

**AIEE NATIONAL
TECHNICAL MEETING**
January 25-29, 1943

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**IRE WINTER
CONFERENCE**
January 28, 1943

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PROGRAM

**ENGINEERING SOCIETIES BUILDING
33 WEST 39TH STREET • NEW YORK, N. Y.**

**American Institute of
Electrical Engineers
National Technical
Meeting**

January 25-29, 1943

**Institute of Radio Engineers
Winter Conference**

January 28, 1943

PROGRAM

GENERAL INFORMATION

Maximum aid in the war effort is the principal objective of this meeting. Dr. Bush will bring a very important message on research in connection with war activities to the get-together dinner Tuesday evening. "Technical Man Power in the War Effort" will be the feature of the general session on Wednesday. On that evening the Edison, John Fritz, and Hoover Medals will be presented. An address "Beyond the Ultra Shorts" will be given by Dr. Southworth at a joint AIEE-IRE meeting, Thursday evening.

Please register promptly on arrival at the meeting. Members of the IRE are cordially invited to attend any of the AIEE sessions without charge. A registration fee of \$2 will be charged all other nonmembers, except Enrolled Students and the immediate families of members. The IRE will conduct a separate registration for issuance of badges on Thursday only.

Get tickets at once for the get-together dinner. All seats are reserved and the tables seat 10. Tickets \$3.25 each, including tax and tips.

Information on all features of the meeting may be obtained at the registration desk. The Institute rooms and offices on the tenth floor of the Engineering Societies Building are open to members. A portion of Room 1007 is reserved for the press.

Efforts will be made to deliver telegrams and messages promptly. Any mail for members received during the convention will be held at registration desk until called for; letters undelivered at the close of the meeting will be forwarded to latest mailing address.

Technical Sessions and Discussions are governed by the "Conduct of Technical Sessions" at the discretion of the chairman presiding. The Institute will appreciate your courtesy and cooperation in strictly abiding by the decisions of the chairman in all matters.

In general papers will be presented in abstract, 10 minutes being allowed for each presentation, unless otherwise arranged by the presiding officer.

Preference will be given to those who have explained in advance their intention to discuss papers. Usually 5 minutes are allowed to each discussor. Names and affiliations should be clearly announced from the platform. If discussions are intended for publication in the TRANSACTIONS they should be typewritten, double spaced (original and two carbon copies), and left with the chairman. Otherwise they should be sent to C. S. Rich, A.I.E.E., 33 West 39th Street, New York, N. Y., before February 13. Written discussions should be brief, without perfunctory commendations, and confined to individual papers rather than groups of papers.

Columbia Engineers Dinner for Columbia Electrical Engineers will be held Wednesday, January 27, at the Columbia University Club, 4 West 43rd Street. A social half hour will precede the dinner, which is scheduled for 6:30 p.m. Informal.

National Technical Meeting

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Monday, January 25

9:00 a.m.—Registration

9:30 a.m.—Capacitor Generators and Transformer Loading

(Auditorium)

PHILIP SPORN, Presiding

- 43-13. Steady-State and Transient Stability Analysis of Series Capacitors in Long Transmission Lines. J. W. Butler, J. E. Paul, T. W. Schroeder, General Elec. Co. 10 cents (by mail 15 cents).
- 43-8. Self-Excited Oscillations of Capacitor-Compensated Long-Distance Transmission Systems. R. B. Bodine, C. Concordia, G. Kron, General Elec. Co. 10 cents (by mail 15 cents).
- 43-16. Mobile Capacitor Units for Emergency Loading of Transformers in Open Delta. H. B. Wolf, G. G. Mattison, Duke Pr. Co. 10 cents (by mail 15 cents).
- 43-25. Kilowatts, Kilovars, and System Investments. J. W. Butler, Gen. Elec. Co. 10 cents (by mail 15 cents).
- 43-45. Open-Delta Transformer Banks—Analysis of Circuit. J. E. Clem, Gen. Elec. Co. 15 cents (by mail 20 cents).
- 43-48. Shunt Capacitors. General Systems Subcommittee, Committee on Power Transmission and Distribution. 25 cents (by mail 30 cents).

9:30 a.m.—Relaying

(Room 501)

T. G. LE CLAIR, Presiding

- 43-27. Pilot-Wire Circuits for Protective Relaying—Experience and Practice. Relay Subcommittee, Committee on Protective Devices. 10 cents (by mail 15 cents).
- 43-15. A New Generator Differential Relay. A. J. McConnell, General Elec. Co. 10 cents (by mail 15 cents).
- 43-28. The Effect of Current Transformer Residual Magnetism on Balanced-Current or Differential Relays. H. T. Seeley, General Elec. Co. 15 cents (by mail 20 cents).
- 43-5. Correlation of System Overvoltages and System Grounding Impedence. Working Group on Correlation of System Grounding Impedence. 10 cents (by mail 15 cents).

Advance Copies of Technical Papers may be purchased at the registration desk or at Institute headquarters at prices indicated. Only numbered papers are available. 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** and the **TRANSACTIONS**.

National Technical Meeting

9:30 a.m.—Electrical Machinery

(Room 503)

F. E. HARRELL, Presiding

- 43-2. A Useful Equivalent Circuit for a Five-Winding Transformer. L. C. Aicher, Jr., Allis-Chalmers Mfg. Co. 10 cents (by mail 15 cents).
- 43-3. A New Type of Adjustable-Speed Drive for Alternating-Current Systems. A. G. Conrad, S. T. Smith, P. F. Ordung, Yale University. 10 cents (by mail 15 cents).
- 43-4. Performance Calculations on Tapped-Winding Capacitor Motors. P. H. Trickey, Diehl Mfg. Co. 10 cents (by mail 15 cents).
- 43-6. Analysis of Rating Methods for Intermittent Loads. R. E. Hellmund (deceased), formerly with Westinghouse Elec. & Mfg. Co. *Presentation by title.* 10 cents (by mail 15 cents).
- 43-47. Factors Affecting the Design of D-C Magnets, L. T. Rader, Gen. Elec. Co. 10 cents (by mail 15 cents).

2:00 p.m.—Transmission Lines

(Auditorium)

PHILIP SPORN, Presiding

- 43-7. Abnormal Overvoltages Caused by Transformer Magnetizing Currents in Long Transmission Lines. H. A. Peterson, T. W. Schroeder, General Elec. Co. 10 cents (by mail 15 cents).
- 43-21. Wood-Pole 230-Kv Transmission Lines. O. S. Clark, War Department. 10 cents (by mail 15 cents).
- 43-29. Transmission-Line and System Problems in Supplying Large Electric Arc Furnaces during Wartime. B. M. Jones, Duquesne Light Co. 15 cents (by mail 20 cents).
- 43-22. Ampere Load Limits for Copper in Overhead Lines. A. H. Kidder, C. B. Woodward, Philadelphia Elec. Co. 10 cents (by mail 15 cents).
- 43-20. Intrasytem Transmission Losses. E. E. George, Ebasco Services, Inc. 25 cents (by mail 30 cents).

2:00 p.m.—Conference on Relays

(Room 501)

E. L. HARDER, Presiding

Introduction: H. F. Lindemuth

- CP.* Acceptance Tests and Installation Tests. S. C. Leyland, Westinghouse Elec. & Mfg. Co.
- CP.* Calibration Tests. J. C. Bowman, Public Service Elec. & Gas Co.
- CP.* Routine Tests, Inspection, and Trouble Checks. C. A. Muller, American Gas & Elec. Service Corp.
- CP.* Reports and Summary. J. H. Oliver, General Elec. Co.
- CP.* Report from the Working Group on War Activities. L. F. Kennedy, General Elec. Co.

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

American Institute of Electrical Engineers

2:00 p.m.—Conference on Selection of Motors and Controllers

(Room 503)

F. E. HARRELL and J. J. ORR, Presiding

- 43-62. Proposed Guide for the Selection of Electric Motors and Motor Controllers. Report of Committee on Electrical Machinery and Committee on Industrial Power Applications (Applies to ASA C50—Rotating Electrical Machinery and AIEE No. 15—Industrial Control Apparatus). 10 cents (by mail 15 cents).

The conference session will consist of a number of prepared discussions of conference papers on various aspects of the guide. There will be opportunity for open discussion.

7:30 p.m.—Conference on Emergency Loading of Transmission Systems

(Room 501)

EDWIN HANSSON, Presiding

- CP.* Electric Rating of Overhead Line Wire. Myron Zucker, Formerly of Detroit Edison Co.
- CP.* Notes on Current Ratings of Overhead Conductors. L. F. Hickernell, Anaconda Wire and Cable Co.
- CP.* Emergency Ratings of Overhead Copper Conductors. C. A. Booker and H. R. Stewart, New England Power Service Co.
- CP.* Load Limits of Power Conductors Suspended in Open Air. A. E. Davison, Hydro-Electric Power Commission of Ontario.
- CP.* The Effects of Overload Temperatures upon Bare Aluminum Conductors. G. W. Stickley, Aluminum Company of America.
- CP.* Annealing Characteristics of Copperweld Conductor. Rolf Selquist, Copperweld Steel Co.

Tuesday, January 26

9:30 a.m.—Transmission and Distribution

(Auditorium)

PHILIP SPORN, Presiding

- 43-10. Dielectric Recovery Characteristics of Large Air Gaps. G. D. McCann and J. J. Clark, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 43-12. Impulse and Sixty-Cycle Characteristics of Driven Grounds—III. Effect of Lead in Ground Installation. P. L. Bellaschi and R. E. Armington, Westinghouse Elec. & Mfg. Co. 15 cents (by mail 20 cents).
- 43-26. Harmonics and Load Balance of Multi-Phase Rectifiers. Consideration in the Selection of the Number of Rectifier Phases. R. D. Evans, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).

National Technical Meeting

- 43-30. Pulling Loads on Single- and Multiple-Conductor Impregnated-Paper Lead-Encased Cable, Solid Type. A. P. S. Bellis, John A. Roebling's Sons Co. 25 cents (by mail 30 cents).
- 43-23. Electrical Stability of Electrical Insulating Oils under Limited Oxidation. J. C. Balsbaugh, A. G. Assaf, Massachusetts Institute of Technology. 25 cents (by mail 30 cents).
- 43-34. Metering Power on the Low-Voltage Side. A. J. Petzinger, B. E. Lenehan, Westinghouse Elec. & Mfg. Co. 15 cents (by mail 20 cents).

9:30 a.m.—Land Transportation

(Room 501)

P. H. HATCH, Presiding

- CP.* The Sorocabana Railway Electrification. Durval Muylaert, Sorocabana Railway.
- CP.* Train Communication. L. O. Grondahl, P. N. Bossart, Union Switch & Signal Co.
- 43-33. Keep Them Rolling. J. W. Teker, General Elec. Co. 15 cents (by mail 20 cents).
- 43-49. Factors Involved in the Selection of Railroad Motive Power, H. C. Wilcox, Railway Mechanical Engineer; A. G. Oehler, Railway Age. 15 cents (by mail 20 cents).

9:30 a.m.—Industrial Power Applications

(Room 503)

J. J. ORR, Presiding

- 43-17. Paired-Phase Busbars for Large Polyphase Currents. L. E. Fisher, R. L. Frank, Bull Dog Elec. Products Co. 10 cents (by mail 15 cents).
- 43-41. The Power-Recovery System of Testing Aircraft Engines. G. E. Cassidy, W. A. Mosteller, W. L. Wright, General Elec. Co. 15 cents (by mail 20 cents).
- 43-31. Synchronous Motors with Controlled Excitation for Suddenly Applied Loads. W. K. Boice, B. H. Caldwell, M. N. Halberg, General Elec. Co. 20 cents (by mail 25 cents).

2:00 p.m.—Relaying of Long Transmission Lines

(Room 501-B)

T. G. LE CLAIR and PHILIP SPORN, Presiding

- 43-19. Switching Overvoltage Hazard Eliminated in High-Voltage Oil Circuit Breakers. L. F. Hunt, Southern California Edison Co., Ltd.; E. W. Boehne, H. A. Peterson, Gen. Elec. Co. 10 cents (by mail 15 cents).
- 43-37. Performance Requirements for Relays on Unusually Long Transmission Lines. F. C. Poage, C. A. Streifus, D. M. MacGregor, E. E. George, Ebasco Services, Inc. 25 cents (by mail 30 cents).

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TUESDAY—Continued

- 43-38. Protective Relaying for Long Transmission Lines. A. R. VanC. Warrington, General Elec. Co. 15 cents (by mail 20 cents).
- 43-39. Staged-Fault Tests of Relaying and Stability on Kansas-Nebraska 270-Mile 154-Kv Interconnection. C. W. Minard, E. A. Swanson, Nebraska Power Co.; R. B. Gow, W. A. Wolfe, Kansas Gas & Elec. Co. 25 cents (by mail 30 cents).

2:00 p.m.—Conference Symposium on Defense Lighting

(Auditorium)

S. G. HIBBEN, Presiding

Now it should be told and the electrical fraternity as well as all business men should hear the results of the first year's operations of defense lighting. The subject of black-outs and dimouts will be presented from the following viewpoints:

- CP.* The Relationships with the Electrical Utilities. Tom P. Walker, President, Council of Elec. Operating Companies, Washington, D. C.
- CP.* Wartime Control of Lighting for Passive Defense. Lieutenant Colonel B. W. Beers, Executive Officer, Operating and Training Division, Headquarters Second Service Command, Governors Island, New York.
- CP.* The Long-Range Problems and Achievements of Camouflage and Concealment. Major R. P. Breckenridge, Corps of Engineers, Camouflage Branch, United States Army, Fort Belvoir, Va.
- CP.* The Safety Features and Influences on Street Traffic. Richard E. Simpson, Chairman, Dimout Consulting Committee, State Defense Council, Connecticut.
- This symposium is guided by four recognized authorities in their respective fields and will summarize up to the minute the many interesting and pertinent developments of defense lighting. Opportunity will be afforded for a full and off-the-record discussion of these problems that are becoming closely interwoven into the daily lives of all citizens.

2:00 p.m.—Basic Sciences

(Room 501-A)

H. H. RACE, Presiding

- 43-11. Formulas for the Calculation of the Inductance of Linear Conductors of Structural Shape. T. J. Higgins, Illinois Institute of Technology. 10 cents (by mail 15 cents).
- 43-46. Field Disturbances Produced by Lightning. G. D. McCann, D. E. Morgan, Westinghouse Elec. & Mfg. Co. 25 cents (by mail 30 cents).
- 43-50. Generation of Electric Charges by Moving Rubber-Tired Vehicles. S. S. Mackeown, California Institute of Technology; Victor Wouk, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).

National Technical Meeting

TUESDAY—Continued

- 43-43. Skin Effect in Bimetallic Conductors. B. R. Teare, Jr., Josephine R. Webb, Carnegie Institute of Technology. 15 cents (by mail 20 cents).
- 43-9. Equivalent Circuits for Oscillating Systems and the Riemann-Christoffel Curvature Tensor. Gabriel Kron, Gen. Elec. Co. 10 cents (by mail 15 cents).

2:00 p.m.—Conference on Emergency Rating of Power Cables

(Room 503)

R. J. WISEMAN, Presiding

- CP.* Cable Application for Maximum Conservation. G. L. Carlisle, War Production Board.
- CP.* Emergency Overloading Policies for Power Cables. H. W. Collins, The Detroit Edison Co.
- CP.* Cable Overloading—Its Effects and Possibilities as a Wartime Expedient. H. L. Davis, Jr., Philadelphia Electric Co.
- CP.* Problems Arising in the Emergency Loading of Cables as Viewed by a Manufacturer's Engineer. W. A. Del Mar, Habirshaw Cable and Wire Co.
- CP.* The Use of Cable in Wartime. Herman Halperin, Commonwealth Edison Co.
- CP.* Wartime Loading of Insulated Power Cable. G. B. Shanklin, General Electric Co.

6:30 p.m.—Get-Together Dinner

Hotel Commodore

Address, "Research in the War Effort."

Dr. Vannevar Bush

Director, Office of Scientific Research and Development
President, Carnegie Institution of Washington

Tickets \$3.25 each

Wednesday, January 27

10:00 a.m.—General Session

(Auditorium)

President HAROLD S. OSBORNE, Presiding

Presentation of Alfred Noble Prize to George W. Dunlap.

Technical Man Power in the War Effort

Brigadier General Miller G. White, Assistant Chief of Staff, War Department, General Staff

Dr. Joseph W. Barker, Special Assistant to the Secretary of the Navy

Other speakers to be announced at the meeting.

The objective of the meeting is to present an up-to-the-minute picture of the technical man-power requirements of the armed services and the plans for meeting these, together with the essential industries' requirements, with suitably trained and conditioned men and women. The positions of responsibility and authority held by the scheduled speakers should make the session one of particular interest to engineers of all age groups as well as engineering students. The timeliness of the subject has been emphasized by the recent reorganization of the Government's man-power groups.

2:00 p.m.—Conference on Wartime Engineering Education

(Auditorium)

ROBIN BEACH, Presiding

CP.* Continuing Programs of Specialized Engineering Education for Military and Industrial Services, and the Allocation of the Technical Graduates. Dr. Joseph W. Barker, Special Assistant to the Secretary of the Navy.

CP.* Accelerated Programs of Specialized Engineering Education Versus the Short Specialized Types of Training. Henry T. Heald, President, Society on Promotion of Engineering Education, and President of Illinois Institute of Technology.

CP.* The Increasing Need of Engineering Graduates in Industry during a Prolonged War Period. Panel of five minute speakers from several war industries.

Announcement: A meeting of the Committee on Education in Room 1001, will directly follow this session.

2:00 p.m.—Conference on Getting the Most Out of Electronic Tubes in Wartime

(Room 503)

S. B. INGRAM, Presiding

This conference will take the form of an informal discussion on methods of operating electronic devices to improve their life and increase their usefulness under existing wartime conditions. The question of adequate rating of electronic devices to permit the obtaining of their maximum utility will also be considered. Various aspects of the subject will be introduced by the following speakers after which discussion from the floor will be in order.

National Technical Meeting

CP.* Industrial Electronic Tubes. D. W. Jenks, General Electric Co.

CP.* Radio Broadcasting Tubes. E. E. Spitzer, RCA Mfg. Co.

CP.* Mercury Arc Rectifiers. C. C. Herskind, General Elec. Co.

CP.* Rating of Electronic Devices. G. H. Rockwood, Jr., Bell Tel. Labs., Inc.

2:00 p.m.—Conference on Substation Designs to Meet Wartime Conditions

(Room 501)

L. R. GATY, Presiding

CP.* Use of Substitute Materials and of Higher Loading of Existing Equipment. H. E. Wulfig, Commonwealth Edison Co.

CP.* Protective Lighting of Substations. H. E. Mahan, General Elec. Co.

CP.* Protection Against Sabotage and Use of Substitute Materials. Harold Cole, The Detroit Edison Co.

CP.* Use of Substitute Materials. L. M. Robertson, Public Service Co. of Colorado.

CP.* Development of New Construction Standards. Stanley Stokes, Union Electric Co. of Missouri.

CP.* Designs of Substations—Before and After. P. R. Knapp, Toledo Edison Co.

CP.* The War Effect on Station Design and Construction. L. E. Steere, Potomac Elec. Power Co.

CP.* Protection Against Sabotage. C. M. Gilt, Consolidated Edison Co. of N. Y., Inc.

CP.* Station Guards, Use of Substitute Material, and Equipment Loading. E. K. Huntington, Rochester Gas & Elec. Co.

8:15 p.m.—Medal Presentations

(Auditorium)

Edison Medal to Major Edwin H. Armstrong

John Fritz Medal to Dr. Willis R. Whitney

Hoover Medal to Dr. Gerard Swope



Thursday, January 28

10:00 a.m.—Technical Session

(Room 501)

Past President A. F. VAN DYCK, Presiding

Radio-Frequency-Operated High-Voltage Supplies for Cathode-Ray Tubes, O. H. Schade, RCA Mfg. Co.

Transmission-Line Charts. R. S. Julian, Bell Telephone Laboratories, Inc.

Polydirectional Microphones. H. F. Olson, RCA Mfg. Co.

Phosphors and the Periodic System of the Elements. H. W. Leverenz, RCA Communications Laboratories.

2:30 a.m.—Annual Meeting

(Auditorium)

President L. P. WHEELER, Presiding

Annual Report of the Secretary

Trends of Institute Accomplishments. Past President A. F. Van Dyck

Transference of the Gavel, as the Symbol of Office, to President L. P. Wheeler

Presentation of the Institute Medal of Honor to William Wilson

Conference of Institute Fellowships on the following:

Andrew Alford

I. S. Coggeshall

Jennings B. Dow

Lee A. DuBridge

Peter C. Goldmark

Daniel E. Harnett

Dorman D. Israel

Axel G. Jensen

George F. Metcalf

Irving Wolff

Program continued on next page

Winter Conference

Special Papers Symposium

Electric Communications—The Past and Present Illuminate the Future: A Suggestive Interpretation. Lloyd Espenschied, Bell Telephone Laboratories, Inc.

Production of Radio Facilities for the Armed Services. Rear Admiral S. C. Hooper, U. S. Navy

The Army-Navy Electronics Production Agency. F. R. Lack, Director, Army-Navy Electronics Production Agency

The Function of the War Production Board in Radio. Ray Ellis, Director, Radio and Radar Division, War Production Board

Radio Standards Go to War. H. P. Westman, War Committee on Radio, American Standards Association

The Engineer's Position in the Man-Power Program. Kirk Miles, National Roster of Scientific and Specialized Personnel, War Manpower Commission

8:30 p.m.—A.I.E.E.-I.R.E. Meeting

(Auditorium)

Past President HARADEN PRATT, Presiding

Address: "Beyond the Ultra Shorts." Dr. George C. Southworth, Bell Telephone Laboratories, Inc.

10:30 p.m.—A nationwide hookup over the facilities of the Columbia Broadcasting System, 10:30 to 10:45 p.m., eastern war time, has been arranged to link the Washington banquet and the New York meeting. Dr. L. P. Wheeler, President, I.R.E., will broadcast a brief word of greeting from New York following an introduction by Junior Past President Arthur F. Van Dyck, while from the Washington banquet the Honorable James Laurence Fly, Chairman of the Board of War Communications will speak.



Thursday, January 28

(Auditorium)

T. G. LE CLAIR, Presiding

9:30 a.m.—Circuit Breakers and Switches

- 43-32. An Improved Axial Air-Blast Interrupter for Severe Operating Duty. P. L. Taylor, H. W. Martin, Allis-Chalmers Mfg. Co. 25 cents (by mail 30 cents).
- 43-44. A New 50,000-Kva, 5-Kv Oilless Circuit Breaker and Metal-Clad Switchgear Unit. R. C. Dickinson, B. I. Hayford, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 43-51. A Vertical-Flow Compressed-Air Circuit Breaker and Its Application on a 132-Kv Power System. H. A. P. Langstaff, West Penn Power Co.; B. P. Baker, West. Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 43-52. The Auto-Blast Interrupter Switch. E. A. Williams, Jr., W. G. Harlow, General Elec. Co. 15 cents (by mail 20 cents).
- 43-53. A Multiorifice Interrupter for High-Voltage Oil Circuit Breakers. L. R. Ludwig, W. M. Leeds, Westinghouse Elec. & Mfg. Co. 20 cents (by mail 25 cents).

9:30 a.m.—Conference on Power Generating Equipment

(Room 503)

A. C. MONTEITH, Presiding

The objective of this conference is to correlate all possible ideas on how to get the most out of present equipment.

- CP.* Emergency Measures to Increase Output of Generating Equipment. C. M. Laffoon, Subcommittee Chairman.
- CP.* Emergency Measures to Increase Output of Generating Systems. R. P. Crippen, Subcommittee Chairman.
- CP.* Wartime Personnel Problems
The first memorandum will contain case examples of the effect of voltage, ambient temperature, hydrogen pressure, etc., on the operation of turbine and waterwheel generators. The second memorandum is being prepared from answers to a questionnaire submitted to the leading operating companies together with summation on such subjects as loading limits on equipment, maintenance, power-factor correction, interconnected operation, effect of voltage and frequency on system loads, rebuilding or rehabilitation of equipment or stations, wartime personnel problems, and etc. The two memoranda are intended to serve as a basis for questions and discussions from the audience, to which the major part of the conference will be devoted.

2:00 p.m.—Switching Equipment and Related Subjects

(Room 501)

J. B. MacNEILL, Presiding

- 43-54. Oil-Impregnated Paper High-Voltage Condenser Bushings for Circuit Breakers and Transformers. H. J. Lingal, H. L. Cole, T. R. Watts, Westinghouse Elec. & Mfg. Co. 20 cents (by mail 25 cents).

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- 43-35. The Cathode-Ray Oscillograph Applied to Long-Time Switching Transients. G. W. Dunlap, N. Rohats, Gen. Elec. Co. 10 cents (by mail 15 cents).
- 43-63. Application of Lightning Protective Devices in Wartime. I. W. Gross, American Gas & Elec. Service Corp. 10 cents (by mail 15 cents).
- 43-55-
ACO.† Preliminary Report on Guides for Application and Operation of Circuit Breakers and Switchgear. Subcommittee on Circuit Breakers, Switches, and Fuses. 10 cents (by mail 15 cents).

2:00 p.m.—Conference on Industrial Distribution

(Room 503)

J. J. ORR, Presiding

- 43-40-
ACO.† A Proposed Wartime Guide for Industrial Power Distribution Systems. Interim Report of Committee on Industrial Power Applications. 60 cents (by mail 70 cents).

8:30 p.m.—AIEE-IRE Meeting

(Auditorium)

HARADEN PRATT, Presiding

Address: "Beyond the Ultra Shorts." Dr. George C. Southworth, Bell Telephone Laboratories, Inc.

Friday, January 29

9:30 a.m.—Transformer Loading

(Auditorium)

F. E. HARRELL, Presiding

- 43-56. Cooling Power Transformers by Forced Circulation of Cooling Medium. K. K. Paluev, L. H. Burnham, General Elec. Co. 20 cents (by mail 25 cents).
- 43-18. Equivalent Ambient Temperatures for Loading Transformers. W. C. Sealey, Allis-Chalmers Mfg. Co. 10 cents (by mail 15 cents).
- 43-36. The Rating of Power Transformers As Determined by the War Emergency. R. J. Salsbury, A. F. Phillips, Duquesne Light Co. 20 cents (by mail 25 cents).
- 43-24. Substation Transformer Emergency Overloading Practice. L. W. Clark, The Detroit Edison Co. 15 cents (by mail 20 cents).

9:30 a.m.—Radio Measurements

(Room 501)

T. S. GRAY, Presiding

- 43-14. An Electro-Mechanical Calculator for Directional Antenna Patterns. C. E. Smith, United Broadcasting Co.; E. L. Gove, No. Hollywood, Calif. 10 cents (by mail 15 cents).

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

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FRIDAY—Continued

- 43-57. Measurements Pertaining to the Co-ordination of Radio Reception with Power Apparatus and Systems. C. M. Foust, C. W. Frick, General Elec. Co. 25 cents (by mail 30 cents).
- 43-58. Effect of Radio Frequencies of a Power System on Radio-Receiving Systems. C. V. Aggers, Westinghouse X-Ray Co., Inc.; W. E. Pakala, Westinghouse Elec. & Mfg. Co.; W. A. Stickel, West Penn Power Co. 10 cents (by mail 15 cents).
- 43-1. An Instrument for the Determination of Contact Making and Breaking Time. Walther Richter, W. H. Elliot, Cutler-Hammer. 10 cents (by mail 15 cents).
- 43-59. Insulation Testing of Electric Windings. C. M. Foust, N. Rohats, General Elec. Co. 10 cents (by mail 15 cents).

9:30 a.m.—Conference on Analysis of Military Loads and Postwar Application

(Room 503)

W. F. OGDEN, JR., Presiding

- 43-60. Estimating Electric Loads for Military Training Bases, Federal Housing, and Other Wartime Projects. H. M. Potts, Bonneville Power Administration. 25 cents (by mail 30 cents).
H. P. Seelye and D. K. Blake will discuss the relationship of distribution to the general problem with emphasis on conservation possibilities.
- CP* A Method of Analyzing Wartime Loads. W. L. Tadlock, The Commonwealth and Southern Corp.
- CP* Matters of Safety
(1) To People
(2) In Equipment Design. S. B. Williams
R. B. Shepard will comment and C. F. Scott will discuss the relationship of ambient and operating temperatures to the problem of safety.
- CP* Wartime Electric Motors and Their Postwar Applications. J. L. Hamilton, Century Elec. Co.
- 43-61. Rural Electrification Engineering and Electro-Agricultural Engineering. M. M. Samuels, Rural Electrification Administration, U. S. Dept. of Agriculture. 10 cents (by mail 15 cents).

2:00 p.m.—Transformer Loading Discussion

(Auditorium)

F. E. HARRELL, Presiding

National Technical Meeting

2:00 p.m.—Conference on Basic Characteristics of Varistors

(Room 501)

W. C. WHITE, Presiding

- A. Introductory Remarks. J. A. Becker, Bell Tel. Labs., Inc.
 - B. Nonsymmetrical Types
 - a. Copper-Oxide. L. O. Grondahl or P. Dowling, Union Switch & Signal Co.
 - b. Selenium. C. A. Kotterman, Federal Tel. Corp.
 - c. Copper-Sulphide. F. D. Williams, Jr., Samuel Ruben Electro & Physical Labs.
 - C. Symmetrical Types
 - a. Thyrite. D. D. MacCarthy, General Elec. Co.
 - b. Thermistors. G. L. Pearson, Bell Tel. Labs., Inc.
-

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COMMITTEE MEETINGS

Monday, January 25

	Room
9:45 a.m.—AIEE-Engineering Foundation Research Project Insulating Oils and Cable Saturants.....	1001
12:00 m.—Electrical Machinery, Columbia University Club,	4 W. 43rd Street
2:00 p.m.—Sections	1101
2:00 p.m.—Student Branches.....	ASCE Board Room, 15th Floor

Tuesday, January 26

9:30 a.m.—Distribution Type Protector Tube Working Group....	1105
9:30 a.m.—Safety	903
9:30 a.m.—Subcommittee on Electronic Devices	1101
10:00 a.m.—Lamme Medal	1001
10:00 a.m.—Communication	ASCE Board Room, 15th Floor
2:00 p.m.—Planning and Coordination	1001
2:00 p.m.—Automatic Stations	ASCE Board Room, 15th Floor
2:00 p.m.—Visiting Committee, Department of Electrical Engineering, M.I.T.	Alcove, 10th Floor
2:30 p.m.—Land Transportation	903

Wednesday, January 27

Close of General Session } Conference of President and Vice-Presidents.....	1001
2:00 p.m.—National Nominating	1001
2:00 p.m.—Membership	903
2:00 p.m.—Transformer Subcommittee.....	ASCE Board Room, 15th Floor
4:00 p.m.—Electronics	503
4:30 p.m.—Education	1001

Thursday, January 28

10:00 a.m.—Research	1001
10:00 a.m.—Air Transportation	1101
10:00 a.m.—Subcommittee on Voltage Transients in Arc-Furnace Circuits	903
10:30 a.m.—Welding Research.....	ASCE President's Room, 15th Floor
12:15 p.m.—Industrial Power Applications—Luncheon.....	Commodore Hotel
12:30 p.m.—Power Generation—Luncheon	Engineers' Club
2:00 p.m.—Board of Directors	1001
2:00 p.m.—Insulation Resistance Subcommittee	1101
2:30 p.m.—Electrochemistry and Electrometallurgy.....	903
4:30 p.m.—Protective Devices.....	ASCE Board Room, 15th Floor

Friday, January 29

10:00 a.m.—Basic Sciences	1001
1:30 p.m.—Subcommittee on Stationary Contact Surfaces.....	1101
2:00 p.m.—Subcommittee on Circuit Breakers, Switches, and Fuses	1001