp. 20 cents by mail.

**2:00 p.m.—Conference on Applied Mathematics**

- \*\*CP. Introductory Remarks. Dr. Michel G. Malti, Cornell Univ.
- \*\*CP. Automatic Electronic Computers. Dr. John von Neumann, Inst. for Adv. Study, Princeton, N. J.
- \*\*CP. Fluid Flow Patterns. Dr. Garrett Birkhoff, Harvard Univ.
- \*\*CP. Probability As Applied to Some Electrical Engineering Problems. Dr. Mark Kac, Cornell Univ.
- \*\*CP. Applications of the Differential Analyzer. C. Concordia, General Elec. Co.

**2:00 p.m.—Conference on Technical Activities**

**Tuesday, January 28**

**9:30 a.m.—Protective Devices**

- 47-59. The Interruption of Charging Current at High Voltage. W. M. Leeds, R. C. Van Sickle, Westinghouse Elec. Corp. 30 cents by mail.
- 47-6. Resistors for 138-Kv Cable Switching. E. K. Sadler, Kelman Elec. and Mfg. Co.; T. M. Blakeslee, Dept. of Water and Power, City of Los Angeles. 25 cents by mail.
- 47-50. An Improved Automatic Circuit Recloser. J. M. Wallace, Westinghouse Elec. Corp. 15 cents by mail.
- 47-60. Sectionalizing and Internal Transformer Fusing on Rural Power Circuits. B. O. Watkins, Rural Elec. Adm. 25 cents by mail.

**9:30 a.m.—Electronic Instruments**

- \*\*CP. The Influence of Electronics on Industrial Instrumentation. H. D. Middel, General Elec. Co.
- 47-86. Pulse Echo Measurements on Telephone and Television Facilities. L. G. Abraham, A. W. Lebert, J. B. Maggio, J. T. Schott, Bell Tel. Labs., Inc. 20 cents by mail.
- 47-84. A Magnetic Compass with Cathode-Ray Sensing Element. W. H. Kliever, R. R. Syrdal, Minneapolis-Honeywell Reg. Co. 20 cents by mail.
- 47-85. Electronic Null Detectors for Use with Impedance Bridges. H. W. Lamson, General Radio Co. 15 cents by mail.
- 47-13. The Cathode-Ray Spectrograph. Rudolf Feldt, Carl Berkley, Allen B. DuMont Labs., Inc. 15 cents by mail.

**9:30 a.m.—Diesel-Electric Locomotives**

- 47-36. A 3000-Hp Diesel-Electric Locomotive for the Seaboard Air Line Railway. D. R. Staples, Baldwin Locomotive Works; T. L. Weybrew, C. A. Atwell, Westinghouse Elec. Corp. 15 cents by mail.
- 47-37. Developments in Diesel-Electric Traction Generator Excitation Control Systems. C. A. Brancke, G. M. Adams, General Elec. Co. 15 cents by mail.
- 47-38. Braking Resistors and Control for Diesel-Electric Locomotives. E. F. Weiser, General Elec. Co. 15 cents by mail.
- 47-39. A Power Plant Regulating System for Diesel-Electric Locomotives. C. B. Lewis, General Elec. Co. 15 cents by mail.
- 47-40. Developments in Control Systems for Diesel-Electric Locomotives. M. D. Henshaw, General Elec. Co. 20 cents by mail.

**9:30 a.m.—Conference on Power Supply for Resistance Welding**

- \*\*CP. Resistance Welding, a Beneficial Load. N. J. Roberts, Ohio Public Serv. Co.
- \*\*CP. Co-operative Approach to Power Supply for Resistance Welders. H. W. Tietze, Public Serv. Elec. and Gas Co.
- \*\*CP. Our Methods of Servicing Resistance Welder Loads. R. E. Young, J. E. Renbush, Public Serv. Co. of Northern, Ill.
- \*\*CP. Application Engineers Role in Insuring Adequate Power Supply for Resistance Welders. K. W. Ostrom, Nat. Elec. Welding Mach. Co.
- \*\*CP. New Fields for Stored Energy Welding. A. C. Johnson, Progressive Welder Co.

**9:30 a.m.—Servomechanisms**

- 47-7. The Application of Lead Networks and Sinusoidal Analysis to Automatic Control Systems. G. J. Schwartz, Arma Corp. 30 cents by mail.
- 47-12. A Comparison of Two Basic Servomechanisms Types. Herbert Harris, Sperry Gyroscope Co., Inc. 30 cents by mail.
- 47-15. Dimensionless Analysis of Servomechanisms by Electrical Analogy—II. G. D. McCann, Calif. Inst. of Tech.; S. W. Herwald, Westinghouse Elec. Corp. 25 cents by mail.
- 47-52. Laboratory Aids for Electromechanical System Development. G. C. Newton, Jr., W. T. White, Sperry Gyroscope Co. 15 cents by mail.

**1:45 p.m.—General Session**

Edison Medal Presentation

**2:30 p.m.—Television and Demonstrations**

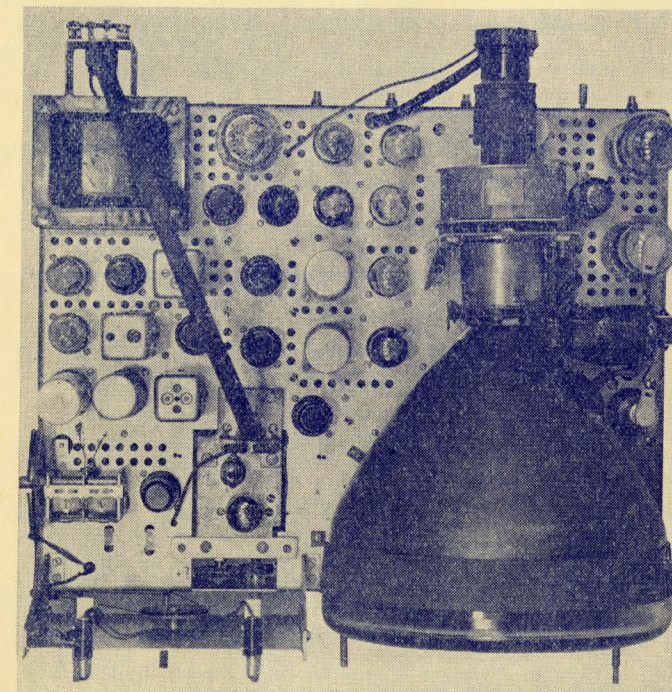
- 47-72. Television Equipment for Broadcast Stations. W. L. Lawrence, RCA. 25 cents by mail.
- 47-73. Post War Television Receiver Design. D. W. Pugsley, General Elec. Co., 15 cents by mail.
- \*\*CP. Color Television Receivers. P. C. Goldmark, G. R. Tingley, CBS.
- 47-75. A New Microwave Television System. J. F. Wentz, K. D. Smith, Bell Tel. Labs., Inc. 20 cents by mail.
- 47-74. Television Network Facilities. L. G. Abraham, Bell Tel. Labs., Inc.; H. I. Romnes, American Tel. and Tel. Co. 15 cents by mail.

**2:30 p.m.—Power Relays**

- 47-65. Grounding of Instrument Transformer Secondary Circuits. Working Group on Grounding of Instrument Transformer Secondary Circuits, H. R. Paxson, Sponsor. 15 cents by mail.
- \*\*CP. Simplicity on Transformer Protection. Relay Subcommittee.
- 47-66. Fundamental Basis for Distance Relaying. W. A. Lewis, L. S. Tippet, Ill. Inst. of Tech. 30 cents by mail.
- 47-67. Experience with Single-Pole Relaying and Reclosing on a Large 132-Kv System. J. J. Trainor, C. E. Parks, Public Serv. Co. of Ind., Inc. 20 cents by mail.

**2:30 p.m.—Instruments and Measurements**

- 47-104. Airborne Magnetometers for Search and Survey. E. P. Felch, W. J. Means, T. Slonczewski, Bell Tel. Labs., Inc.; L. H. Rumbaugh, Naval Ordnance Laboratory; L. G. Parratt, Cornell Univ.; A. J. Tickner, Western Elec. Co., Inc. 30 cents by mail.
- 47-11. The Calibration of Ignition Crest Voltmeters. W. L. Davis, Battelle Memorial Inst.; C. E. Warren, Ohio State Univ. 15 cents by mail.
- 47-22. Advancements in the Design of Long-Scale Indicating Instruments. R. M. Rowell, N. P. Millar, General Elec. Co. 20 cents by mail.
- 47-23. Measurement of High Q Cavities at 10,000 MC. R. W. Lange, Bell Tel. Labs., Inc. 20 cents by mail.
- 47-24. A Polyphase Thermal Ampere Demand Meter. A. J. Petzinger, Westinghouse Elec. Corp. 20 cents by mail.



Top View of a Direct View Television Receiver Chassis, showing Cathode-Ray Tube securely mounted. Shipping mounted represents a real step forward from prewar schemes



**2:30 p.m.—Resistance Welding**

- 47-61. Voltage Changes Due to Resistance Welding Loads. I. B. Johnson, H. A. Peterson, C. M. Rhoades, General Elec. Co. 30 cents by mail.
- 47-62. The Voltage Drop in the Welder Throat Loaded with Ferromagnetic Materials. G. M. Stein, Westinghouse Elec. Corp. 25 cents by mail.
- 47-63. Electric Characteristics of Resistance Welding Tools. E. M. Callender, The Budd Co. 30 cents by mail.
- 47-64. Functionalized Resistance Welding Control. C. B. Stadum, W. E. Large, E. C. Hartwig, Westinghouse Elec. Corp. 15 cents by mail.

**2:30 p.m.—Conference on Statistical Methods**

- \*\*CP. The American Society for Quality Control—Its Objectives and Its Progress to Date. George D. Edwards, President, American Society for Quality Control.
- \*\*CP. Statistics Applied to Consumer Goods. E. E. Folsom, General Elec. Co.
- \*\*CP. Application of Statistical Methods in Industry. A. J. Winterhalter, Colonial Radio Corp.

**5:30 p.m.—Smoker, Hotel Commodore**

**Wednesday, January 29**

**9:30 a.m.—Conference on Energy Sources**

The first of a series of conferences on methods of producing electric power will be sponsored by the Committee on Basic Sciences. The great impetus given to new methods of supplying electric power by developments in nuclear energy has suggested that all known methods of producing electric power should be reviewed in the light of present-day knowledge. For purposes of classification, the known means of electric energy generation have been divided into the following ten classes: electromagnetic, thermoelectric, electrostatic, electrochemical, piezoelectric, contact electricity, emission phenomena, pyroelectric, magnetostrictive, and earth potential. At this conference a survey paper will describe the various phenomena and three of the ten classes, namely, emission phenomena, piezoelectric phenomena, and electrostatic phenomena will be discussed by outstanding experts in their respective fields. At later conferences other phases of this broad problem will be discussed by well-known authorities.

- \*\*CP. A Survey of Methods of Producing Electric Power. L. W. Matsch, Armour Research Foundation.
- \*\*CP. Emission Phenomena. Dr. L. A. DuBridge, President, California Inst. of Tech.
- \*\*CP. Piezoelectric Phenomena. Dr. Walter G. Cady, Professor of Physics, Wesleyan Uni.
- \*\*CP. Electrostatic Phenomena. John G. Trump, Associate Professor of Elec. Engg., Mass. Inst. of Tech.

**9:30 a.m.—Industrial Control Devices**

- 47-17. Shading Coil Calculations for Single-Phase Magnets. C. T. Evans, Cutler-Hammer, Inc. 15 cents by mail.
- 47-19. A Thruster Lowering Control System for A-C Crane Hoists. E. L. Schwarz-Kast, Illinois Inst. of Tech. 20 cents by mail.
- 47-20. Dynamic Braking by Self-Excitation of Squirrel-Cage Motor. A. Srinivasan, New Mexico State College; M. A. Thomas, Ill. Inst. of Tech. 15 cents by mail.
- 47-21. Dynamic Braking of a Single D-C Series Motor. J. D. Leitch, The Elec. Cont. and Mfg. Co. 15 cents by mail.

**9:30 a.m.—Conference on Distribution Circuit Protection, Construction, Service Continuity, and Fault Records**

Distribution circuit protection practices and construction methods will be the subject of a conference which will emphasize the influence of these factors on the reduction of sustained faults on distribution systems. This conference is sponsored jointly by the Relay Subcommittee of the Committee on Protective Devices and by the Distribution Subcommittee of the Committee on Power Transmission and Distribution.

The service continuity requirements of distribution circuits is becoming more important because of the increased commercial, domestic and rural uses of electricity. Outages other than those of a short duration may cause serious inconvenience especially where electric power is used for purposes including cooking, heater control, milking machines, milk cooling, etc. Efforts to effect service improvements through reduction in the number of sustained faults have been concentrated sometimes on protection practices and others on construction methods. A joint subcommittee with Mr. G. B. Dodds as chairman is studying the problem from both standpoints. Introductory conference papers will be presented after which discussion from the floor will be invited. It is hoped to develop interchange of experience data which will also be of value to the joint subcommittee in continuing their investigations. Methods of recording and correlating interruption data will be emphasized.

- \*\*CP. Some Means for Reducing Service Outages. H. P. Seeley, The Detroit Edison Co.
- \*\*CP. 4Kv Fuse Coordination. R. M. Havourd, Public Serv. Elec. & Gas Co.

**9:30 a.m.—Conference on Some New Electronic Devices and Methods**

- \*\*CP. Electronic Dynamometer Control for Automotive Testing. E. F. Kubler, H. T. Gayek, General Elec. Co.
- \*\*CP. The Electroflash. H. J. McCarthy, Sylvania Elec. Products, Inc.
- \*\*CP. The Beam Travelling-Wave Tube. J. R. Pierce, Bell Tel. Labs., Inc.
- \*\*CP. A Novel Application of Dielectric Heating in the Furniture Industry. J. M. Coge, Raytheon Mfg. Co.
- \*\*CP. High Frequency Welding, William Parker, Victor Div., RCA.

**1:45 p.m.—General Session**

John Fritz Medal Presentation to Dr. L. W. Chubb

**2:30 p.m.—Symposium on Limitations of Light Production**

- \*\*CP. Incandescent Illuminants. R. G. Slauer, Sylvania Elec. Products, Inc.
- \*\*CP. Vapor Lamp or Discharge Sources. Dr. H. C. Rentschler, Westinghouse Elec. Corp.
- \*\*CP. Fluorescent Sources. R. N. Thayer, General Elec. Co.

**2:30 p.m.—Hydroelectric Systems**

- 47-56. Testing Governor Performance on Electric Power Systems with Improved Instruments. J. E. Allen, Penna. Water and Pr. Co.; W. B. Hess, Safe Harbor Water Pr. Corp. 30 cents by mail.
- 47-57. Automatic Control of Hydro-Electric Generating Stations. M. J. Brown, W. A. Derr, Westinghouse Elec. Corp. 30 cents by mail.
- 47-58. Modern Bearing Practice for Vertical Water Wheel Generators. C. M. Laffoon, R. A. Baudry, Westinghouse Elec. Corp. 20 cents by mail.
- \*\*CP. Characteristics of Hydraulic Turbines That Effect Operating Efficiency. J. F. Roberts, Allis-Chalmers Mfg. Co.

**2:30 p.m.—Rural Telephone Facilities**

- 47-80. A Carrier Telephone System for Rural Service. J. M. Barstow, Bell Tel. Labs., Inc. 30 cents by mail.
- 47-81. Application of Rural Carrier Telephone System. E. H. B. Bartelink, General Tel. Corp.; L. E. Cook, Ebasco Services, Inc.; F. A. Cowan, American Tel. and Tel. Co.; G. R. Messmer, Rural Elec. Adm. 20 cents by mail.

- 47-82. Joint Use of Pole Lines for Rural Power and Telephone Services. J. W. Campbell, American Tel. and Tel. Co.; L. W. Hill, Carolina Tel. and Tel. Co.; L. M. Moore, Rural Elec. Adm.; H. J. Scholz, Commonwealth and South. Corp. 30 cents by mail.

- \*\*CP. Open-Wire Construction for Rural Telephone Lines. C. G. Sinclair, Jr., American Tel. and Tel. Co.; D. M. Barnes, Assoc. Tel. Co., Ltd.; F. V. Haskell, Bell Tel. Labs., Inc.

- 47-83. Rural Radiotelephone Experiment at Cheyenne Wells, Colorado. J. H. Moore, American Tel. and Tel. Co.; P. K. Seyler, The Mountain States Tel. and Tel. Co.; S. B. Wright, Bell Tel. Labs., Inc. 15 cents by mail.

**2:30 p.m.—Conference on Industrial Voltages**

- \*\*CP. Report of Subcommittee on Industrial Voltage Requirements. Presentation by a member of the subcommittee.
- \*\*CP. Voltage Regulation for Industrial Systems. R. C. R. Schulze, American Gas and Elec. Serv. Corp.; D. L. Beeman, General Elec. Co.; H. G. Barnett, Westinghouse Elec. Corp.; W. H. Dickinson, Standard Oil Dev. Co.

**2:30 p.m.—Electric Machinery**

- 47-10. Simplified Graphical Method of Computing Thermal Transients. Paul Narbutovskih, Westinghouse Elec. Corp. 15 cents by mail.
- 47-9. The Dielectric Properties of Cellulose Insulation Impregnated with Semi-Conductor Liquids. F. M. Clark, General Elec. Co. 20 cents by mail.
- 47-16. A Study of the Relative Severity of Steep-Front Waves and Chopped Waves on Transformers. F. J. Vogel, III. Inst. of Tech. 15 cents by mail.

**Thursday, January, 30**

**9:30 a.m.—Applications in the Textile Industry**

- 47-103. Power Distribution in Textile Plants. J. D. McConnell, Proximity Mfg. Co. 15 cents by mail.
- 47-35. Electric Equipment for Two-for-One Twister. E. C. Gwaltney. \*ACO. H. J. Burnham, Saco-Lowell Shops. 15 cents by mail.
- 47-32. Electric Drives for Textile Finishing Ranges. R. B. Moore, \*ACO. H. C. Uhl, General Elec. Co. 30 cents by mail.
- 47-33. Electrification of the Cotton Industry in the South. S. A. Bobe, Westinghouse Elec. Corp. 20 cents by mail.

**9:30 a.m.—Conference on Aircraft Safety**

1. Safety, History, and Requirements  
Prepared discussion: A. Standards today; B. Present needs and requirements; C. Trends in operation and design; D. Evaluation of weight; E. Definition of failures.
2. Types of Electrical Failures  
Prepared discussion: A. Loss of power source; B. Loss of power at important load center; C. Electric apparatus failures; D. Driven machine failures; E. Fire; F. Smoke; G. Hydraulic considerations.
3. Protection in the Electric System  
Prepared discussion: A. Definition of protection—(1) Preventative, (2) Consequence limiting; B. Power source protection—(1) Generators, (2) Leads, (3) Regulators, (4) Relays; C. Distribution system—(1) Cables, (2) Protective relays, (3) Automatic protective system, (4) Multiple channel or dual power supply; D. Utilization equipment—(1) Relays, (2) Design considerations, (3) Wiring connectors, installations. (Continued in the afternoon.)

**9:30 a.m.—Basic Sciences**

- 47-1. Eddy Currents in Disks: Driving and Damping Forces and Torques. A. D. Moore, Univ. of Mich. 30 cents by mail.
- 47-18. A 60-Cycle Hysteresis-Loop Tracer for Small Samples of Low-Permeability Material. D. E. Wiegand, W. W. Hansen, III. Sch. of Tech. 30 cents by mail.
- 47-87. Machine Computation of Power Network Performance. L. A. Dunstan, Federal Pr. Comm. 30 cents by mail.



Twisting Frames with Individual Textile Motor Drives in the Cotton Industry in the South

- 47-88. Effective Resistance of Isolated Nonmagnetic Rectangular Conductors. H. B. Dwight, Mass. Inst. of Tech. 15 cents by mail.
- 47-2. Theory and Application of Complex Logarithmic and Geometric Mean Distances. T. J. Higgins, III. Inst. of Tech. 20 cents by mail.

**9:30 a.m.—Conference on Interconnected Systems**

- \*\*CP. Some Technical and Political Aspects of Interconnected System Operation. S. B. Morehouse, Leeds and Northrup Co.
- \*\*CP. Interconnected Systems Operations, Planning, and Performance. Robert Pierce, Ebasco Services, Inc.
- 47-4. Theoretical Approach to Speed and Tie-Line Control. Robert Brandt, New England Power Company. 15 cents by mail.
- \*\*CP. The Maintenance of Hydroelectric Generating Units. A. S. Robertson, R. O. Standing, Ontario Hydro Elec. Comm.

**1:45 p.m.—General Session**

Hoover Medal Presentation to Dr. Vannevar Bush

**2:30 p.m.—Conference on Large-Scale Computing Devices**

- This subject is at present of great interest to many prospective users in government, industry, and the universities. The development, both during and since the war, has been tremendous, so that although many people are familiar in a general way with the fact that such computers have been and will be made, the status and field of usefulness of the various types and what to expect in the near future is largely a matter of speculation. For this reason the committee has arranged for the following talks by men from each of the six leading centers of digital computer development to cover (1) the present status of developments, and (2) the probable future trends.
- \*\*CP. Commander H. H. Aiken, in charge of the Automatic Sequence-Controlled Calculator at the Cruft Lab., Harvard Univ.
  - \*\*CP. Julian Bigelow, Chief Engr. of the computer project at the Inst. for Adv. Study, Princeton Univ.
  - \*\*CP. J. W. Forrester, in charge of a computer project at the Servomechanisms Lab., Mass. Inst. of Tech.
  - \*\*CP. J. C. McPherson, Dir. of Engg., Int. Business Mach. Corp.
  - \*\*CP. T. K. Sharpless of the Moore School of Elec. Engg., Univ. of Penna.



# WINTER MEETING NEW YORK JANUARY 27-31, 1947

## ADVANCE COPIES OF PAPERS

Members may obtain preprints of technical papers by mail by remitting price indicated to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y.; if purchased at AIEE Headquarters or at the meeting 5c less per copy. Nonmember prices by mail 100% more than listed less 5c on each paper. For convenience an order form is enclosed. Only numbered papers will be available in advance-copy form. 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 \$5.00 denominations are available for those who wish to avoid remittance by check or otherwise. Most of the papers ultimately will be published in **ELECTRICAL ENGINEERING** or the **TRANSACTIONS**.

\*\*CP. S. B. Williams, Con. Engr., formerly with Bell Tel. Labs.

### 2:30 p.m.—Industrial Power Applications

47-28. An Analysis of Motor Selection for Brass-Slab Rolling-Mill Service. L. H. Berkley, Engr. Training Center, Fort Belvoir, Va. 20 cents by mail.

\*\*CP. Aluminum Ore Distribution Systems. R. T. Woodruff, Aluminum Ore Company.

47-31. A Selective Grounding System. E. Herzog, U. S. Army Air \*ACO. Forces. 15 cents by mail.

47-29. An Extension of Impact Speed Drop Analysis. F. E. Crever, General Elec. Co. 25 cents by mail.

47-30. Cathodic Protection of Steel Water Tanks Using Aluminum Anodes. L. P. Sudrabin, Electro Rust-Proofing Corp.; R. B. Mears, Aluminum Co. of America. 15 cents by mail.

### 2:30 p.m.—Conference on Aircraft Safety (continued)

#### 4. Application Considerations

47-14. An Integrated Control System for Aircraft Direct-Current Generators. A. T. McClinton, Naval Research Laboratory. 15 cents by mail.

47-5. Parallel Operation of Aircraft Alternators Using Electronic Frequency Changers. O. E. Bowlus, P. T. Nims, Chrysler Corp. Presentation by title. 25 cents by mail.

Prepared discussion: A. Environment—(1) Moisture, (2) Ventilation, (3) Altitude, (4) Temperature; B. Loading—(1) Load analysis, (2) Machine selection, (3) Duty cycles, (4) Ratings; C. Installation; D. Radio noise.

#### 5. Safety Program

Prepared discussion: A. Practical specifications; B. Subcommittee report on systems guide; C. Test procedure program; D. Simplification and integration of devices.

#### 6. General Discussion

### 2:30 p.m.—Conference on Testing Telephone Receivers and Transmitters

This conference will be divided into three parts, as follows: 1. General introduction; 2. Brief talks by representatives of the industrial and research laboratories including factory inspection and design; 3. Discussion from the floor.

## Friday, January, 31

### 9:30 a.m.—Symposium on Lightning

47-97. Field Investigation of Lightning Surges at Substations. I. W. Gross, American Gas and Elec. Serv. Corp.; G. D. McCann, Calif. Inst. of Tech. 20 cents by mail.

47-98. Photographic Study of Lightning. J. H. Hagenguth, General Elec. Co. 25 cents by mail.

47-99. Field Research on Lightning Arrester Discharges. G. D. McCann, Calif. Inst. of Technology; Edward Beck, Westinghouse Elec. Corp. 15 cents by mail.

47-49. Burning of Wood Structures by Leakage Currents. P. M. Ross, Ohio Brass Co. 20 cents by mail.

### 9:30 a.m.—Electric Machinery

47-3. Equivalent Circuit of the Primitive Machine with Asymmetrical Stator and Rotor. Gabriel Kron, General Elec. Co. 20 cents by mail.

47-94. Accuracy of Temperature Measurements on Coil Surfaces. H. M. Beede, B. M. Gain, General Elec. Co. 15 cents by mail.

47-100. The Magnetomotive Force of Two-Layer Windings. J. M. Stein, Westinghouse Elec. Corp. 15 cents by mail.

47-95. Liquid Cooling of A-C Turbine Generators. C. J. Fechheimer, Consulting Engr. 30 cents by mail.

### 9:30 a.m.—Symposium on Grounding of Portable Electric Equipment

The enormous increase in the use of portable electric tools and other equipment in manufacturing establishments makes it highly important that engineers concerned with the development, use, and maintenance of such equipment be well informed as to the need for safeguarding and methods of accomplishing it.

Report on Grounding of Portable Equipment. Committee on Article 250, Grounding, of the Electrical Committee, NFPA. (Copy complimentary)

\*\*CP. Discussion of the report to be presented by producers, installers, and users of connecting cord and plug equipment involved in such grounding.

### 2:00 p.m.—Power Transmission

47-89. Meteorological Engineering for the Electric Utilities. H. A. \*ACO. Downs, U. S. Dept. of Comm. 15 cents by mail.

47-90. The Transient-Energy Method of Calculating Stability. P. C. Magnusson, Oregon State Col. 30 cents by mail.

47-91. Internal Corona Discharges in Insulated Cables. E. W. Greenfield, Anaconda Wire and Cable Co. 30 cents by mail.

47-92. Radio-Noise Influence of 230-Kv Lines. H. L. Rorden, Bonneville Pr. Adm. 15 cents by mail.

### 2:00 p.m.—Industrial Instrumentation and Control

47-47. Radar Technique in Industrial Control. W. D. Cockrell, General Elec. Co. 15 cents by mail.

47-46. Use of Electric Gages in Quality Control. Joseph Manuele. \*ACO. Westinghouse Elec. Corp. 15 cents by mail.

\*\*CP. The Influence of Electronics on Industrial Instrumentation. H. D. Middel, General Elec. Co.

\*\*CP. Notes on Circuit Breaker Protection for Industrial Equipment, R. R. McGee, The Trumbull Elec. Mfg. Co.

47-48. A Balanced Amplifier Using Biased Saturable Core Reactors. H. S. Kirschbaum, The Ohio State Univ.; E. L. Harder, Westinghouse Elec. Corp. 25 cents by mail.

### 2:00 p.m.—Electric Machinery

47-93. New NEMA Fractional Horsepower Motor Standards; Their Effect of Refrigeration and Pump Application. C. P. Potter, Wagner Elec. Corp. 15 cents by mail.

47-101. The Equivalent Circuit of the Capacitor Motor. S. S. L. Chang, Robbins and Myers, Inc. 30 cents by mail.

47-102. A Design Method for Capacitor Motors. T. C. Lloyd, S. S. L. Chang, Robbins and Myers, Inc. 30 cents by mail.

47-96. The Multistage Rototrol. M. M. Liwischitz, Polytechnic Inst. of Brooklyn. 20 cents by mail.

### 2:00 p.m.—Communications Components and Techniques

47-76. The Stromberg-Carlson XY Dial Telephone System. H. R. Reed, Stromberg-Carlson Co. 20 cents by mail.

47-77. Gas Pressure for Telephone Cables. R. C. Giese, American Tel. and Tel. Co. 25 cents by mail.

47-78. Frequency Shift Telegraphy—Radio and Wire Applications. J. R. Davey, A. L. Matte, Bell Tel. Labs., Inc. 30 cents by mail.

47-79. Some Modern Techniques in Ocean Cable Telegraphy. C. H. Cramer, Western Union Tel. Co. 25 cents by mail.

\*ACO: Advance copies only available; not intended for publication in **TRANSACTIONS**.

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

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