
WINTER CONVENTION

JANUARY 23-27, 1939



***American Institute of
Electrical Engineers***

ENGINEERING SOCIETIES BUILDING
33 West 39th Street • New York, N. Y.

American Institute of
Electrical Engineers



Winter
Convention
Program

January 23-27
1939

GENERAL INFORMATION

A PROGRAM enlarged to 17 technical sessions, 2 general sessions, 5 conference sessions, and important committee meetings and trips, yet not without social functions—the smoker, dinner-dance and medal presentations—has been arranged by your committees. For a complete schedule of events and index to details see page 3.

Please register promptly on arrival at the convention. A registration fee of \$2 will be charged all non-members, except Enrolled Students and the immediate families of members.

Get tickets at once for the smoker, the dinner-dance and dance-buffet supper, and inspection trips, as the number which can be accommodated is limited. For the trips, tickets should be secured by 4 o'clock on the previous day.

Information on all features of the convention 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.

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. Room 401 is reserved for the Press.

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 for the discussion of a single paper or of several papers on the same general subject. 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 11.

Restaurant Facilities of the Columbia University Club, 4 West 43rd Street, have been made available to members of the Institute and guests showing convention badges.

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Monday, January 23

9:00 a.m.—Registration

10:00 a.m.—Relays

(In Auditorium)

K. B. McEACHRON, Presiding

- 39-15. High-Speed Relaying Experience and Practise, Relay subcommittee
- 39-30. Induced Current in Parallel Circuits and Its Effect Upon Relays, E. H. Bancker, General Electric Company
- 39-19. Bus Protection, Relay subcommittee, A.I.E.E., and Relay Subject Committee, E.E.I.
- 39-31. Considerations in Applying Ratio Differential Relays for Bus Protection, R. M. Smith and W. K. Sonnemann, Westinghouse Electric and Manufacturing Company, and G. B. Dodds, Duquesne Light Company

10:00 a.m.—Selected Subjects

(Room One, Fifth Floor)

F. M. FARMER and E. C. CRITTENDEN, Presiding

- 39-10. Breakdown Studies in Compressed Gases, Alvin H. Howell, Massachusetts Institute of Technology
- 39-32. Effect of Corona Discharge on Liquid Dielectrics, Joseph Sticher and D. E. F. Thomas, The Detroit Edison Company
- 39-33. Inductive Co-ordination with Series Sodium Highway Lighting Circuits, H. E. Kent, Edison Electric Institute, and P. W. Blye, Bell Telephone Laboratories, Inc.
- 39-12. An Automatic Voltage Regulator Without Moving Parts Employing Ferro-Resonance, Palmer H. Craig, Invex Corporation

10:00 a.m.—Conference on Sound

(Room Two, Fifth Floor)

P. L. ALGER, Presiding

This conference will consider recent developments in sound measurement and noise problems. A brief resume of recent European developments in the technique of sound measurement will be given by Mr. R. G. McCurdy of the Bell Telephone Laboratories. He has recently

Photo-Offset Copies of Authors' Manuscripts may be purchased at the registration desk or at Institute headquarters, price 5c per copy; if ordered by mail from Institute headquarters, price 10c per copy. Coupon books in \$1.00 and \$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 **TRANSACTION**.

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made a trip to Europe and discussed these problems with various leaders in this field. Other subjects to be discussed are new data on existing and desirable sound levels in various locations, sound meter calibration, and the status of various test codes for sound measurement. Suggested revisions of the proposed A.I.E.E. Test Code will be considered and, if approved, will be subsequently published by the Standards Committee. Test Codes for Transformers, Fans, and other apparatus are under development and experts who are carrying on this work have been invited to present conclusions.

2:00 p.m.—Protective Devices

(In Auditorium)

K. B. McEACHRON, Presiding

- 39-34. A New High Capacity Air Breaker, L. R. Ludwig and G. G. Grissinger, Westinghouse Electric and Manufacturing Company
- 39-35. High Power "De-Ion" Air Circuit Breaker for Central Station Service, R. C. Dickinson, Westinghouse Electric and Manufacturing Company
- 39-36. Multiple Grid Breakers for High-Voltage Service, J. B. MacNeill and A. W. Hill, Westinghouse Electric and Manufacturing Company
- 39-37. Operating Experience with Petersen Coils on 66-Kv System of Metropolitan Edison Company, H. M. Rankin and R. E. Neidig, Metropolitan Edison Company
- 39-64. Factors Affecting Arc Extinction on a Petersen Coil System, J. R. Eaton, University of Wisconsin

2:00 p.m.—Transportation

(Room One, Fifth Floor)

W. S. HAMILTON, Presiding

- 39-27. Pennsylvania Railroad, New York-Washington-Harrisburg-Electrification, Relay Protection of Power Supply System, E. L. Harder, Westinghouse Electric and Manufacturing Company
- 39-21. Study of the Performance of the 3600 HP New Haven Electric Locomotives, Felix Konn and F. H. Craton, General Electric Company—Color Movies of Manufacture and Operation
- 39-22. The Magnesium Copper Sulphide Rectifier Battery Charger for Railroad Passenger Cars, C. A. Kotterman, P. R. Mallory and Company, Inc.
- 39-38. Harmonics in the A-C Circuits of Grid-Controlled Rectifiers and Inverters, R. D. Evans and H. N. Muller, Jr., Westinghouse Electric and Manufacturing Company
- 39-39. Ignitrons for the Transportation Industry, J. H. Cox and G. F. Jones, Westinghouse Electric and Manufacturing Company
- 39-11. Voltage Control of Mercury-Arc Rectifiers, G. R. McDonald, General Electric Company

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2:00 p.m.—Electronics and Industrial Power Applications

(Room Two, Fifth Floor)

H. M. TURNER and J. D. WRIGHT, Presiding

- 39-40. An Electronic Control Circuit for Resistance Welders, T. S. Gray and J. Breyer, Jr., Massachusetts Institute of Technology
- 39-20. The Permatron—A Magnetically-Controlled Industrial Tube, W. P. Overbeck, Raytheon Production Corporation
- 39-41. Cold-Cathode Gas-Filled Tubes as Circuit Elements, S. B. Ingram, Bell Telephone Laboratories, Inc.
- 39-42. Continuous Processing for Automobile Tire Fabrics, G. E. Cassidy and W. A. Mosteller, General Electric Company
- 39-43. Electric Drives for Supercalenders in Paper Mills, Roscoe H. Smith, Reliance Electric and Engineering Company

4:00 p.m.—Conference on Electronics

(Room 603)

H. M. TURNER, Presiding

6:30 p.m.—Eta Kappa Nu Award Dinner

Town Hall Club, 123 West 43rd St.

Reservations through Mr. Roger Wilkinson, 463 West St.
—Tickets \$2.00

Tuesday, January 24

9:30 a.m.—Symposium on Rating of Electrical Machinery and Apparatus. I—Temperature Limits of Insulating Materials

(In Auditorium)

C. M. LAFFOON and F. E. HARRELL, Presiding

- 39-7. Temperature Aging Characteristics of Class A Insulation, J. J. Smith and J. A. Scott, General Electric Company
- 39-16. Temperature Limits Set by Oil and Cellulose Insulation, C. F. Hill, Westinghouse Electric and Manufacturing Company
- 39-44. Fibre Glass—An Inorganic Insulation, F. W. Atkinson, Owens-Illinois Glass Co.
Temperature Limits and Characteristics of Mica as Used in Conjunction with Class "B" Insulation, R. H. Spry, Mica Insulator Company
Temperature Limits and Characteristics of Asbestos as Applied to Class B Insulation, J. B. Rohrer, Raybestos-Manhattan, Inc.

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Asbestos and Fibre Glass Magnet Wire Insulation, K. N. Mathes and H. J. Stewart, General Electric Company

Formex—A New Magnet Wire, Ralph Hall, General Electric Company

9:30 a.m.—Communication I

(Room One, Fifth Floor)

W. L. EVERITT, Presiding

- 39-45. Electromagnetic Horn Design, L. J. Chu and W. L. Barrow, Massachusetts Institute of Technology
- 39-28. Copper Oxide Modulators in Carrier Telephone Systems, R. S. Caruthers, Bell Telephone Laboratories, Inc.
- 39-46. Polyphase Broadcasting, John F. Byrne, Collins Radio Company
- 39-47. The Role of the Ionosphere in Radio Wave Propagation, J. H. Dellinger, National Bureau of Standards

9:30 a.m.—Switching Transients

(Room Two, Fifth Floor)

RAYMOND BAILEY and K. B. McEACHRON, Presiding

- 39-48. Power System Transients Caused by Switching and Faults, R. D. Evans, A. C. Monteith, and R. L. Witzke, Westinghouse Electric and Manufacturing Company
- 39-49. Power System Voltage Recovery Characteristics, Harold A. Peterson, General Electric Company
- 39-50. Effect of Restriking on Recovery Voltage, C. Concordia and W. F. Skeats, General Electric Company
- 39-51. Influence of Resistance on Switching Transients, R. C. Van Sickle, Westinghouse Electric and Manufacturing Company
- 39-52. Overvoltages during Power System Faults, Edith Clarke, S. B. Crary, and H. A. Peterson, General Electric Company
- 39-76. Equivalent Circuits of Transformers and Reactors to Switching Earges, L. V. Bewley, General Electric Company

(Presentation by title)

(Tuesday continued on page 8)

TUESDAY—Continued

2:00 p.m.—Symposium on Rating of Electrical Machinery and Apparatus. II—Motor Testing Methods and Principles of Rating.

(In Auditorium)

C. M. LAFFOON and F. E. HARRELL, Presiding

39-5. Measurement of Temperature in General Purpose Squirrel-Cage Induction Motors, C. P. Potter, Wagner Electric Corporation

39-3. Determination of Temperature Rise of Induction Motors, E. R. Summers, General Electric Company

39-4. Reverse Rotation Test for the Determination of Stray Load Loss in Induction Machines, Theodore H. Morgan, William E. Brown, and Arthur J. Schumer, Worcester Polytechnic Institute

Discussion of Proposed Transformer Standards, R. T. Henry, Buffalo, Niagara, and Eastern Power Corporation

38-122. Loading Transformers by Copper Temperature, H. V. Putman and W. M. Dann, Westinghouse Electric and Manufacturing Company

2:00 p.m.—Communication II

(Room One, Fifth Floor)

W. L. EVERITT, Presiding

39-53. A 12-Channel Carrier Telephone System for Open-Wire Lines, B. W. Kendall and H. A. Affel, Bell Telephone Laboratories, Inc.

39-54. The Submarine Cable Plow, C. S. Lawton, The Western Union Telegraph Company

39-55. The Submarine Cable Depthometer, Dale H. Nelson, The Western Union Telegraph Company

39-56. Remote Control Tollboard, Gilbert Sorber and Arthur Bessey Smith, Associated Electric Laboratories, Inc.

39-57. Crossbar Dial Telephone Switching System, F. J. Scudder and John N. Reynolds, Bell Telephone Laboratories, Inc.

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2:00 p.m.—Power Generation

(Room Two, Fifth Floor)

E. C. M. STAHL, Presiding

- 39-58. Modernization of L Street Station Switch House, Boston Edison Company, C. A. Corney and W. W. Edson, Boston Edison Company
- 39-25. Reconstruction of Switching Facilities at Essex Generating Station, D. W. Taylor, Public Service Electric and Gas Company
- 39-24. Modernization of Switchhouse Design, A. M. De Bellis, Consolidated Edison Company of New York, Inc.
- 39-26. Modernization of Switch House Design, H. E. Strang and W. M. Hanna, General Electric Company

2:00 p.m.—Conference on Definitions

(Room 603)

M. G. MALTI, Presiding

This conference continues a series of conferences on definitions. Discussion will cover sections 10 to 50 of Group 05 of the Final Revised Report of Committee 42 (The Sectional Committee on Definitions of Electrical Terms).

Prepared discussions are expected from the following: Messrs. A. Boyajian, General Electric Co.; Professor H. L. Hazen, Massachusetts Institute of Technology; W. A. Lewis, Westinghouse Electric & Mfg. Co.; Professor M. G. Malti, Cornell University; Dr. S. A. Schelkunoff, Bell Telephone Laboratories, Inc.; Professor B. R. Teare, Yale University; and Dr. J. D. Tobo, Bell Telephone Laboratories, Inc. After the written discussions have been presented, the meeting will be open for general discussion.

The object of this series of conferences on the definitions of Group 05 is to supply Subcommittee 1 of Committee 42 with a set of suggestions which will help it in drafting improved definitions of fundamental terms. Definitions of engineering terms are important. Correct and consistent definitions are of more than scientific and academic interest. The membership is therefore invited to participate actively in these conferences.

5:30 p.m.—Smoker

Another excellent smoker and dinner has been arranged for Tuesday, January 24, at the Hotel Commodore. In view of the popularity of this event when previously held at the Commodore nothing need be said regarding the facilities which assure a pleasant evening in comfortable surroundings. Smokes, a good dinner, and entertainment are on the program. The seating will be at tables of ten, with ample space to move around. All tables reserved—tickets \$3.50 per person. Please get tickets from the A.I.E.E. Smoker Committee, 33 West 39th street, New York, N. Y. All checks to be made payable to "Special Account A.I.E.E."

Wednesday, January 25

10:00 a.m.—General Session

(In Auditorium)

PRESIDENT PARKER, Presiding

Opening of the Meeting, T. F. Barton, Chairman,
Winter Convention Committee

Remarks by President Parker

Address: Enterprise and Social Progress, Dr. Virgil Jordan, President, National Industrial Conference Board, Inc.

Period for Questions

2:00 p.m.—Symposium on Rating of Electrical Machinery and Apparatus. III—Principles of Rating

(In Auditorium)

C. M. LAFFOON and F. E. HARRELL, Presiding

- 39-6. The Rating of Electrical Machinery and Apparatus, R. E. Hellmund, Westinghouse Electric and Manufacturing Company
- 39-2. Rating of General Purpose Induction Motors, P. L. Alger and T. C. Johnson, General Electric Company
- 39-17. Effects of Temperature on Mechanical Performance of Rotating Electrical Machinery, C. Lynn, Westinghouse Electric and Manufacturing Company
- 39-18. The Rating and Application of Motors for Refrigeration and Air Conditioning, P. H. Rutherford, General Motors Corporation
- 39-59. Duty Cycles and Motor Rating, L. E. Hildebrand, General Electric Company

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

(Room One, Fifth Floor)

R. D. EVANS, Presiding

- 39-60. Lightning Performance of 110 to 165-Kv Transmission Lines, Lightning and Insulator subcommittee
- 39-61. Experience with Ultra-High Speed Reclosing of High-Voltage Transmission Lines, Philip Sporn and C. A. Muller, American Gas and Electric Service Corporation

EDISON AND JOHN FRITZ MEDAL PRESENTATIONS

Presentation of both the Edison and John Fritz Medals will take place in the Engineering Auditorium, Wednesday evening, January 25, at 8:15 p.m. The Edison Medal was awarded to Dr. Dugald C. Jackson "for outstanding and inspiring leadership in engineering education and in the fields of generation and distribution of electric power." As announced in the December issue, the John Fritz Medal was awarded to Dr. F. B. Jewett for "vision and leadership in science, and for notable achievement in the furtherance of industrial research and development."

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- 39-62. Secondary Vs. Primary Capacitors, F. M. Starr, General Electric Company
- 39-63. Capacitors and Automatic Boosters for Economical Correction of Voltage on Distribution Circuits, Leonard M. Olmsted, Duquesne Light Company

2:00 p.m.—Electric Welding

(Room Two, Fifth Floor)

W. E. CRAWFORD, Presiding

- Introductory Remarks, H. M. Hobart, General Electric Company
- 39-13. Predetermination of Temperatures in Resistance Welds, Walter C. Johnson, Princeton University
- Lecture and Movies—Construction of Continuous Rails by Electric Welding, William Dalton, General Electric Company
- 39-65. Simplified Precision Resistance Welder Control, F. H. Roby, Square D Company
- 39-66. Power Supply for Single-Phase Resistance Welders, R. H. Wright, Westinghouse Electric and Manufacturing Company
- 39-67. The Alternating-Current Arc Progresses, C. J. Holslag, Electric Arc Cutting and Welding Company

2:00 p.m. — Conference on Network Analysis and Synthesis

(Room 603)

EDWARD L. BOWLES, Presiding

The program for this conference will be posted on the bulletin board.

Thursday, January 26

9:30 a.m.—Cables

(In Auditorium)

R. D. EVANS, Presiding

- 39-68. Notes on Emergency Ratings, A. H. Kidder, Philadelphia Electric Company
- 39-29. Load Ratings of Cable, Herman Halperin, Commonwealth Edison Company
- 39-69. Economical Loading of High-Tension Cables Installed in Underground Subway Systems, E. R. Thomas, Consolidated Edison Company of New York, Inc.
- 39-70. Maximum Safe Operating Temperature for 15-Kv Paper-Insulated Cables, C. W. Franklin and E. R. Thomas, Consolidated Edison Company of New York, Inc.
- 39-71. Low Gas Pressure Cable, G. B. Shanklin, General Electric Company

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THURSDAY—Continued

9:30 a.m.—Basic Sciences

(Room One, Fifth Floor)
E. E. DREESE, Presiding

- 39-1. Current Distribution in a Rectangular Conductor, John L. Daley, Yale University
- 39-14. Subharmonics in Circuits Containing Iron-Cored Inductors—II, Irven A. Travis, University of Pennsylvania
- 39-75. The Generalized Solution for the Critical Conditions of the Ferro-resonant Parallel Circuit, William T. Thomson, Kansas State College
- 39-9. Values of the Bessel Functions $ber\ x$ and $bei\ x$ and Their Derivatives, H. B. Dwight, Massachusetts Institute of Technology
(Presentation by title)

9:30 a.m.—Conference on the Teaching of Communication Engineering and Electronics

(Room 603)
JOHN R. MARTIN, Presiding

This conference will be in the nature of informal discussions rather than formal papers and the discussion will be led by both representatives of industry and teachers. It will concern itself with problems encountered in the teaching of this material, especially in relation to industrial personnel and training requirements.

9:30 a.m.—Instruments and Measurements

(Room Two, Fifth Floor)
H. C. KOENIG, Presiding

- 39-23. Sensitivity of the 4-Arm Bridge, A. C. Seletzky and L. A. Zurcher, Case School of Applied Science
- 39-73. An Automatic A-C Potentiometer and Its Applications to Nondestructive Testing of Insulating Equipment, Georg Keinath, Consulting Engineer
- 39-8. An Amplifier-Wattmeter Combination for the Accurate Measurement of Watts and Vars, G. S. Brown and E. F. Cahoon, Massachusetts Institute of Technology
- 39-74. Aluminum - Nickel - Cobalt Brake Magnets for Watthour Meters, Stanley Green, Duncan Electric Manufacturing Company.
- 39-72. Demand Meter Time Periods, P. M. Lincoln and R. R. Sprole, Cornell University

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2:00 p.m.—Experiences from the New England Hurricane of September 21, 1938

(In Auditorium)

H. S. OSBORNE, Presiding

General Review of the Storm and Its Effects,
Walter Weselius, Assistant Director of Disaster
Relief, National Red Cross.

Experiences of the Railroads, Sidney Withington,
Electrical Engineer, New York, New Haven and
Hartford Railroad Company

Experiences of Power Utilities in Long Island,
E. W. Doebler, General Operating Manager,
Long Island Lighting Company

Experiences of Power Utilities in Connecticut,
C. W. Brown, Director of Engineering, The
Connecticut Power Company

Experiences of Power Utilities in Other New
England States, T. H. Haines, Superintendent of
Transmission and Distribution, Boston Edison
Company

Experiences of the Telephone Companies, W. H.
Harrison, Vice-President, American Telephone
and Telegraph Company

General discussion

7:00 p.m.—Dinner-Dance—Buffet Supper

Hotel Roosevelt

Madison Avenue & 45th Street

New York City

PROGRAM

Dinner in the Hendrik Hudson Room.....7:00 p.m.

President's Reception

Dancing in the Grand Ballroom.....9:30—2:00 a.m.

Buffet Supper12:00—2:00 a.m.

Music by GEORGE ELLNER'S ORCHESTRA

Tickets are sold on the following plans:

Dinner and dance.....\$5.00 per person

Dinner, dance, and buffet supper.....\$6.50 per person

Dance and buffet supper.....\$3.00 per person

Please purchase tickets early and indicate names of guests
and desired seating arrangements. (Tables Seat Eight and Ten.)
Make checks payable to "Special Account A.I.E.E."

FRIDAY

Inspection Trips

(See Details, pages 14-16)

Inspection Trips

The following list of inspection trips has been arranged by the committee for the convenience of members and guests during the convention. Detailed information on all trips can be obtained at the Inspection Trips Desk. The committee will also be glad to aid in arranging any special trip for members.

It is suggested that the members register early in the week for the various inspection trips which they expect to attend in order that the necessary detailed arrangements may be completed.

TRIPS ON TUESDAY, JANUARY 24

No. 1. Columbia University Cyclotron — Columbia University

Inspection party will meet at Institute headquarters at 9:45 a.m. in charge of guides and will be conducted to Columbia University at 116th Street and Broadway, returning at 12:30 p.m. Register by 4:00 p.m. Monday and obtain ticket. (No charge, except each member of the party will pay his or her own subway fare). **Note:** An inspection trip is being planned for a later date for members of the New York Section.

No. 2. Jacob Ruppert's Brewery

The inspection party will meet in the lobby of the brewery located at 1639 Third Avenue (92nd Street) at 2:30 p.m. Register by 9:30 a.m. Tuesday and obtain ticket. (No charge.)

No. 3. Fluorescent Lighted Railroad Car and Portable Battery Charging Rectifier—New York Central Railroad Company

The New York Central Railroad Company will have this car available on Track No. 31 at Grand Central Terminal in the afternoon and evening. Members are invited to inspect the car on their way to the Smoker, or at any convenient time. No ticket is necessary, as the convention registration badge will be sufficient identification.

No. 4. Sponsored Broadcast, Consolidated Edison Company of New York, Inc., "Around New York"—NBC Studios

The party attending the broadcast will meet in National Broadcasting Company's Studios, RCA Building, 50th Street between Fifth and Sixth Avenues, at 7:15 p.m.

Note: The doors of the studio will be closed promptly at 7:25 p.m. Only a limited number of tickets are available and due to the conflict in time with the Smoker the available tickets are being assigned to the Ladies' Committee. Those planning to attend the broadcast are urged to register early and obtain ticket. (No charge.)

TRIP ON WEDNESDAY, JANUARY 25

No. 5. Electric Ferry and Fireboat—City of New York

Inspection party will take 1:00 p.m. ferry from the Battery to Staten Island for inspection of the electric ferry boat. Party will return to the Battery at 3:00 p.m. for inspection of the fireboat. Register by 4:00 p.m. Tuesday and obtain ticket. (No charge.)

TRIP ON THURSDAY, JANUARY 26

No. 6. Automatic Substation — Interborough Rapid Transit Company

This substation, built to meet the power requirements for the additional service to the World's Fair, is conveniently reached by subway and may be inspected at any time between the hours of 10:00 a.m. and 12:00 noon. Register by 4:00 p.m. Wednesday and obtain ticket. (No charge.)

TRIPS ON FRIDAY, JANUARY 27

No. 7. Lamp Works, Elevator Factory and Meter Works—Westinghouse Electric and Manufacturing Company—Bloomfield, Jersey City and Newark, N. J.

Inspection party will leave headquarters by bus at 9:15 a.m. and return about 5:30 p.m. Westinghouse Electric and Manufacturing Company will provide transportation and luncheon at the Lamp Works for members taking this inspection trip. This trip is restricted to citizens of the United States. Register by 2:00 p.m. Thursday and obtain ticket. (No charge.)

No. 8. Essex Generating Station—Public Service Electric and Gas Company—Newark, N. J.

Inspection party will leave headquarters by bus at 9:30 a.m., returning at 12:30 p.m. Register by 4:00 p.m. Thursday and obtain ticket. (No charge.)

No. 9. Electrical Testing Laboratories—New York, N.Y.

Inspection party will leave headquarters by taxicab or car at 9:45 a.m. and return about 12:00 noon. Register by 4:00 p.m. Thursday and obtain ticket. (No charge.)

No. 10. New York Stock Exchange

Inspection party will meet at 20 Broad Street at 9:45 a.m. (Additional trips will be arranged at 10:45 a.m., at 12:45 p.m., and at 1:45 p.m., if the demand warrants.) This trip is restricted to **members only** who are citizens of the United States. About two hours will be required for the trip. Register by 4:00 p.m. Thursday and obtain ticket. (No charge.)

No. 11. Western Electric Company Cable and Apparatus Plant—Kearny, N. J.

Inspection party will leave headquarters by bus at 1:30 p.m., returning about 5:30 p.m. Register by 4:00 p.m. Thursday and obtain ticket. (No charge.)

No. 12. Sponsored Broadcast—Cities Service Company

The party attending the broadcast will meet in National Broadcasting Company's Studios, R C A Building, 50th Street between 5th and 6th Avenues, at 7:45 p.m.

Note: The doors of the studio will be closed promptly at 7:55 p.m. Since only a limited number of tickets are available for this broadcast, the members are urged to register early and obtain ticket. (No charge.)

No. 13. Newspaper Plant—Daily News—New York

Inspection party will meet in lobby of the Daily News Building at 220 East 42nd Street (East of Third Avenue), at 7:00 p.m. and be conducted through plant by guides (one hour). Register by 4:00 p.m. Friday and obtain ticket. (No charge.)

No. 14. Trip to World's Fair

Inspection party will leave headquarters by bus at 9:00 a.m. and return about 12:30 p.m. Register by 10:00 a.m. Thursday and obtain ticket. (\$.75.)

SATURDAY, JANUARY 28

The "Monarch of Bermuda" sails from New York at 3:00 p.m. on a post-convention cruise to Bermuda. The party will return about nine in the morning on February 3. For information and reservations consult Leon V. Arnold, Cruise Director, 36 Washington Square West, New York City.

DAILY

Tickets at reduced prices will be available at the Inspection Trips Desk, good for a regular tour of the broadcasting studios of the National Broadcasting Company (ticket 40 cents); Hall of Motion, New York Museum of Science and Industry (ticket 20 cents); Television Studio Tour (ticket 40 cents); and Rockefeller Center Observation Tower (ticket 35 cents).

The committee will also be glad to arrange for inspection by individuals or groups of members of any of the Consolidated Edison Company or Brooklyn Edison Company Generating Stations at any convenient time.

Winter Convention

LADIES' PROGRAM

(Headquarters—Alcove—Tenth Floor)

Monday, January 23

9:00 a.m.—4:00 p.m.—Registration

Tuesday, January 24

9:00 a.m.—12 noon—Registration

A trip to "The Cloisters" will be arranged for those who wish to go Tuesday morning.

2:00 p.m.—Trip through the Steuben Glass Place, 718 Fifth Avenue (56th Street)

3:30—4:30 p.m.—Tea at the Rainbow Room and a trip to the Tower—courtesy of the Westinghouse Electric & Mfg. Company

5:00 p.m.—Trip through the Museum of Science and Industry—courtesy of the Museum

7:30 p.m.—Consolidated Edison Broadcast—courtesy of the Consolidated Edison Company of New York, Inc.

Wednesday, January 25

10:00 a.m.—Address "Enterprise and Social Progress" by Virgil Jordan and remarks by the President—in the Engineering Auditorium

12:30 p.m.—Reception, West Ballroom, Commodore Hotel

1:00 p.m. Annual Luncheon

2:00 p.m.—Fashion Show—courtesy of the Tailored Woman—followed by bridge. Cards donated by the General Electric Company; pencils, tables and score pads by the Bell Telephone Laboratories, Inc.

8:15 p.m.—Edison and John Fritz Medal Presentations in the Engineering Auditorium

Thursday, January 26

10:30 a.m.—Meet at the Engineering Building for a trip and to the Bache Museum or at the home of

1:30 p.m. Mr. Bache, 814 Fifth Avenue, at 11:00 a.m. or 2:00 p.m.

Please be prompt for all these events. Since the ladies are guests of these people they should not be late.

7:00 p.m.—Dinner-dance at the Roosevelt Hotel

The Board of Governors of the Engineering Woman's Club extends the courtesies of the club to all attending the annual meeting. It is located at 126 East 35th Street, New York. Luncheon \$.65, dinner \$1.35.

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Winter Convention

1939 Winter Convention Committees

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E. G. D. Paterson	W. R. Van Steenburgh

COMMITTEE MEETINGS

Monday, January 23

	Room
2:00 P.M.—National Nominating	1001
4:00 P.M.—Planning and Coordination	1001
4:00 P.M.—Research	1101

Tuesday, January 24

9:30 A.M.—Sections	1101
10:00 A.M.—Automatic Stations	903
10:00 A.M.—Lamme Medal	1001
10:00 A.M.—Transportation.....	ASCE Board Room, 15th Floor
12:00 Noon—Lightning Arrester Subcommittee—Luncheon.	
12:30 P.M.—Power Generation—Luncheon.....	Engineers' Club
2:00 P.M.—Board of Directors	1001
2:00 P.M.—Power Transmission and Distribution.....	1101
4:30 P.M.—Communication.....	ASCE Board Room, 15th Floor
4:30 P.M.—Electrochemistry and Electrometallurgy.....	903

Wednesday, January 25

9:00 A.M.—Transformer Subcommittee	903
9:30 A.M.—Resistance Welding Section, Welding.....	
Research Committee, Engineering Foundation.....	1101
2:00 P.M.—Basic Sciences	1101
2:00 P.M.—Instruments and Test Codes.....	1105
2:00 P.M.—Membership	1001

Thursday, January 26

9:30 A.M.—Electric Welding	1001
9:30 A.M.—Safety	903
12:30 P.M.—Student Branches—Luncheon.....	
Town Hall Club, 123 W. 43rd Street	

Friday, January 27

9:30 A.M.—Technical Program	1001
10:00 A.M.—Protective Devices	1101